Appendix A. Emissions Calculations

Table A5.3-1. Project Emissions Summary
PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Average Daily Emissions (lbs/day)[a]						Annual Emissions (metric tons/year)[c]
	ROG	CO	NOx	SOx	PM_{10}[b]	$PM_{2.5}$[b]	CO_2e
Project Emissions							
Construction Year 2026	15.4	119	48.5	2.89	7.0	22.1	436
Construction Year 2027	16.4	106	96	9.0	10.1	18.4	2,471
Construction Year 2028	5.02	25.5	22.2	2.53	2.3	1.3	608
Construction Year 2029	0.00	0.04	0.07	0.00	0.03	0.01	4.45
Construction Year 2030	0.00	0.03	0.04	0.00	0.02	0.01	0.72
Maximum Average Daily Emissions (lbs/day)	**16.4**	**119**	**96**	**9.0**	**10.1**	**22.1**	**NA**
BAAQMD Significance Threshold (lbs/day)	**54**	**NA**	**54**	**NA**	**82**	**54**	**NA**
30-Year Amortized Emissions (metric tons/year)[d]	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**131**
SCAQMD Significance Threshold (metric tons/year)	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**10,000**
Exceeds Threshold (Y/N)?	**N**	**N**	**Y**	**N**	**N**	**N**	**N**
Phase	**Emissions (lbs/phase)[e]**						**Emissions (metric tons/ phase)[e]**
Phase/Activity #1 - Rebuild Lines Overhead and Remove Existing East of Estates Dr							
1-1: ROW Clearing	364	2,781	84.5	0.61	17.8	8.11	28.6
1-2: Roads and Access	4.66	67.2	45.1	0.26	66.0	549	12.5
1-3: Guard Structures	37.5	304	299	1.72	55.6	21.0	81.1
1-4: Foundations	25.6	526	340	1.40	114.6	806	68.4
1-5: Structures Replacement	559	2,238	3,453	808	248	1,373	491
1-6: Transition Structures - South of Park	6.28	53.6	61.1	0.21	4.89	2.85	9.95
1-7: Transition Structures - North of Park	6.28	53.6	61.1	0.21	4.89	2.85	9.95
1-8: Riser Structures	12.6	107	122	0.41	9.77	5.71	19.9
1-9: Conductor Replacement	1,300	5,593	4,904	749	383	258	1,095
1-10: Restoration	0.19	7.72	11.0	0.12	5.57	1.57	5.77
Phase/Activity #1 Total	**2,315**	**11,730**	**9,381**	**1,563**	**910**	**3,028**	**1,822**
2026 Total[f]	**457**	**3,286**	**714**	**117**	**144**	**872**	**133**
2027 Total[f]	**1,301**	**6,040**	**6,554**	**1,125**	**597**	**2,044**	**1,214**
2028 Total[f]	**557**	**2,400**	**2,106**	**321**	**166**	**111**	**471**
2029 Total[f]	**0.10**	**3.86**	**5.52**	**0.06**	**2.79**	**0.78**	**2.88**
2030 Total[f]	**0.02**	**0.97**	**1.38**	**0.01**	**0.70**	**0.20**	**0.72**

Table A5.3-1. Project Emissions Summary
PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Average Daily Emissions (lbs/day)[a]						Annual Emissions (metric tons/year)[c]
	ROG	CO	NOx	SOx	PM_{10}[b]	$PM_{2.5}$[b]	CO_2e
Phase/Activity #2 - Rebuild Western Extent of Lines as Underground - West of Estates Dr							
2-1: Mobilization and Survey	5.62	82.3	5.86	0.21	21.4	5.55	9.66
2-2: Vaults	195	1,552	1,322	5.86	97.5	56.1	283
2-3: Trenching and Duct Bank	755	7,103	5,072	21.9	503	242	1,041
2-4: Cable Installation and Splicing	36.0	495	280	1.63	124	39.7	74.0
2-5: Cable System Comissioning and Testing	0.7	39	4	0.17	19	4.9	8.0
2-6: Restoration and Paving	10.2	155	89.5	0.33	24.8	9.54	15.8
2-7: Inspections	0.59	48.2	3.12	0.20	23.8	6.06	9.12
2-8: Truck Drivers/Hauling	3.23	15.2	360	3.00	87.9	27.3	150
2-9: Replant/Water Landscape Trees	0.10	2.36	8.26	0.08	2.82	0.83	3.77
Phase/Activity #2 Total	**1,007**	**9,491**	**7,145**	**33.4**	**904**	**393**	**1,594**
2026 Total[f]	**197**	**1,791**	**1,352**	**6.33**	**155**	**69.9**	**303**
2027 Total[f]	**795**	**7,463**	**5,675**	**26.1**	**675**	**301**	**1,249**
2028 Total[f]	**14.4**	**236**	**114**	**0.87**	**72**	**21.6**	**40**
2029 Total[f]	**0.04**	**0.98**	**3.44**	**0.03**	**1.17**	**0.35**	**1.57**
2030 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Phase/Activity #3 - Remove Existing Structures and Conductors West of Estates Dr							
3-1: ROW Clearing	5.65	51.4	1.94	0.02	0.51	0.19	0.72
3-2: Structure Removal	64.2	537	607	1.81	34.3	25.0	87.1
3-3: Restoration	0.02	1.23	0.57	0.01	0.62	0.16	0.43
Phase/Activity #3 Total	**69.8**	**590**	**609**	**1.84**	**35.5**	**25.4**	**88.3**
2026 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2027 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2028 Total[f]	**69.8**	**590**	**609**	**1.84**	**35.5**	**25.4**	**88.3**
2029 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2030 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Phase/Activity #4a - Construction Activities at Moraga Substation							
4a-1: Equipment Delivery and Setup	0.01	0.08	0.07	0.00	0.04	0.01	0.04
4a-2: Equipment Installation	0.07	5.63	0.36	0.02	2.78	0.71	2.24
4a-3: Dress/Test/Wire Equipment	0.07	5.63	0.36	0.02	2.78	0.71	2.24
4a-4: Equipment Removal	0.01	0.08	0.07	0.00	0.04	0.01	0.04
4a-5: Inspections	0.02	1.41	0.09	0.01	0.70	0.18	0.27
Phase/Activity #4a Total	**0.17**	**12.8**	**0.96**	**0.05**	**6.35**	**1.62**	**4.83**

Table A5.3-1. Project Emissions Summary
PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Average Daily Emissions (lbs/day)[a]						Annual Emissions (metric tons/year)[c]
	ROG	CO	NOx	SOx	PM_{10}[b]	$PM_{2.5}$[b]	CO_2e
2026 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2027 Total[f]	**0.15**	**7.52**	**1.06**	**0.03**	**3.32**	**0.87**	**2.71**
2028 Total[f]	**0.11**	**6.62**	**0.75**	**0.03**	**3.07**	**0.79**	**2.20**
2029 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2030 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Phase/Activity #4b - Construction Activities at Oakland X Substation							
4b-1: Equipment Delivery and Setup	0.08	1.41	0.77	0.00	0.22	0.08	0.16
4b-2: Equipment Installation	0.37	29.3	1.98	0.12	13.9	3.55	5.55
4b-3: Dress/Test/Wire Equipment	0.18	14.6	0.99	0.06	6.96	1.77	2.77
4b-4: Equipment Removal	0.01	0.08	0.07	0.00	0.04	0.01	0.04
4b-5: Inspections	0.14	10.11	0.78	0.04	4.19	1.07	1.93
Phase/Activity #4b Total	**0.79**	**55.5**	**4.59**	**0.23**	**25.3**	**6.48**	**10.5**
2026 Total[f]	**ary**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2027 Total[f]	**0.36**	**23.4**	**2.25**	**0.09**	**10.7**	**2.74**	**4.33**
2028 Total[f]	**0.42**	**32.1**	**2.34**	**0.13**	**14.7**	**3.74**	**6.13**
2029 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2030 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] To facilitate comparison to the BAAQMD's significance thresholds, the project's annual construction emissions were divided by the maximum number of days construction activity would occur during the year, as determined using the schedule depicted in Appendix A, Table 3.

[b] PM_{10} and $PM_{2.5}$ emissions represent both exhaust and fugitive dust emissions, even though the BAAQMD's significance thresholds are specific to exhaust.

[c] GHG emissions are evaluated on an annual basis. Therefore, emissions presented are the sum of all emissions occurring within a given year, regardless of whether an activity is occurring sequentially or concurrently during that year.

[d] To facilitate comparison to the SCAQMD's significance threshold, the project's total construction emissions were divided by 30 years and added to the project's operation emissions, which are estimated in Appendix A, Table 16.

[e] Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.

[f] Emissions were allotted to specific years based on the schedule depicted in Appendix A, Table 3, as summarized below:

Total Days:	458
Total Months:	43
Months per Year:	
Construction Year 2026 =	4
Construction Year 2027 =	12
Construction Year 2028 =	12
Construction Year 2029 =	12
Construction Year 2030 =	3

NA = Not available (i.e., no significance threshold exists)

Table A5.3-2. Project Emissions Summary with Applicant-Proposed Measures[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Average Daily Emissions (lbs/day)[a]						Annual Emissions (metric tons/year)[c]
	ROG	CO	NOx	SOx	PM_{10}[b]	$PM_{2.5}$[b]	CO_2e
Project Emissions							
Construction Year 2026	15.4	119	23.9	2.89	5.9	11.2	436
Construction Year 2027	16.4	106	49	9.0	9.3	10.7	2,471
Construction Year 2028	5.02	25.5	11.7	2.53	2.3	1.3	608
Construction Year 2029	0.00	0.04	0.07	0.00	0.03	0.01	4.45
Construction Year 2030	0.00	0.03	0.04	0.00	0.02	0.01	0.72
Maximum Average Daily Emissions (lbs/day)	**16.4**	**119**	**49**	**9.0**	**9.3**	**11.2**	**NA**
BAAQMD Significance Threshold (lbs/day)	**54**	**NA**	**54**	**NA**	**82**	**54**	**NA**
30-Year Amortized Emissions (metric tons/year)[d]	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**131**
SCAQMD Significance Threshold (metric tons/year)	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**10,000**
Exceeds Threshold (Y/N)?	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Phase	**Emissions (lbs/phase)[e]**						**Emissions (metric tons/ phase)[e]**
Phase/Activity #1 - Rebuild Lines Overhead and Remove Existing East of Estates Dr							
1-1: ROW Clearing	364	2,781	84.5	0.61	17.8	8.11	28.6
1-2: Roads and Access	4.66	67.2	39.6	0.26	34.5	249	12.5
1-3: Guard Structures	37.5	304	210	1.72	55.6	21.0	81.1
1-4: Foundations	25.6	526	220	1.40	71.2	371	68.4
1-5: Structures Replacement	559	2,238	1,755	808	177	665	491
1-6: Transition Structures - South of Park	6.28	53.6	13.0	0.21	4.89	2.85	9.95
1-7: Transition Structures - North of Park	6.28	53.6	13.0	0.21	4.89	2.85	9.95
1-8: Riser Structures	12.6	107	26	0.41	9.77	5.71	19.9
1-9: Conductor Replacement	1,300	5,593	2,985	749	383	253	1,095
1-10: Restoration	0.19	7.72	11.0	0.12	5.57	1.57	5.77
Phase/Activity #1 Total	**2,315**	**11,730**	**5,356**	**1,563**	**765**	**1,581**	**1,822**
2026 Total[f]	**457**	**3,286**	**436**	**117**	**96**	**408**	**133**
2027 Total[f]	**1,301**	**6,040**	**3,630**	**1,125**	**499**	**1,062**	**1,214**
2028 Total[f]	**557**	**2,400**	**1,283**	**321**	**166**	**109**	**471**
2029 Total[f]	**0.10**	**3.86**	**5.52**	**0.06**	**2.79**	**0.78**	**2.88**
2030 Total[f]	**0.02**	**0.97**	**1.38**	**0.01**	**0.70**	**0.20**	**0.72**

Table A5.3-2. Project Emissions Summary with Applicant-Proposed Measures[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Average Daily Emissions (lbs/day)[a]						Annual Emissions (metric tons/year)[c]
	ROG	CO	NOx	SOx	PM_{10}[b]	$PM_{2.5}$[b]	CO_2e
Phase/Activity #2 - Rebuild Western Extent of Lines as Underground - West of Estates Dr							
2-1: Mobilization and Survey	5.62	82.3	5.86	0.21	21.4	5.55	9.66
2-2: Vaults	195	1,552	437	5.86	97.5	56.1	283
2-3: Trenching and Duct Bank	755	7,103	2,226	21.9	503	242	1,041
2-4: Cable Installation and Splicing	36.0	495	239	1.63	124	39.7	74.0
2-5: Cable System Comissioning and Testing	0.7	39	4	0.17	19	4.9	8.0
2-6: Restoration and Paving	10.2	155	89.5	0.33	24.8	9.54	15.8
2-7: Inspections	0.59	48.2	3.12	0.20	23.8	6.06	9.12
2-8: Truck Drivers/Hauling	3.23	15.2	360	3.00	87.9	27.3	150
2-9: Replant/Water Landscape Trees	0.10	2.36	8.26	0.08	2.82	0.83	3.77
Phase/Activity #2 Total	**1,007**	**9,491**	**3,375**	**33.4**	**904**	**393**	**1,594**
2026 Total[f]	**197**	**1,791**	**583**	**6.33**	**155**	**69.9**	**303**
2027 Total[f]	**795**	**7,463**	**2,689**	**26.1**	**675**	**301**	**1,249**
2028 Total[f]	**14.4**	**236**	**99**	**0.87**	**72**	**21.6**	**40**
2029 Total[f]	**0.04**	**0.98**	**3.44**	**0.03**	**1.17**	**0.35**	**1.57**
2030 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Phase/Activity #3 - Remove Existing Structures and Conductors West of Estates Dr							
3-1: ROW Clearing	5.65	51.4	1.94	0.02	0.51	0.19	0.72
3-2: Structure Removal	64.2	537	103	1.81	34.3	25.0	87.1
3-3: Restoration	0.02	1.23	0.57	0.01	0.62	0.16	0.43
Phase/Activity #3 Total	**69.8**	**590**	**106**	**1.84**	**35.5**	**25.4**	**88.3**
2026 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2027 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2028 Total[f]	**69.8**	**590**	**106**	**1.84**	**35.5**	**25.4**	**88.3**
2029 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2030 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Phase/Activity #4a - Construction Activities at Moraga Substation							
4a-1: Equipment Delivery and Setup	0.01	0.08	0.07	0.00	0.04	0.01	0.04
4a-2: Equipment Installation	0.07	5.63	0.36	0.02	2.78	0.71	2.24
4a-3: Dress/Test/Wire Equipment	0.07	5.63	0.36	0.02	2.78	0.71	2.24
4a-4: Equipment Removal	0.01	0.08	0.07	0.00	0.04	0.01	0.04
4a-5: Inspections	0.02	1.41	0.09	0.01	0.70	0.18	0.27
Phase/Activity #4a Total	**0.17**	**12.8**	**0.96**	**0.05**	**6.35**	**1.62**	**4.83**
2026 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table A5.3-2. Project Emissions Summary with Applicant-Proposed Measures[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Average Daily Emissions (lbs/day)[a]						Annual Emissions (metric tons/year)[c]
	ROG	CO	NOx	SOx	PM_{10}[b]	$PM_{2.5}$[b]	CO_2e
2027 Total[f]	**0.15**	**7.52**	**1.06**	**0.03**	**3.32**	**0.87**	**2.71**
2028 Total[f]	**0.11**	**6.62**	**0.75**	**0.03**	**3.07**	**0.79**	**2.20**
2029 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2030 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Phase/Activity #4b - Construction Activities at Oakland X Substation							
4b-1: Equipment Delivery and Setup	0.08	1.41	0.77	0.00	0.22	0.08	0.16
4b-2: Equipment Installation	0.37	29.3	1.98	0.12	13.9	3.55	5.55
4b-3: Dress/Test/Wire Equipment	0.18	14.6	0.99	0.06	6.96	1.77	2.77
4b-4: Equipment Removal	0.01	0.08	0.07	0.00	0.04	0.01	0.04
4b-5: Inspections	0.14	10.11	0.78	0.04	4.19	1.07	1.93
Phase/Activity #4b Total	**0.79**	**55.5**	**4.59**	**0.23**	**25.3**	**6.48**	**10.5**
2026 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2027 Total[f]	**0.36**	**23.4**	**2.25**	**0.09**	**10.7**	**2.74**	**4.33**
2028 Total[f]	**0.42**	**32.1**	**2.34**	**0.13**	**14.7**	**3.74**	**6.13**
2029 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
2030 Total[f]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] To facilitate comparison to the BAAQMD's significance thresholds, the project's annual construction emissions were divided by the maximum number of days construction activity would occur during the year, as determined using the schedule depicted in Appendix A, Table 3.

[b] PM_{10} and $PM_{2.5}$ emissions represent both exhaust and fugitive dust emissions, even though the BAAQMD's significance thresholds are specific to exhaust.

[c] GHG emissions are evaluated on an annual basis. Therefore, emissions presented are the sum of all emissions occurring within a given year, regardless of whether an activity is occurring sequentially or concurrently during that year.

[d] To facilitate comparison to the SCAQMD's significance threshold, the project's total construction emissions were divided by 30 years and added to the project's operation emissions, which are estimated in Appendix A, Table 16.

[e] Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.

[f] Emissions were allotted to specific years based on the schedule depicted in Appendix A, Table 3, as summarized below:

Total Days:	458
Total Months:	43
Months per Year:	
Construction Year 2026 =	4
Construction Year 2027 =	12
Construction Year 2028 =	12
Construction Year 2029 =	12
Construction Year 2030 =	3

[g] Emissions incorporate Applicant-proposed Measures to reduce fugitive dust and construction equipment exhaust emissions, as applicable.

NA = Not available (i.e., no significance threshold exists)

Table A5.3-3. Preliminary Construction Schedule[a]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Duration (Days)[b]	2026												2027											
		Months in which Activity Occurs												Months in which Activity Occurs											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Rebuild Lines Overhead and Remove Existing (East of Estates Dr)																									
ROW Clearing (vegetation, tree trimming)	30										X	X													
Roads and Access (Construction Areas, Pulling Sites, Light Road Improvements, rocking, shaker plates)	25											X													
Guard Structures	47												X	X	X	X	X	X	X						
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)	135												X	X	X	X	X	X	X						
Structures Replacement (Poles and Towers)	135												X	X	X	X	X	X	X						
Transition Structures Estates/Park - South of Park (C3/C4)	10																		X						
Transition Structures Estates/Park - North of Park (C1/C2)	10																			X					
Riser Structures at Oakland X	20																				X				
Conductor Replacement	133																					X	X	X	X
Restoration (inc. SWPPP inspections)	26																								
Rebuild Western Extent of Lines as Underground (West of Estates Dr)																									
Mobilization and Survey (Construction Marking)	30									X	X														
Vaults - C1/C2	60											X	X	X											
Vaults - C3/C4	60																	X	X	X					
Trenching and Duct Bank - C1/C2	120											X	X	X	X	X	X								
Trenching and Duct Bank - C3/C4	120																	X	X	X	X	X	X		
Cable Installation Pulling - C1/C2 (6 segments)	15																				X				
Cable Installation Pulling - C3/C4 (6 segments)	15																								X
Cable Installation Splicing (5 locations) - C1/C2	75																				X	X	X	X	
Cable InstallationSplicing (5 locations) - C3/C4	75																								X
Cable System Commissioning & Testing	15																								
Restoration and Paving	30																X						X		
Inspectors	317											X	X	X	X	X	X	X	X	X	X	X	X	X	X
Truck Drivers/Hauling	122											X	X	X	X	X	X	X	X	X	X	X	X		
Replant/Water Landscape Trees (2 years)	24																							X	X
Remove Existing Structures and Conductors (West of Estates Dr)																									
ROW Clearing	3																								
Structure Removal (Poles and Towers)	40																								
Restoration	5																								
Construction Activities at Moraga Substation																									
Equipment Delivery and Setup	1																						X		
Equipment Installation	40																						X	X	
Dress/Test/Wire Equipment	40																								X
Equipment Removal	1																								
Inspections	20																								
Construction Activities at Oakland X Substation																									
Equipment Delivery and Setup	1																						X		
Equipment Installation	80																						X	X	X
Dress/Test/Wire Equipment	40																								
Equipment Removal	1																								
Inspections	40																								
Maximum Days of Activity per Month[c]	**458**																								

Table A5.3-3. Preliminary Construction Schedule[a]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Duration (Days)[b]	2028												2029											
		Months in which Activity Occurs												Months in which Activity Occurs											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Rebuild Lines Overhead and Remove Existing (East of Estates Dr)																									
ROW Clearing (vegetation, tree trimming)	30																								
Roads and Access (Construction Areas, Pulling Sites, Light Road Improvements, rocking, shaker plates)	25																								
Guard Structures	47																								
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)	135																								
Structures Replacement (Poles and Towers)	135																								
Transition Structures Estates/Park - South of Park (C3/C4)	10																								
Transition Structures Estates/Park - North of Park (C1/C2)	10																								
Riser Structures at Oakland X	20																								
Conductor Replacement	133	X	X	X																					
Restoration (inc. SWPPP inspections)	26				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rebuild Western Extent of Lines as Underground (West of Estates Dr)																									
Mobilization and Survey (Construction Marking)	30																								
Vaults - C1/C2	60																								
Vaults - C3/C4	60																								
Trenching and Duct Bank - C1/C2	120																								
Trenching and Duct Bank - C3/C4	120																								
Cable Installation Pulling - C1/C2 (6 segments)	15																								
Cable Installation Pulling - C3/C4 (6 segments)	15																								
Cable Installation Splicing (5 locations) - C1/C2	75																								
Cable InstallationSplicing (5 locations) - C3/C4	75	X	X	X																					
Cable System Commissioning & Testing	15				X																				
Restoration and Paving	30																								
Inspectors	317	X	X	X	X																				
Truck Drivers/Hauling	122																								
Replant/Water Landscape Trees (2 years)	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Remove Existing Structures and Conductors (West of Estates Dr)																									
ROW Clearing	3					X																			
Structure Removal (Poles and Towers)	40					X	X																		
Restoration	5							X																	
Construction Activities at Moraga Substation																									
Equipment Delivery and Setup	1																								
Equipment Installation	40																								
Dress/Test/Wire Equipment	40	X																							
Equipment Removal	1	X																							
Inspections	20		X																						
Construction Activities at Oakland X Substation																									
Equipment Delivery and Setup	1																								
Equipment Installation	80	X																							
Dress/Test/Wire Equipment	40	X	X																						
Equipment Removal	1		X																						
Inspections	40		X	X																					
Maximum Days of Activity per Month[c]	**458**																								

Table A5.3-3. Preliminary Construction Schedule[a]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Duration (Days)[b]	2030												2026											
		Months in which Activity Occurs												Approximate Days of Activity per Month											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Rebuild Lines Overhead and Remove Existing (East of Estates Dr)																									
ROW Clearing (vegetation, tree trimming)	30																						15	15	
Roads and Access (Construction Areas, Pulling Sites, Light Road Improvements, rocking, shaker plates)	25																							25	
Guard Structures	47																								7
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)	135																								19
Structures Replacement (Poles and Towers)	135																								19
Transition Structures Estates/Park - South of Park (C3/C4)	10																								
Transition Structures Estates/Park - North of Park (C1/C2)	10																								
Riser Structures at Oakland X	20																								
Conductor Replacement	133																								
Restoration (inc. SWPPP inspections)	26	X	X	X																					
Rebuild Western Extent of Lines as Underground (West of Estates Dr)																									
Mobilization and Survey (Construction Marking)	30																					15	15		
Vaults - C1/C2	60																							20	20
Vaults - C3/C4	60																								
Trenching and Duct Bank - C1/C2	120																							20	20
Trenching and Duct Bank - C3/C4	120																								
Cable Installation Pulling - C1/C2 (6 segments)	15																								
Cable Installation Pulling - C3/C4 (6 segments)	15																								
Cable Installation Splicing (5 locations) - C1/C2	75																								
Cable InstallationSplicing (5 locations) - C3/C4	75																								
Cable System Commissioning & Testing	15																								
Restoration and Paving	30																								
Inspectors	317																							18	18
Truck Drivers/Hauling	122																							10	10
Replant/Water Landscape Trees (2 years)	24																								
Remove Existing Structures and Conductors (West of Estates Dr)																									
ROW Clearing	3																								
Structure Removal (Poles and Towers)	40																								
Restoration	5																								
Construction Activities at Moraga Substation																									
Equipment Delivery and Setup	1																								
Equipment Installation	40																								
Dress/Test/Wire Equipment	40																								
Equipment Removal	1																								
Inspections	20																								
Construction Activities at Oakland X Substation																									
Equipment Delivery and Setup	1																								
Equipment Installation	80																								
Dress/Test/Wire Equipment	40																								
Equipment Removal	1																								
Inspections	40																								
Maximum Days of Activity per Month[c]	**458**																					**15**	**15**	**25**	**20**

Table A5.3-3. Preliminary Construction Schedule[a]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Duration (Days)[b]	2027												2028											
		Approximate Days of Activity per Month												Approximate Days of Activity per Month											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Rebuild Lines Overhead and Remove Existing (East of Estates Dr)																									
ROW Clearing (vegetation, tree trimming)	30																								
Roads and Access (Construction Areas, Pulling Sites, Light Road Improvements, rocking, shaker plates)	25																								
Guard Structures	47	7	7	7	7	7	7																		
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)	135	19	19	19	19	19	19																		
Structures Replacement (Poles and Towers)	135	19	19	19	19	19	19																		
Transition Structures Estates/Park - South of Park (C3/C4)	10						10																		
Transition Structures Estates/Park - North of Park (C1/C2)	10							10																	
Riser Structures at Oakland X	20								20																
Conductor Replacement	133									19	19	19	19	19	19	19									
Restoration (inc. SWPPP inspections)	26																1	1	1	1	1	1	1	1	1
Rebuild Western Extent of Lines as Underground (West of Estates Dr)																									
Mobilization and Survey (Construction Marking)	30																								
Vaults - C1/C2	60	20																							
Vaults - C3/C4	60					20	20	20																	
Trenching and Duct Bank - C1/C2	120	20	20	20	20																				
Trenching and Duct Bank - C3/C4	120					20	20	20	20	20	20														
Cable Installation Pulling - C1/C2 (6 segments)	15								15																
Cable Installation Pulling - C3/C4 (6 segments)	15												15												
Cable Installation Splicing (5 locations) - C1/C2	75								19	19	19	19													
Cable InstallationSplicing (5 locations) - C3/C4	75												19	19	19	19									
Cable System Commissioning & Testing	15																15								
Restoration and Paving	30				15						15														
Inspectors	317	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18								
Truck Drivers/Hauling	122	10	10	10	10	10	10	10	10	10	10														
Replant/Water Landscape Trees (2 years)	24											1	1	1	1	1	1	1	1	1	1	1	1	1	1
Remove Existing Structures and Conductors (West of Estates Dr)																									
ROW Clearing	3																	3							
Structure Removal (Poles and Towers)	40																	20	20						
Restoration	5																			5					
Construction Activities at Moraga Substation																									
Equipment Delivery and Setup	1										1														
Equipment Installation	40										20	20													
Dress/Test/Wire Equipment	40												20	20											
Equipment Removal	1													1											
Inspections	20														20										
Construction Activities at Oakland X Substation																									
Equipment Delivery and Setup	1										1														
Equipment Installation	80										20	20	20	20											
Dress/Test/Wire Equipment	40													20	20										
Equipment Removal	1														1										
Inspections	40														20	20									
Maximum Days of Activity per Month[c]	**458**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**18**	**20**	**20**	**5**	**1**	**1**	**1**	**1**	**1**

Table A5.3-3. Preliminary Construction Schedule[a]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Duration (Days)[b]	2029												2030											
		Approximate Days of Activity per Month												Approximate Days of Activity per Month											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Rebuild Lines Overhead and Remove Existing (East of Estates Dr)																									
ROW Clearing (vegetation, tree trimming)	30																								
Roads and Access (Construction Areas, Pulling Sites, Light Road Improvements, rocking, shaker plates)	25																								
Guard Structures	47																								
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)	135																								
Structures Replacement (Poles and Towers)	135																								
Transition Structures Estates/Park - South of Park (C3/C4)	10																								
Transition Structures Estates/Park - North of Park (C1/C2)	10																								
Riser Structures at Oakland X	20																								
Conductor Replacement	133																								
Restoration (inc. SWPPP inspections)	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
Rebuild Western Extent of Lines as Underground (West of Estates Dr)																									
Mobilization and Survey (Construction Marking)	30																								
Vaults - C1/C2	60																								
Vaults - C3/C4	60																								
Trenching and Duct Bank - C1/C2	120																								
Trenching and Duct Bank - C3/C4	120																								
Cable Installation Pulling - C1/C2 (6 segments)	15																								
Cable Installation Pulling - C3/C4 (6 segments)	15																								
Cable Installation Splicing (5 locations) - C1/C2	75																								
Cable InstallationSplicing (5 locations) - C3/C4	75																								
Cable System Commissioning & Testing	15																								
Restoration and Paving	30																								
Inspectors	317																								
Truck Drivers/Hauling	122																								
Replant/Water Landscape Trees (2 years)	24	1	1	1	1	1	1	1	1	1	1														
Remove Existing Structures and Conductors (West of Estates Dr)																									
ROW Clearing	3																								
Structure Removal (Poles and Towers)	40																								
Restoration	5																								
Construction Activities at Moraga Substation																									
Equipment Delivery and Setup	1																								
Equipment Installation	40																								
Dress/Test/Wire Equipment	40																								
Equipment Removal	1																								
Inspections	20																								
Construction Activities at Oakland X Substation																									
Equipment Delivery and Setup	1																								
Equipment Installation	80																								
Dress/Test/Wire Equipment	40																								
Equipment Removal	1																								
Inspections	40																								
Maximum Days of Activity per Month[c]	**458**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									

Table A5.3-3. Preliminary Construction Schedule[a]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase	Duration (Days)[b]	2026												2027											
		Months in which Activity Occurs												Months in which Activity Occurs											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12

[a] This schedule depicts the periods during which construction activities could occur. It is expected that construction activities will actually occur intermittently within the identified periods. The final project construction schedule can only be determined once the Commission's staff issue a full Notice to Proceed, all Applicant-proposed measures and any other environmental mitigation measures have been taken into account, materials needed for construction have been delivered and

[b] Specific notes regarding several of the durations are as follows:

- Activity for Overhead Guard Structures will occur intermittently during the same periods as activity for Overhead Foundations and Structures.
- Activity for Overhead Restoration will occur upfront, and then monthly for 2 years.
- Activity for Underground Restoration and Paving will occur in 2, 15-day segments (one for C1/C2 and one for C3/C4).
- Activity for Underground Inspectors and Truck Drivers/Hauling will be distributed during the period shown.
- Activity for Underground Replant/Water Landscape Trees (2 years) will occur for 2 weeks upfront and then 1 day per month for 2 years.

[c] The maximum days of activity per month was estimated assuming an even distribution of days within the months in which activities are expected to occur.

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[d]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030
ROW Clearing (vegetation, tree trimming)												
10-Cu Dump Truck (remove green waste)	Heavy-duty Diesel	NA	NA	3	30	NA	60	2	0	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	5	30	NA	60	2	0	0	0	0
Chain Saws	Chainsaws	1.86	0.70	10	30	4	NA	2	0	0	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	5	30	4	NA	2	0	0	0	0
Blowers	Leaf Blowers/Vacuums	1.79	0.94	5	30	4	NA	2	0	0	0	0
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	5	30	4	NA	2	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	30	NA	60	2	0	0	0	0
Roads and Access: Construction Areas, Pulling Sites, Light Road Improvements for 3 of 12 miles												
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	10	NA	45	1	0	0	0	0
4,000 Gallon Water Truck	Medium-duty Diesel	NA	NA	2	25	NA	50	1	0	0	0	0
¾-Ton Pick-up Truck, 4 × 4 (stand by fire crew)	Heavy-duty Truck	NA	NA	1	10	NA	30	1	0	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	2	4	NA	30	1	0	0	0	0
Skid Steer	Skid Steer Loaders	71	0.37	1	10	5	NA	1	0	0	0	0
325 Excavator	Excavators	36	0.38	1	10	5	NA	1	0	0	0	0
Skip Loader	Rubber Tired Loaders	150	0.36	1	15	5	NA	1	0	0	0	0
D6 Dozer	Tractors/Loaders/Backhoes	84	0.37	1	10	5	NA	1	0	0	0	0
Fugitive Dust	Grading	NA	NA	[m]	25	NA	NA	1	0	0	0	0
Worker Commutes (3/4-ton pick-up)	Heavy-duty Truck	NA	NA	4	25	NA	50	1	0	0	0	0
Light Duty Truck (inspectors)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	1	0	0	0	0
Guard Structures												
Digger Derrick Line Truck	Heavy-duty Diesel	NA	NA	2	47	NA	30	1	6	0	0	0
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	1	47	8	NA	1	6	0	0	0
20,000 Pound Capacity Forklift	Forklifts	82	0.20	1	47	8	NA	1	6	0	0	0
Super Framer 10 Wheel Flat Bed	Heavy-duty Diesel	NA	NA	1	47	NA	1	1	6	0	0	0
Heavy-Duty Vac Truck	Heavy-duty Diesel	NA	NA	2	47	NA	1	1	6	0	0	0
Generator	Generator Sets	14	0.74	1	47	8	NA	1	6	0	0	0
Flasher Board for Traffic Control	Signal Boards	6	0.82	2	47	8	NA	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	47	NA	50	1	6	0	0	0
Worker Commutes[g]	Medium-duty Diesel	NA	NA	8	47	NA	50	1	6	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	4	47	NA	50	1	6	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	6	47	NA	30	1	6	0	0	0
1-Ton Crew Cab Pickup	Heavy-duty Truck	NA	NA	4	47	NA	30	1	6	0	0	0
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)												
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	135	NA	45	1	6	0	0	0
Auger Truck[h]	Bore/Drill Rigs	83	0.50	1	15	8	NA	1	6	0	0	0
10-Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	15	NA	75	1	6	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	30	1	6	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	135	NA	30	1	6	0	0	0
Skid Steer/Front Loader[h]	Skid Steer Loaders	71	0.37	1	135	8	NA	1	6	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	1	135	NA	15	1	6	0	0	0
Backhoe/Front Loader	Tractors/Loaders/Backhoes	84	0.37	1	135	8	NA	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	1	6	0	0	0

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[d]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment, g/mile for vehicles, and g/LTO for helicopters)[k]						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
ROW Clearing (vegetation, tree trimming)														
10-Cu Dump Truck (remove green waste)	Heavy-duty Diesel	NA	NA	3	30	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Boom Truck	Heavy-duty Diesel	NA	NA	5	30	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Chain Saws	Chainsaws	1.86	0.70	10	30	4	NA	47.48	128.98	1.45	0.01	0.41	0.55	694.41
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	5	30	4	NA	15.90	278.24	2.11	0.01	0.01	0.01	647.75
Blowers	Leaf Blowers/Vacuums	1.79	0.94	5	30	4	NA	40.08	135.48	0.64	0.01	0.44	0.58	908.57
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	5	30	4	NA	14.81	304.46	4.86	0.01	0.08	0.10	812.30
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	30	NA	60	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Roads and Access: Construction Areas, Pulling Sites, Light Road Improvements for 3 of 12 miles														
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	10	NA	45	0.02	0.08	1.80	0.02	3.32	29.08	1,659.19
4,000 Gallon Water Truck	Medium-duty Diesel	NA	NA	2	25	NA	50	0.02	0.10	1.02	0.01	2.96	26.15	1,189.11
¾-Ton Pick-up Truck, 4 × 4 (stand by fire crew)	Heavy-duty Truck	NA	NA	1	10	NA	30	0.09	0.74	0.63	0.01	4.72	43.54	775.74
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	2	4	NA	30	0.02	0.08	1.80	0.02	4.76	43.55	1,659.19
Skid Steer	Skid Steer Loaders	71	0.37	1	10	5	NA	0.13	3.25	1.81	0.01	0.05	0.05	530.34
325 Excavator	Excavators	36	0.38	1	10	5	NA	0.39	4.22	3.41	0.01	0.10	0.09	589.12
Skip Loader	Rubber Tired Loaders	150	0.36	1	15	5	NA	0.21	3.29	1.40	0.01	0.07	0.07	528.13
D6 Dozer	Tractors/Loaders/Backhoes	84	0.37	1	10	5	NA	0.18	3.48	1.89	0.01	0.06	0.06	531.42
Fugitive Dust	Grading	NA	NA	[m]	25	NA	NA	--	--	--	--	1.54	0.17	--
Worker Commutes (3/4-ton pick-up)	Heavy-duty Truck	NA	NA	4	25	NA	50	0.09	0.74	0.63	0.01	2.99	26.17	775.74
Light Duty Truck (inspectors)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.01	0.64	0.04	0.00	2.91	26.13	266.53
Guard Structures														
Digger Derrick Line Truck	Heavy-duty Diesel	NA	NA	2	47	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	1	47	8	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
20,000 Pound Capacity Forklift	Forklifts	82	0.20	1	47	8	NA	0.25	3.58	2.34	0.01	0.11	0.10	528.81
Super Framer 10 Wheel Flat Bed	Heavy-duty Diesel	NA	NA	1	47	NA	1	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Heavy-Duty Vac Truck	Heavy-duty Diesel	NA	NA	2	47	NA	1	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Generator	Generator Sets	14	0.74	1	47	8	NA	0.54	2.86	4.32	0.01	0.17	0.16	570.39
Flasher Board for Traffic Control	Signal Boards	6	0.82	2	47	8	NA	0.55	3.47	4.14	0.01	0.16	0.15	570.37
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	47	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes[g]	Medium-duty Diesel	NA	NA	8	47	NA	50	0.02	0.10	1.02	0.01	0.37	0.10	1,189.11
Worker Commutes	Light-duty Truck	NA	NA	4	47	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	6	47	NA	30	0.09	0.74	0.63	0.01	0.40	0.12	775.74
1-Ton Crew Cab Pickup	Heavy-duty Truck	NA	NA	4	47	NA	30	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)														
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	135	NA	45	0.02	0.08	1.80	0.02	0.97	5.51	1,659.19
Auger Truck[h]	Bore/Drill Rigs	83	0.50	1	15	8	NA	0.13	3.25	1.64	0.01	0.04	0.04	531.52
10-Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	15	NA	75	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	30	0.09	0.74	0.63	0.01	1.20	8.17	775.74
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	135	NA	30	0.02	0.08	1.80	0.02	1.24	8.19	1,659.19
Skid Steer/Front Loader[h]	Skid Steer Loaders	71	0.37	1	135	8	NA	0.13	3.25	1.81	0.01	0.05	0.05	530.34
Boom Truck	Heavy-duty Diesel	NA	NA	1	135	NA	15	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Backhoe/Front Loader	Tractors/Loaders/Backhoes	84	0.37	1	135	8	NA	0.18	3.48	1.89	0.01	0.06	0.06	531.42
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	0.01	0.64	0.04	0.00	2.71	24.21	266.53

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[f]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
ROW Clearing (vegetation, tree trimming)													
10-Cu Dump Truck (remove green waste)	Heavy-duty Diesel	NA	NA	3	30	NA	60	0.19	0.90	21.44	0.18	5.24	1.63
Boom Truck	Heavy-duty Diesel	NA	NA	5	30	NA	60	0.32	1.51	35.74	0.30	8.73	2.71
Chain Saws	Chainsaws	1.86	0.70	10	30	4	NA	163.54	444.26	4.99	0.03	1.41	1.89
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	5	30	4	NA	79.56	1,392.30	10.56	0.05	0.05	0.05
Blowers	Leaf Blowers/Vacuums	1.79	0.94	5	30	4	NA	89.20	301.53	1.42	0.02	0.98	1.29
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	5	30	4	NA	31.02	637.67	10.18	0.02	0.17	0.21
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	30	NA	60	0.03	2.53	0.16	0.01	1.25	0.32
Roads and Access: Construction Areas, Pulling Sites, Light Road Improvements for 3 of 12 miles													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	10	NA	45	0.02	0.08	1.79	0.01	3.29	28.85
4,000 Gallon Water Truck	Medium-duty Diesel	NA	NA	2	25	NA	50	0.13	0.53	5.64	0.06	16.30	144.14
¾-Ton Pick-up Truck, 4 × 4 (stand by fire crew)	Heavy-duty Truck	NA	NA	1	10	NA	30	0.06	0.49	0.42	0.00	3.12	28.79
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	2	4	NA	30	0.01	0.04	0.95	0.01	2.52	23.04
Skid Steer	Skid Steer Loaders	71	0.37	1	10	5	NA	0.39	9.40	5.23	0.01	0.15	0.14
325 Excavator	Excavators	36	0.38	1	10	5	NA	0.59	6.37	5.14	0.01	0.15	0.14
Skip Loader	Rubber Tired Loaders	150	0.36	1	15	5	NA	1.88	29.40	12.48	0.04	0.65	0.60
D6 Dozer	Tractors/Loaders/Backhoes	84	0.37	1	10	5	NA	0.63	11.93	6.46	0.02	0.22	0.20
Fugitive Dust	Grading	NA	NA	[m]	25	NA	NA	--	--	--	--	2.75	0.30
Worker Commutes (3/4-ton pick-up)	Heavy-duty Truck	NA	NA	4	25	NA	50	0.94	8.14	6.96	0.08	33.01	288.46
Light Duty Truck (inspectors)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.01	0.84	0.05	0.00	3.84	34.56
Guard Structures													
Digger Derrick Line Truck	Heavy-duty Diesel	NA	NA	2	47	NA	30	0.10	0.47	11.20	0.09	2.73	0.85
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	1	47	8	NA	20.84	139.52	119.74	0.59	4.26	3.91
20,000 Pound Capacity Forklift	Forklifts	82	0.20	1	47	8	NA	3.34	48.65	31.84	0.07	1.52	1.40
Super Framer 10 Wheel Flat Bed	Heavy-duty Diesel	NA	NA	1	47	NA	1	0.00	0.01	0.19	0.00	0.05	0.01
Heavy-Duty Vac Truck	Heavy-duty Diesel	NA	NA	2	47	NA	1	0.00	0.02	0.37	0.00	0.09	0.03
Generator	Generator Sets	14	0.74	1	47	8	NA	4.63	24.56	37.13	0.07	1.49	1.37
Flasher Board for Traffic Control	Signal Boards	6	0.82	2	47	8	NA	4.46	28.30	33.79	0.07	1.32	1.22
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	47	NA	50	0.24	19.85	1.29	0.08	9.80	2.50
Worker Commutes[g]	Medium-duty Diesel	NA	NA	8	47	NA	50	0.97	4.01	42.44	0.45	15.21	4.31
Worker Commutes	Light-duty Truck	NA	NA	4	47	NA	50	0.22	15.84	1.23	0.07	6.56	1.68
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	6	47	NA	30	1.59	13.77	11.77	0.14	7.53	2.23
1-Ton Crew Cab Pickup	Heavy-duty Truck	NA	NA	4	47	NA	30	1.06	9.18	7.85	0.09	5.02	1.49
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	135	NA	45	0.22	1.02	24.12	0.20	13.03	73.79
Auger Truck[h]	Bore/Drill Rigs	83	0.50	1	15	8	NA	1.41	35.71	17.99	0.05	0.44	0.41
10-Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	15	NA	75	0.08	0.38	8.93	0.07	2.18	0.68
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	30	1.53	13.18	11.27	0.13	21.48	145.93
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	135	NA	30	0.14	0.68	16.08	0.13	11.07	73.12
Skid Steer/Front Loader[h]	Skid Steer Loaders	71	0.37	1	135	8	NA	8.38	202.97	113.02	0.31	3.19	2.94
Boom Truck	Heavy-duty Diesel	NA	NA	1	135	NA	15	0.07	0.34	8.04	0.07	1.96	0.61
Backhoe/Front Loader	Tractors/Loaders/Backhoes	84	0.37	1	135	8	NA	13.62	257.59	139.49	0.37	4.66	4.29
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	0.07	5.70	0.37	0.02	24.23	216.19

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[d]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[i]				
								CO_2e	2026	2027	2028	2029	2030
ROW Clearing (vegetation, tree trimming)													
10-Cu Dump Truck (remove green waste)	Heavy-duty Diesel	NA	NA	3	30	NA	60	8.96	1	0	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	5	30	NA	60	14.93	1	0	0	0	0
Chain Saws	Chainsaws	1.86	0.70	10	30	4	NA	1.08	1	0	0	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	5	30	4	NA	1.47	1	0	0	0	0
Blowers	Leaf Blowers/Vacuums	1.79	0.94	5	30	4	NA	0.92	1	0	0	0	0
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	5	30	4	NA	0.77	1	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	30	NA	60	0.48	1	0	0	0	0
Roads and Access: Construction Areas, Pulling Sites, Light Road Improvements for 3 of 12 miles													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	10	NA	45	0.75	1	0	0	0	0
4,000 Gallon Water Truck	Medium-duty Diesel	NA	NA	2	25	NA	50	2.97	1	0	0	0	0
¾-Ton Pick-up Truck, 4 × 4 (stand by fire crew)	Heavy-duty Truck	NA	NA	1	10	NA	30	0.23	1	0	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	2	4	NA	30	0.40	1	0	0	0	0
Skid Steer	Skid Steer Loaders	71	0.37	1	10	5	NA	0.70	1	0	0	0	0
325 Excavator	Excavators	36	0.38	1	10	5	NA	0.40	1	0	0	0	0
Skip Loader	Rubber Tired Loaders	150	0.36	1	15	5	NA	2.14	1	0	0	0	0
D6 Dozer	Tractors/Loaders/Backhoes	84	0.37	1	10	5	NA	0.83	1	0	0	0	0
Fugitive Dust	Grading	NA	NA	[m]	25	NA	NA	--	1	0	0	0	0
Worker Commutes (3/4-ton pick-up)	Heavy-duty Truck	NA	NA	4	25	NA	50	3.88	1	0	0	0	0
Light Duty Truck (inspectors)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.16	1	0	0	0	0
Guard Structures													
Digger Derrick Line Truck	Heavy-duty Diesel	NA	NA	2	47	NA	30	4.68	0.14	0.86	0	0	0
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	1	47	8	NA	28.52	0.14	0.86	0	0	0
20,000 Pound Capacity Forklift	Forklifts	82	0.20	1	47	8	NA	3.26	0.14	0.86	0	0	0
Super Framer 10 Wheel Flat Bed	Heavy-duty Diesel	NA	NA	1	47	NA	1	0.08	0.14	0.86	0	0	0
Heavy-Duty Vac Truck	Heavy-duty Diesel	NA	NA	2	47	NA	1	0.16	0.14	0.86	0	0	0
Generator	Generator Sets	14	0.74	1	47	8	NA	2.22	0.14	0.86	0	0	0
Flasher Board for Traffic Control	Signal Boards	6	0.82	2	47	8	NA	2.11	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	47	NA	50	3.76	0.14	0.86	0	0	0
Worker Commutes[g]	Medium-duty Diesel	NA	NA	8	47	NA	50	22.36	0.14	0.86	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	4	47	NA	50	3.02	0.14	0.86	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	6	47	NA	30	6.56	0.14	0.86	0	0	0
1-Ton Crew Cab Pickup	Heavy-duty Truck	NA	NA	4	47	NA	30	4.38	0.14	0.86	0	0	0
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	135	NA	45	10.08	0.14	0.86	0	0	0
Auger Truck[h]	Bore/Drill Rigs	83	0.50	1	15	8	NA	2.65	0.14	0.86	0	0	0
10-Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	15	NA	75	3.73	0.14	0.86	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	30	6.28	0.14	0.86	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	135	NA	30	6.72	0.14	0.86	0	0	0
Skid Steer/Front Loader[h]	Skid Steer Loaders	71	0.37	1	135	8	NA	15.05	0.14	0.86	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	1	135	NA	15	3.36	0.14	0.86	0	0	0
Backhoe/Front Loader	Tractors/Loaders/Backhoes	84	0.37	1	135	8	NA	17.84	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	1.08	0.14	0.86	0	0	0

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[d]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	1	6	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	135	NA	10	1	6	0	0	0
Structures Replacement (Poles and Towers)												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	135	NA	30	1	6	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	135	NA	25	1	6	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	135	NA	25	1	6	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	25	1	6	0	0	0
Hydro Seed Truck	Heavy-duty Diesel	NA	NA	1	20	NA	60	1	6	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	135	5	NA	1	6	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	3	135	8	NA	1	6	0	0	0
Helicopter[b]	UH-60 Blackhawk	NA	NA	3	22	5	NA	1	6	0	0	0
Water Truck[n]	Heavy-duty Diesel	NA	NA	1	22	NA	10	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	1	6	0	0	0
Transition Structures Estates/Park - South of Park (C3/C4)												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0	1	0	0	0
Transition Structures Estates/Park - North of Park (C1/C2)												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0	1	0	0	0
Riser Structures at Oakland X												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	20	NA	30	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	20	NA	25	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	20	NA	25	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	25	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	20	5	NA	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	20	8	NA	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	20	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	20	NA	10	0	1	0	0	0

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[f]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment, g/mile for vehicles, and g/LTO for helicopters)[k]						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.01	0.64	0.04	0.00	2.71	24.21	266.53
Worker Commutes	Light-duty Truck	NA	NA	2	135	NA	10	0.01	0.76	0.06	0.00	2.72	24.21	321.14
Structures Replacement (Poles and Towers)														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	135	NA	30	0.02	0.08	1.80	0.02	1.24	8.19	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	135	NA	25	0.01	0.76	0.06	0.00	1.28	9.74	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	135	NA	25	0.09	0.74	0.63	0.01	1.36	9.78	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	25	0.09	0.74	0.63	0.01	1.36	9.78	775.74
Hydro Seed Truck	Heavy-duty Diesel	NA	NA	1	20	NA	60	0.02	0.08	1.80	0.02	3.14	27.36	1,659.19
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	135	5	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	3	135	8	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
Helicopter[b]	UH-60 Blackhawk	NA	NA	3	22	5	NA	554.33	724.90	575.30	438.00	8.55	8.35	234,198.12
Water Truck[n]	Heavy-duty Diesel	NA	NA	1	22	NA	10	0.02	0.08	1.80	0.02	13.39	130.38	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	0.01	0.64	0.04	0.00	2.71	24.21	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.01	0.64	0.04	0.00	2.71	24.21	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.01	0.64	0.04	0.00	2.71	24.21	266.53
Transition Structures Estates/Park - South of Park (C3/C4)														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.01	0.76	0.06	0.00	0.32	0.08	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Transition Structures Estates/Park - North of Park (C1/C2)														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.01	0.76	0.06	0.00	0.32	0.08	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Riser Structures at Oakland X														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	20	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	20	NA	25	0.01	0.76	0.06	0.00	0.32	0.08	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	20	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	20	5	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	1	20	8	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	20	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	20	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[f]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.05	3.80	0.25	0.02	16.16	144.12
Worker Commutes	Light-duty Truck	NA	NA	2	135	NA	10	0.06	4.55	0.35	0.02	16.16	144.13
Structures Replacement (Poles and Towers)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	135	NA	30	0.43	2.03	48.25	0.40	33.20	219.36
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	135	NA	25	0.16	11.37	0.88	0.05	18.99	144.96
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	135	NA	25	1.27	10.99	9.39	0.11	20.28	145.54
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	25	1.27	10.99	9.39	0.11	20.28	145.54
Hydro Seed Truck	Heavy-duty Diesel	NA	NA	1	20	NA	60	0.04	0.20	4.77	0.04	8.30	72.37
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	135	5	NA	62.72	518.53	581.88	1.58	23.76	21.86
100 - 280 Ton Crane	Cranes	367	0.29	3	135	8	NA	150.52	1,244.47	1,396.51	3.80	57.02	52.45
Helicopter[b]	UH-60 Blackhawk	NA	NA	3	22	5	NA	341.98	425.58	1,400.51	802.30	3.09	3.01
Water Truck[n]	Heavy-duty Diesel	NA	NA	1	22	NA	10	0.01	0.04	0.87	0.01	6.50	63.24
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	0.07	5.70	0.37	0.02	24.23	216.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.05	3.80	0.25	0.02	16.16	144.12
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.05	3.80	0.25	0.02	16.16	144.12
Transition Structures Estates/Park - South of Park (C3/C4)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0.03	0.15	3.57	0.03	0.87	0.27
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.01	0.84	0.07	0.00	0.35	0.09
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.81	0.70	0.01	0.44	0.13
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.81	0.70	0.01	0.44	0.13
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	2.32	19.20	21.55	0.06	0.88	0.81
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	3.72	30.73	34.48	0.09	1.41	1.30
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.01	0.42	0.03	0.00	0.21	0.05
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.00	0.28	0.02	0.00	0.14	0.04
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.00	0.34	0.03	0.00	0.14	0.04
Transition Structures Estates/Park - North of Park (C1/C2)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0.03	0.15	3.57	0.03	0.87	0.27
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.01	0.84	0.07	0.00	0.35	0.09
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.81	0.70	0.01	0.44	0.13
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.81	0.70	0.01	0.44	0.13
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	2.32	19.20	21.55	0.06	0.88	0.81
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	3.72	30.73	34.48	0.09	1.41	1.30
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.01	0.42	0.03	0.00	0.21	0.05
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.00	0.28	0.02	0.00	0.14	0.04
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.00	0.34	0.03	0.00	0.14	0.04
Riser Structures at Oakland X													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	20	NA	30	0.06	0.30	7.15	0.06	1.75	0.54
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	20	NA	25	0.02	1.69	0.13	0.01	0.70	0.18
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	20	NA	25	0.19	1.63	1.39	0.02	0.89	0.26
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	25	0.19	1.63	1.39	0.02	0.89	0.26
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	20	5	NA	4.65	38.41	43.10	0.12	1.76	1.62
100 - 280 Ton Crane	Cranes	367	0.29	1	20	8	NA	7.43	61.46	68.96	0.19	2.82	2.59
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	20	NA	10	0.01	0.84	0.05	0.00	0.42	0.11
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	20	NA	10	0.01	0.56	0.04	0.00	0.28	0.07

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[d]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[f]				
								CO_2e	2026	2027	2028	2029	2030
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.72	0.14	0.86	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	135	NA	10	0.87	0.14	0.86	0	0	0
Structures Replacement (Poles and Towers)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	135	NA	30	20.16	0.14	0.86	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	135	NA	25	2.17	0.14	0.86	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	135	NA	25	5.24	0.14	0.86	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	25	5.24	0.14	0.86	0	0	0
Hydro Seed Truck	Heavy-duty Diesel	NA	NA	1	20	NA	60	1.99	0.14	0.86	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	135	5	NA	76.03	0.14	0.86	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	3	135	8	NA	182.48	0.14	0.86	0	0	0
Helicopter[b]	UH-60 Blackhawk	NA	NA	3	22	5	NA	194.59	0.14	0.86	0	0	0
Water Truck[n]	Heavy-duty Diesel	NA	NA	1	22	NA	10	0.37	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	1.08	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.72	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.72	0.14	0.86	0	0	0
Transition Structures Estates/Park - South of Park (C3/C4)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	1.49	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.16	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.39	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.39	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	2.82	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	4.51	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.08	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.05	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.06	0	1	0	0	0
Transition Structures Estates/Park - North of Park (C1/C2)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	1.49	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.16	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.39	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.39	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	2.82	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	4.51	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.08	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.05	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.06	0	1	0	0	0
Riser Structures at Oakland X													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	20	NA	30	2.99	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	20	NA	25	0.32	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	20	NA	25	0.78	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	25	0.78	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	20	5	NA	5.63	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	20	8	NA	9.01	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	20	NA	10	0.16	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	20	NA	10	0.11	0	1	0	0	0

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[d]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030
Worker Commutes	Light-duty Truck	NA	NA	2	20	NA	10	0	1	0	0	0
Conductor Replacement												
Line Puller	Other Construction Equipment	82	0.42	2	133	8	NA	0	4	3	0	0
Trailer-Mounted Tensioner	Other Construction Equipment	82	0.42	2	133	8	NA	0	4	3	0	0
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	4	133	7	NA	0	4	3	0	0
Transport of 55-foot Bucket Truck[g]	Heavy-duty Diesel	NA	NA	4	133	NA	20	0	4	3	0	0
105-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	0	4	3	0	0
Transport of 105-foot Bucket Truck[g]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0	4	3	0	0
120-foot Crane Truck{f}[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	0	4	3	0	0
Transport of 120-foot Crane Truck[g]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0	4	3	0	0
10,000 Pound Capacity Forklift	Forklifts	82	0.20	1	133	7	NA	0	4	3	0	0
Transport of 10,000 Pound Capacity Forklift[g]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0	4	3	0	0
Generator	Generator Sets	14	0.74	2	133	7	NA	0	4	3	0	0
Transport of Generator [j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0	4	3	0	0
Tractor Trailer (40-foot flatbed) [f]	Off-Highway Trucks	376	0.38	1	133	5	NA	0	4	3	0	0
Transport of Tractor Trailer (40-foot flatbed)[g]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0	4	3	0	0
Light Ship Helicopter[b]	MD500	NA	NA	3	32	6	NA	0	4	3	0	0
Medium-sized Ship Helicopter[b]	407 Long Ranger/Jet	NA	NA	3	32	6	NA	0	4	3	0	0
Water Truck[h]	Heavy-duty Diesel	NA	NA	1	32	NA	10	0	4	3	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	133	NA	50	0	4	3	0	0
Worker Commutes[k]	Medium-duty Diesel	NA	NA	8	133	NA	50	0	4	3	0	0
Worker Commutes	Light-duty Truck	NA	NA	10	133	NA	50	0	4	3	0	0
Truck - Light Duty Pickup	Light-duty Truck	NA	NA	8	133	NA	30	0	4	3	0	0
Crew Cab Heavy Duty Pickup	Heavy-duty Diesel	NA	NA	6	133	NA	30	0	4	3	0	0
Restoration (including SWPPP inspections)												
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	20	NA	60	0	0	9	12	3
Crew Trucks	Light-duty Truck	NA	NA	2	20	NA	60	0	0	9	12	3
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0	0	9	12	3
Worker Commutes - Dry Weather Monthly Insp.	Light-duty Truck	NA	NA	1	6	NA	60	0	0	9	12	3
Worker Commutes - Wet Weather Monthly Insp.	Light-duty Truck	NA	NA	1	26	NA	60	0	0	9	12	3

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[d]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment, g/mile for vehicles, and g/LTO for helicopters)[k]						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Worker Commutes	Light-duty Truck	NA	NA	2	20	NA	10	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Conductor Replacement														
Line Puller	Other Construction Equipment	82	0.42	2	133	8	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
Trailer-Mounted Tensioner	Other Construction Equipment	82	0.42	2	133	8	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	4	133	7	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
Transport of 55-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	4	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
105-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
Transport of 105-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
120-foot Crane Truck{f}[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
Transport of 120-foot Crane Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
10,000 Pound Capacity Forklift	Forklifts	82	0.20	1	133	7	NA	0.25	3.58	2.34	0.01	0.11	0.10	528.81
Transport of 10,000 Pound Capacity Forklift[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Generator	Generator Sets	14	0.74	2	133	7	NA	0.54	2.86	4.32	0.01	0.17	0.16	570.39
Transport of Generator[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Tractor Trailer (40-foot flatbed)[f]	Off-Highway Trucks	376	0.38	1	133	5	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
Transport of Tractor Trailer (40-foot flatbed)[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Light Ship Helicopter[b]	MD500	NA	NA	3	32	6	NA	344.44	457.70	85.10	114.60	1.52	1.48	61,276.50
Medium-sized Ship Helicopter[b]	407 Long Ranger/Jet	NA	NA	3	32	6	NA	278.13	365.50	130.50	141.60	2.13	2.07	75,713.37
Water Truck[n]	Heavy-duty Diesel	NA	NA	1	32	NA	10	0.02	0.08	1.80	0.02	6.92	65.26	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	133	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes[g]	Medium-duty Diesel	NA	NA	8	133	NA	50	0.02	0.10	1.02	0.01	0.37	0.10	1,189.11
Worker Commutes	Light-duty Truck	NA	NA	10	133	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Truck - Light Duty Pickup	Light-duty Truck	NA	NA	8	133	NA	30	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Crew Cab Heavy Duty Pickup	Heavy-duty Diesel	NA	NA	6	133	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Restoration (including SWPPP inspections)														
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	20	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Crew Trucks	Light-duty Truck	NA	NA	2	20	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes - Dry Weather Monthly Insp.	Light-duty Truck	NA	NA	1	6	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Worker Commutes - Wet Weather Monthly Insp.	Light-duty Truck	NA	NA	1	26	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[g]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
Worker Commutes	Light-duty Truck	NA	NA	2	20	NA	10	0.01	0.67	0.05	0.00	0.28	0.07
Conductor Replacement													
Line Puller	Other Construction Equipment	82	0.42	2	133	8	NA	45.56	566.14	441.73	0.81	25.53	23.43
Trailer-Mounted Tensioner	Other Construction Equipment	82	0.42	2	133	8	NA	45.56	566.14	441.73	0.81	25.53	23.43
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	4	133	7	NA	206.45	1,381.83	1,185.93	5.87	42.23	38.71
Transport of 55-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	4	133	NA	20	0.38	1.78	42.25	0.35	10.31	3.21
105-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	103.23	690.91	592.97	2.93	21.11	19.35
Transport of 105-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.19	0.89	21.13	0.18	5.16	1.60
120-foot Crane Truck{f}[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	103.23	690.91	592.97	2.93	21.11	19.35
Transport of 120-foot Crane Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.19	0.89	21.13	0.18	5.16	1.60
10,000 Pound Capacity Forklift	Forklifts	82	0.20	1	133	7	NA	8.28	120.47	78.83	0.17	3.77	3.47
Transport of 10,000 Pound Capacity Forklift[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0.09	0.45	10.56	0.09	2.58	0.80
Generator	Generator Sets	14	0.74	2	133	7	NA	22.92	121.63	183.89	0.34	7.40	6.80
Transport of Generator[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.19	0.89	21.13	0.18	5.16	1.60
Tractor Trailer (40-foot flatbed)[f]	Off-Highway Trucks	376	0.38	1	133	5	NA	36.87	246.75	211.77	1.05	7.54	6.91
Transport of Tractor Trailer (40-foot flatbed)[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0.09	0.45	10.56	0.09	2.58	0.80
Light Ship Helicopter[b]	MD500	NA	NA	3	32	6	NA	389.31	503.22	314.31	320.63	4.95	4.83
Medium-sized Ship Helicopter[b]	407 Long Ranger/Jet	NA	NA	3	32	6	NA	330.07	424.44	497.46	409.40	7.30	7.13
Water Truck[h]	Heavy-duty Diesel	NA	NA	1	32	NA	10	0.01	0.05	1.27	0.01	4.88	46.04
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	133	NA	50	1.15	93.63	6.06	0.38	46.23	11.78
Worker Commutes[a]	Medium-duty Diesel	NA	NA	8	133	NA	50	2.74	11.34	120.09	1.26	43.04	12.18
Worker Commutes	Light-duty Truck	NA	NA	10	133	NA	50	1.53	112.05	8.70	0.46	46.40	11.86
Truck - Light Duty Pickup	Light-duty Truck	NA	NA	8	133	NA	30	0.73	53.79	4.17	0.22	22.27	5.69
Crew Cab Heavy Duty Pickup	Heavy-duty Diesel	NA	NA	6	133	NA	30	0.85	4.01	95.06	0.79	23.21	7.22
Restoration (including SWPPP inspections)													
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	20	NA	60	0.04	0.20	4.77	0.04	1.16	0.36
Crew Trucks	Light-duty Truck	NA	NA	2	20	NA	60	0.06	4.04	0.31	0.02	1.67	0.43
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0.05	0.24	5.72	0.05	1.40	0.43
Worker Commutes - Dry Weather Monthly Insp.	Light-duty Truck	NA	NA	1	6	NA	60	0.01	0.61	0.05	0.00	0.25	0.06
Worker Commutes - Wet Weather Monthly Insp.	Light-duty Truck	NA	NA	1	26	NA	60	0.04	2.63	0.20	0.01	1.09	0.28

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[d]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[i]				
								CO_2e	2026	2027	2028	2029	2030
Worker Commutes	Light-duty Truck	NA	NA	2	20	NA	10	0.13	0	1	0	0	0
Conductor Replacement													
Line Puller	Other Construction Equipment	82	0.42	2	133	8	NA	38.79	0	0.57	0.43	0	0
Trailer-Mounted Tensioner	Other Construction Equipment	82	0.42	2	133	8	NA	38.79	0	0.57	0.43	0	0
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	4	133	7	NA	282.48	0	0.57	0.43	0	0
Transport of 55-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	4	133	NA	20	17.65	0	0.57	0.43	0	0
105-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	141.24	0	0.57	0.43	0	0
Transport of 105-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	8.83	0	0.57	0.43	0	0
120-foot Crane Truck{f}[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	141.24	0	0.57	0.43	0	0
Transport of 120-foot Crane Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	8.83	0	0.57	0.43	0	0
10,000 Pound Capacity Forklift	Forklifts	82	0.20	1	133	7	NA	8.07	0	0.57	0.43	0	0
Transport of 10,000 Pound Capacity Forklift[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	4.41	0	0.57	0.43	0	0
Generator	Generator Sets	14	0.74	2	133	7	NA	11.00	0	0.57	0.43	0	0
Transport of Generator[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	8.83	0	0.57	0.43	0	0
Tractor Trailer (40-foot flatbed)[f]	Off-Highway Trucks	376	0.38	1	133	5	NA	50.44	0	0.57	0.43	0	0
Transport of Tractor Trailer (40-foot flatbed)[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	4.41	0	0.57	0.43	0	0
Light Ship Helicopter[b]	MD500	NA	NA	3	32	6	NA	77.77	0	0.57	0.43	0	0
Medium-sized Ship Helicopter[b]	407 Long Ranger/Jet	NA	NA	3	32	6	NA	99.29	0	0.57	0.43	0	0
Water Truck[h]	Heavy-duty Diesel	NA	NA	1	32	NA	10	0.53	0	0.57	0.43	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	133	NA	50	17.72	0	0.57	0.43	0	0
Worker Commutes[g]	Medium-duty Diesel	NA	NA	8	133	NA	50	63.26	0	0.57	0.43	0	0
Worker Commutes	Light-duty Truck	NA	NA	10	133	NA	50	21.36	0	0.57	0.43	0	0
Truck - Light Duty Pickup	Light-duty Truck	NA	NA	8	133	NA	30	10.25	0	0.57	0.43	0	0
Crew Cab Heavy Duty Pickup	Heavy-duty Diesel	NA	NA	6	133	NA	30	39.72	0	0.57	0.43	0	0
Restoration (including SWPPP inspections)													
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	20	NA	60	1.99	0	0	0.38	0.5	0.13
Crew Trucks	Light-duty Truck	NA	NA	2	20	NA	60	0.77	0	0	0.38	0.5	0.13
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	2.39	0	0	0.38	0.5	0.13
Worker Commutes - Dry Weather Monthly Insp.	Light-duty Truck	NA	NA	1	6	NA	60	0.12	0	0	0.38	0.5	0.13
Worker Commutes - Wet Weather Monthly Insp.	Light-duty Truck	NA	NA	1	26	NA	60	0.50	0	0	0.38	0.5	0.13

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[f]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Hours per Day data provided for the helicopters should represent hours of operation per day for the helicopter. Quantity per day for the helicopters represents the number of LTO cycles per day. It was assumed that one of each type of helicopter would be sufficient for completing construction activities.

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 ton =	2,000	lbs
1 metric ton =	1,000,000	g

[d] PM_{10} and $PM_{2.5}$ emissions include paved and unpaved road fugitive dust emissions associated with onroad and offroad travel, respectively, as follows:

- For Phase 1-2, each truck is expected to travel on unpaved roads for up to:	2	miles per day.		
- For Phase 1-4, each commute truck, dump truck, 4x4, and lowboy truck is expected to travel on unpaved roads for up to:	2	miles per day for	25	days.
- For Phase 1-5, each truck is expected to travel on unpaved roads for up to:	2	miles per day for	25	days (or the entire duration if used for less than 25 days).
- For Phase 1-9, the water truck is expected to travel on unpaved roads for up to:	1	mile per day.		

[e] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] Based on the usage data provided, this vehicle was treated as a construction equipment which will primarily remain onsite.

[g] Light-duty trucks with a power rating > 300 hp were conservatively treated as medium-duty trucks.

[h] Based on the equipment/vehicle type, this equipment/vehicle was assumed to be construction equipment which will primarily remain onsite and operate 8 hours per day.

[i] A number of vehicles and equipment will be used for only a portion of the total duration for each phase.

[j] These equipment will be transported to/from the site each day, with a one-way trip length of 10 miles.

[k] Emission factors associated with hourly operation of the helicopters are provided in Appendix A, Table 15 and are factored into the emissions calculations presented herein.

[l] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[m] Fugitive Dust emissions from Grading activities are a result of smoothing unpaved access roads and were estimated per the details provided below.

[n] One water truck conservatively added to each phase in which helicopters are used to minimize potential dust associated with the helicopter landing zones. It was assumed that each water truck would be used for the same number of days as the helicopters for up to 10 miles per day.

NA = Parameter not required for computing emissions.

Fugitive Dust emissions from Grading

Activity	Year	Area Graded (acres/ phase)[a]	Grader VMT (miles/ phase)[b]	Emission Factors (lb/mile)		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading	2026	2.60	1.78	1.543	0.167	2.8	0.3
Grading	2027	0.00	0.00	1.543	0.167	0.0	0.0
Grading	2028	0.00	0.00	1.543	0.167	0.0	0.0
Grading	2029	0.00	0.00	1.543	0.167	0.0	0.0
Grading	2030	0.00	0.00	1.543	0.167	0.0	0.0

[a] Total area to be graded is as follows, based on the length of access roads to be improved and an assumed roadway width of 20 feet: 2.60 acres.

[b] Vehicle miles traveled by graders estimated as follows, per methodology provided in Section 4.4.1 of Appendix C of the *CalEEMod User's Guide* (ICF 2022):

VMT (mile/phase) = Area Graded (acres/phase) / Wb (ft) X 43,560 (ft^2/acre) / 5,280 (ft/mile), where

Wb is the blade width of the grader; the CalEEMod default for Wb is = 12 ft.

Table A5.3-4. Phase/Activity #1 - Emissions for Rebuild Lines Overhead and Remove Existing East of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[x]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[d]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030

Annual Emissions Summary

Year[x]	Emissions (lbs/year)						Emissions (metric tons/ year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	457	3,286	714	117	144	872	133
2027	1,301	6,040	6,554	1,125	597	2,044	1,214
2028	557	2,400	2,106	321	166	111	471
2029	0.10	3.86	5.52	0.06	2.79	0.78	2.88
2030	0.02	0.97	1.38	0.01	0.70	0.20	0.72

[x] Yearly emissions were estimated using a weight factor based on the schedule and months of activity per year.

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of Estates Dr[n]
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[l]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030
ROW Clearing (vegetation, tree trimming)												
10-Cu Dump Truck (remove green waste)	Heavy-duty Diesel	NA	NA	3	30	NA	60	2	0	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	5	30	NA	60	2	0	0	0	0
Chain Saws	Chainsaws	1.86	0.70	10	30	4	NA	2	0	0	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	5	30	4	NA	2	0	0	0	0
Blowers	Leaf Blowers/Vacuums	1.79	0.94	5	30	4	NA	2	0	0	0	0
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	5	30	4	NA	2	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	30	NA	60	2	0	0	0	0
Roads and Access: Construction Areas, Pulling Sites, Light Road Improvements for 3 of 12 miles												
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	10	NA	45	1	0	0	0	0
4,000 Gallon Water Truck	Medium-duty Diesel	NA	NA	2	25	NA	50	1	0	0	0	0
¾-Ton Pick-up Truck, 4 × 4 (stand by fire crew)	Heavy-duty Truck	NA	NA	1	10	NA	30	1	0	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	2	4	NA	30	1	0	0	0	0
Skid Steer	Skid Steer Loaders	71	0.37	1	10	5	NA	1	0	0	0	0
325 Excavator	Excavators	36	0.38	1	10	5	NA	1	0	0	0	0
Skip Loader	Rubber Tired Loaders	150	0.36	1	15	5	NA	1	0	0	0	0
D6 Dozer	Tractors/Loaders/Backhoes	84	0.37	1	10	5	NA	1	0	0	0	0
Fugitive Dust	Grading	NA	NA	[m]	25	NA	NA	1	0	0	0	0
Worker Commutes (3/4-ton pick-up)	Heavy-duty Truck	NA	NA	4	25	NA	50	1	0	0	0	0
Light Duty Truck (inspectors)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	1	0	0	0	0
Guard Structures												
Digger Derrick Line Truck	Heavy-duty Diesel	NA	NA	2	47	NA	30	1	6	0	0	0
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	1	47	8	NA	1	6	0	0	0
20,000 Pound Capacity Forklift	Forklifts	82	0.20	1	47	8	NA	1	6	0	0	0
Super Framer 10 Wheel Flat Bed	Heavy-duty Diesel	NA	NA	1	47	NA	1	1	6	0	0	0
Heavy-Duty Vac Truck	Heavy-duty Diesel	NA	NA	2	47	NA	1	1	6	0	0	0
Generator	Generator Sets	14	0.74	1	47	8	NA	1	6	0	0	0
Flasher Board for Traffic Control	Signal Boards	6	0.82	2	47	8	NA	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	47	NA	50	1	6	0	0	0
Worker Commutes[k]	Medium-duty Diesel	NA	NA	8	47	NA	50	1	6	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	4	47	NA	50	1	6	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	6	47	NA	30	1	6	0	0	0
1-Ton Crew Cab Pickup	Heavy-duty Truck	NA	NA	4	47	NA	30	1	6	0	0	0
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)												
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	135	NA	45	1	6	0	0	0
Auger Truck[h]	Bore/Drill Rigs	83	0.50	1	15	8	NA	1	6	0	0	0
10-Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	15	NA	75	1	6	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	30	1	6	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	135	NA	30	1	6	0	0	0
Skid Steer/Front Loader[h]	Skid Steer Loaders	71	0.37	1	135	8	NA	1	6	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	1	135	NA	15	1	6	0	0	0
Backhoe/Front Loader	Tractors/Loaders/Backhoes	84	0.37	1	135	8	NA	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	1	6	0	0	0

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of E

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[l]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment, g/mile for vehicles, and g/LTO for helicopters)[k]						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
ROW Clearing (vegetation, tree trimming)														
10-Cu Dump Truck (remove green waste)	Heavy-duty Diesel	NA	NA	3	30	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Boom Truck	Heavy-duty Diesel	NA	NA	5	30	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Chain Saws	Chainsaws	1.86	0.70	10	30	4	NA	47.48	128.98	1.45	0.01	0.41	0.55	694.41
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	5	30	4	NA	15.90	278.24	2.11	0.01	0.01	0.01	647.75
Blowers	Leaf Blowers/Vacuums	1.79	0.94	5	30	4	NA	40.08	135.48	0.64	0.01	0.44	0.58	908.57
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	5	30	4	NA	14.81	304.46	4.86	0.01	0.08	0.10	812.30
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	30	NA	60	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Roads and Access: Construction Areas, Pulling Sites, Light Road Improvements for 3 of 12 miles														
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	10	NA	45	0.02	0.08	1.80	0.02	1.73	13.16	1,659.19
4,000 Gallon Water Truck	Medium-duty Diesel	NA	NA	2	25	NA	50	0.02	0.10	1.02	0.01	1.53	11.82	1,189.11
¾-Ton Pick-up Truck, 4 × 4 (stand by fire crew)	Heavy-duty Truck	NA	NA	1	10	NA	30	0.09	0.74	0.63	0.01	2.34	19.65	775.74
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	2	4	NA	30	0.02	0.08	1.80	0.02	2.37	19.67	1,659.19
Skid Steer	Skid Steer Loaders	71	0.37	1	10	5	NA	0.13	3.25	1.81	0.01	0.05	0.05	530.34
325 Excavator	Excavators	36	0.38	1	10	5	NA	0.39	4.22	3.41	0.01	0.10	0.09	589.12
Skip Loader	Rubber Tired Loaders	150	0.36	1	15	5	NA	0.21	3.29	1.40	0.01	0.07	0.07	528.13
D6 Dozer	Tractors/Loaders/Backhoes	84	0.37	1	10	5	NA	0.18	3.48	0.26	0.01	0.06	0.06	531.42
Fugitive Dust	Grading	NA	NA	[m]	25	NA	NA	--	--	--	--	0.69	0.07	--
Worker Commutes (3/4-ton pick-up)	Heavy-duty Truck	NA	NA	4	25	NA	50	0.09	0.74	0.63	0.01	1.56	11.84	775.74
Light Duty Truck (inspectors)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.01	0.64	0.04	0.00	1.47	11.80	266.53
Guard Structures														
Digger Derrick Line Truck	Heavy-duty Diesel	NA	NA	2	47	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	1	47	8	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
20,000 Pound Capacity Forklift	Forklifts	82	0.20	1	47	8	NA	0.25	3.58	2.34	0.01	0.11	0.10	528.81
Super Framer 10 Wheel Flat Bed	Heavy-duty Diesel	NA	NA	1	47	NA	1	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Heavy-Duty Vac Truck	Heavy-duty Diesel	NA	NA	2	47	NA	1	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Generator	Generator Sets	14	0.74	1	47	8	NA	0.54	2.86	4.32	0.01	0.17	0.16	570.39
Flasher Board for Traffic Control	Signal Boards	6	0.82	2	47	8	NA	0.55	3.47	4.14	0.01	0.16	0.15	570.37
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	47	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes[g]	Medium-duty Diesel	NA	NA	8	47	NA	50	0.02	0.10	1.02	0.01	0.37	0.10	1,189.11
Worker Commutes	Light-duty Truck	NA	NA	4	47	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	6	47	NA	30	0.09	0.74	0.63	0.01	0.40	0.12	775.74
1-Ton Crew Cab Pickup	Heavy-duty Truck	NA	NA	4	47	NA	30	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)														
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	135	NA	45	0.02	0.08	1.80	0.02	0.68	2.55	1,659.19
Auger Truck[h]	Bore/Drill Rigs	83	0.50	1	15	8	NA	0.13	3.25	1.64	0.01	0.04	0.04	531.52
10-Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	15	NA	75	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	30	0.09	0.74	0.63	0.01	0.76	3.74	775.74
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	135	NA	30	0.02	0.08	1.80	0.02	0.80	3.75	1,659.19
Skid Steer/Front Loader[h]	Skid Steer Loaders	71	0.37	1	135	8	NA	0.13	3.25	1.81	0.01	0.05	0.05	530.34
Boom Truck	Heavy-duty Diesel	NA	NA	1	135	NA	15	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Backhoe/Front Loader	Tractors/Loaders/Backhoes	84	0.37	1	135	8	NA	0.18	3.48	0.26	0.01	0.06	0.06	531.42
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	0.01	0.64	0.04	0.00	1.39	10.93	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.01	0.64	0.04	0.00	1.39	10.93	266.53

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of E

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[l]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
ROW Clearing (vegetation, tree trimming)													
10-Cu Dump Truck (remove green waste)	Heavy-duty Diesel	NA	NA	3	30	NA	60	0.19	0.90	21.44	0.18	5.24	1.63
Boom Truck	Heavy-duty Diesel	NA	NA	5	30	NA	60	0.32	1.51	35.74	0.30	8.73	2.71
Chain Saws	Chainsaws	1.86	0.70	10	30	4	NA	163.54	444.26	4.99	0.03	1.41	1.89
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	5	30	4	NA	79.56	1,392.30	10.56	0.05	0.05	0.05
Blowers	Leaf Blowers/Vacuums	1.79	0.94	5	30	4	NA	89.20	301.53	1.42	0.02	0.98	1.29
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	5	30	4	NA	31.02	637.67	10.18	0.02	0.17	0.21
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	30	NA	60	0.03	2.53	0.16	0.01	1.25	0.32
Roads and Access: Construction Areas, Pulling Sites, Light Road Improvements for 3 of 12 miles													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	10	NA	45	0.02	0.08	1.79	0.01	1.71	13.06
4,000 Gallon Water Truck	Medium-duty Diesel	NA	NA	2	25	NA	50	0.13	0.53	5.64	0.06	8.41	65.17
¾-Ton Pick-up Truck, 4 × 4 (stand by fire crew)	Heavy-duty Truck	NA	NA	1	10	NA	30	0.06	0.49	0.42	0.00	1.54	13.00
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	2	4	NA	30	0.01	0.04	0.95	0.01	1.25	10.41
Skid Steer	Skid Steer Loaders	71	0.37	1	10	5	NA	0.39	9.40	5.23	0.01	0.15	0.14
325 Excavator	Excavators	36	0.38	1	10	5	NA	0.59	6.37	5.14	0.01	0.15	0.14
Skip Loader	Rubber Tired Loaders	150	0.36	1	15	5	NA	1.88	29.40	12.48	0.04	0.65	0.60
D6 Dozer	Tractors/Loaders/Backhoes	84	0.37	1	10	5	NA	0.63	11.93	0.89	0.02	0.22	0.20
Fugitive Dust	Grading	NA	NA	[m]	25	NA	NA	--	--	--	--	1.24	0.13
Worker Commutes (3/4-ton pick-up)	Heavy-duty Truck	NA	NA	4	25	NA	50	0.94	8.14	6.96	0.08	17.23	130.51
Light Duty Truck (inspectors)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.01	0.84	0.05	0.00	1.95	15.61
Guard Structures													
Digger Derrick Line Truck	Heavy-duty Diesel	NA	NA	2	47	NA	30	0.10	0.47	11.20	0.09	2.73	0.85
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	1	47	8	NA	20.84	139.52	30.79	0.59	4.26	3.91
20,000 Pound Capacity Forklift	Forklifts	82	0.20	1	47	8	NA	3.34	48.65	31.84	0.07	1.52	1.40
Super Framer 10 Wheel Flat Bed	Heavy-duty Diesel	NA	NA	1	47	NA	1	0.00	0.01	0.19	0.00	0.05	0.01
Heavy-Duty Vac Truck	Heavy-duty Diesel	NA	NA	2	47	NA	1	0.00	0.02	0.37	0.00	0.09	0.03
Generator	Generator Sets	14	0.74	1	47	8	NA	4.63	24.56	37.13	0.07	1.49	1.37
Flasher Board for Traffic Control	Signal Boards	6	0.82	2	47	8	NA	4.46	28.30	33.79	0.07	1.32	1.22
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	47	NA	50	0.24	19.85	1.29	0.08	9.80	2.50
Worker Commutes[g]	Medium-duty Diesel	NA	NA	8	47	NA	50	0.97	4.01	42.44	0.45	15.21	4.31
Worker Commutes	Light-duty Truck	NA	NA	4	47	NA	50	0.22	15.84	1.23	0.07	6.56	1.68
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	6	47	NA	30	1.59	13.77	11.77	0.14	7.53	2.23
1-Ton Crew Cab Pickup	Heavy-duty Truck	NA	NA	4	47	NA	30	1.06	9.18	7.85	0.09	5.02	1.49
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	135	NA	45	0.22	1.02	24.12	0.20	9.08	34.13
Auger Truck[h]	Bore/Drill Rigs	83	0.50	1	15	8	NA	1.41	35.71	17.99	0.05	0.44	0.41
10-Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	15	NA	75	0.08	0.38	8.93	0.07	2.18	0.68
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	30	1.53	13.18	11.27	0.13	13.59	66.73
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	135	NA	30	0.14	0.68	16.08	0.13	7.12	33.52
Skid Steer/Front Loader[h]	Skid Steer Loaders	71	0.37	1	135	8	NA	8.38	202.97	113.02	0.31	3.19	2.94
Boom Truck	Heavy-duty Diesel	NA	NA	1	135	NA	15	0.07	0.34	8.04	0.07	1.96	0.61
Backhoe/Front Loader	Tractors/Loaders/Backhoes	84	0.37	1	135	8	NA	13.62	257.59	19.24	0.37	4.66	4.29
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	0.07	5.70	0.37	0.02	12.40	97.61
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.05	3.80	0.25	0.02	8.27	65.08

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of E

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[l]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[l]				
								CO_2e	2026	2027	2028	2029	2030
ROW Clearing (vegetation, tree trimming)													
10-Cu Dump Truck (remove green waste)	Heavy-duty Diesel	NA	NA	3	30	NA	60	8.96	1	0	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	5	30	NA	60	14.93	1	0	0	0	0
Chain Saws	Chainsaws	1.86	0.70	10	30	4	NA	1.08	1	0	0	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	5	30	4	NA	1.47	1	0	0	0	0
Blowers	Leaf Blowers/Vacuums	1.79	0.94	5	30	4	NA	0.92	1	0	0	0	0
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	5	30	4	NA	0.77	1	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	30	NA	60	0.48	1	0	0	0	0
Roads and Access: Construction Areas, Pulling Sites, Light Road Improvements for 3 of 12 miles													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	10	NA	45	0.75	1	0	0	0	0
4,000 Gallon Water Truck	Medium-duty Diesel	NA	NA	2	25	NA	50	2.97	1	0	0	0	0
¾-Ton Pick-up Truck, 4 × 4 (stand by fire crew)	Heavy-duty Truck	NA	NA	1	10	NA	30	0.23	1	0	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	2	4	NA	30	0.40	1	0	0	0	0
Skid Steer	Skid Steer Loaders	71	0.37	1	10	5	NA	0.70	1	0	0	0	0
325 Excavator	Excavators	36	0.38	1	10	5	NA	0.40	1	0	0	0	0
Skip Loader	Rubber Tired Loaders	150	0.36	1	15	5	NA	2.14	1	0	0	0	0
D6 Dozer	Tractors/Loaders/Backhoes	84	0.37	1	10	5	NA	0.83	1	0	0	0	0
Fugitive Dust	Grading	NA	NA	[m]	25	NA	NA	--	1	0	0	0	0
Worker Commutes (3/4-ton pick-up)	Heavy-duty Truck	NA	NA	4	25	NA	50	3.88	1	0	0	0	0
Light Duty Truck (inspectors)	Light-duty Auto/Truck	NA	NA	1	12	NA	50	0.16	1	0	0	0	0
Guard Structures													
Digger Derrick Line Truck	Heavy-duty Diesel	NA	NA	2	47	NA	30	4.68	0.14	0.86	0	0	0
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	1	47	8	NA	28.52	0.14	0.86	0	0	0
20,000 Pound Capacity Forklift	Forklifts	82	0.20	1	47	8	NA	3.26	0.14	0.86	0	0	0
Super Framer 10 Wheel Flat Bed	Heavy-duty Diesel	NA	NA	1	47	NA	1	0.08	0.14	0.86	0	0	0
Heavy-Duty Vac Truck	Heavy-duty Diesel	NA	NA	2	47	NA	1	0.16	0.14	0.86	0	0	0
Generator	Generator Sets	14	0.74	1	47	8	NA	2.22	0.14	0.86	0	0	0
Flasher Board for Traffic Control	Signal Boards	6	0.82	2	47	8	NA	2.11	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	47	NA	50	3.76	0.14	0.86	0	0	0
Worker Commutes[g]	Medium-duty Diesel	NA	NA	8	47	NA	50	22.36	0.14	0.86	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	4	47	NA	50	3.02	0.14	0.86	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	6	47	NA	30	6.56	0.14	0.86	0	0	0
1-Ton Crew Cab Pickup	Heavy-duty Truck	NA	NA	4	47	NA	30	4.38	0.14	0.86	0	0	0
Foundations (Hole Digging, Foundation Setup/Cage, Pour Concrete, Finish/Removal of set up) and Removal of Foundations (East of CC)													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	135	NA	45	10.08	0.14	0.86	0	0	0
Auger Truck[h]	Bore/Drill Rigs	83	0.50	1	15	8	NA	2.65	0.14	0.86	0	0	0
10-Cu Concrete Mixer Truck	Heavy-duty Diesel	NA	NA	2	15	NA	75	3.73	0.14	0.86	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	30	6.28	0.14	0.86	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	135	NA	30	6.72	0.14	0.86	0	0	0
Skid Steer/Front Loader[h]	Skid Steer Loaders	71	0.37	1	135	8	NA	15.05	0.14	0.86	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	1	135	NA	15	3.36	0.14	0.86	0	0	0
Backhoe/Front Loader	Tractors/Loaders/Backhoes	84	0.37	1	135	8	NA	17.84	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	1.08	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.72	0.14	0.86	0	0	0

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of Estates Dr[n]
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[l]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030
Worker Commutes	Light-duty Truck	NA	NA	2	135	NA	10	1	6	0	0	0
Structures Replacement (Poles and Towers)												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	135	NA	30	1	6	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	135	NA	25	1	6	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	135	NA	25	1	6	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	25	1	6	0	0	0
Hydro Seed Truck	Heavy-duty Diesel	NA	NA	1	20	NA	60	1	6	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	135	5	NA	1	6	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	3	135	8	NA	1	6	0	0	0
Helicopter[b]	UH-60 Blackhawk	NA	NA	3	22	5	NA	1	6	0	0	0
Water Truck[o]	Heavy-duty Diesel	NA	NA	1	22	NA	10	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	1	6	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	1	6	0	0	0
Transition Structures Estates/Park - South of Park (C3/C4)												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0	1	0	0	0
Transition Structures Estates/Park - North of Park (C1/C2)												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0	1	0	0	0
Riser Structures at Oakland X												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	20	NA	30	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	20	NA	25	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	20	NA	25	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	25	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	20	5	NA	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	20	8	NA	0	1	0	0	0

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of E

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[i]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment, g/mile for vehicles, and g/LTO for helicopters)[k]						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Worker Commutes	Light-duty Truck	NA	NA	2	135	NA	10	0.01	0.76	0.06	0.00	1.39	10.93	321.14
Structures Replacement (Poles and Towers)														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	135	NA	30	0.02	0.08	1.80	0.02	0.80	3.75	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	135	NA	25	0.01	0.76	0.06	0.00	0.75	4.42	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	135	NA	25	0.09	0.74	0.63	0.01	0.83	4.46	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	25	0.09	0.74	0.63	0.01	0.83	4.46	775.74
Hydro Seed Truck	Heavy-duty Diesel	NA	NA	1	20	NA	60	0.02	0.08	1.80	0.02	1.65	12.35	1,659.19
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	135	5	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	3	135	8	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
Helicopter[b]	UH-60 Blackhawk	NA	NA	3	22	5	NA	554.33	724.90	575.30	438.00	8.55	8.35	234,198.12
Water Truck[o]	Heavy-duty Diesel	NA	NA	1	22	NA	10	0.02	0.08	1.80	0.02	6.24	58.74	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	0.01	0.64	0.04	0.00	1.39	10.93	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.01	0.64	0.04	0.00	1.39	10.93	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.01	0.64	0.04	0.00	1.39	10.93	266.53
Transition Structures Estates/Park - South of Park (C3/C4)														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.01	0.76	0.06	0.00	0.32	0.08	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Transition Structures Estates/Park - North of Park (C1/C2)														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.01	0.76	0.06	0.00	0.32	0.08	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Riser Structures at Oakland X														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	20	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	20	NA	25	0.01	0.76	0.06	0.00	0.32	0.08	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	20	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	20	5	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	1	20	8	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of E

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[f]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
Worker Commutes	Light-duty Truck	NA	NA	2	135	NA	10	0.06	4.55	0.35	0.02	8.27	65.08
Structures Replacement (Poles and Towers)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	135	NA	30	0.43	2.03	48.25	0.40	21.36	100.56
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	135	NA	25	0.16	11.37	0.88	0.05	11.10	65.80
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	135	NA	25	1.27	10.99	9.39	0.11	12.39	66.38
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	25	1.27	10.99	9.39	0.11	12.39	66.38
Hydro Seed Truck	Heavy-duty Diesel	NA	NA	1	20	NA	60	0.04	0.20	4.77	0.04	4.36	32.66
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	135	5	NA	62.72	518.53	82.36	1.58	23.76	21.86
100 - 280 Ton Crane	Cranes	367	0.29	3	135	8	NA	150.52	1,244.47	197.66	3.80	57.02	52.45
Helicopter[b]	UH-60 Blackhawk	NA	NA	3	22	5	NA	341.98	425.58	1,400.51	802.30	3.09	3.01
Water Truck[o]	Heavy-duty Diesel	NA	NA	1	22	NA	10	0.01	0.04	0.87	0.01	3.02	28.49
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	0.07	5.70	0.37	0.02	12.40	97.61
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.05	3.80	0.25	0.02	8.27	65.08
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.05	3.80	0.25	0.02	8.27	65.08
Transition Structures Estates/Park - South of Park (C3/C4)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0.03	0.15	3.57	0.03	0.87	0.27
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.01	0.84	0.07	0.00	0.35	0.09
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.81	0.70	0.01	0.44	0.13
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.81	0.70	0.01	0.44	0.13
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	2.32	19.20	3.05	0.06	0.88	0.81
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	3.72	30.73	4.88	0.09	1.41	1.30
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.01	0.42	0.03	0.00	0.21	0.05
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.00	0.28	0.02	0.00	0.14	0.04
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.00	0.34	0.03	0.00	0.14	0.04
Transition Structures Estates/Park - North of Park (C1/C2)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	0.03	0.15	3.57	0.03	0.87	0.27
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.01	0.84	0.07	0.00	0.35	0.09
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.81	0.70	0.01	0.44	0.13
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.09	0.81	0.70	0.01	0.44	0.13
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	2.32	19.20	3.05	0.06	0.88	0.81
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	3.72	30.73	4.88	0.09	1.41	1.30
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.01	0.42	0.03	0.00	0.21	0.05
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.00	0.28	0.02	0.00	0.14	0.04
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.00	0.34	0.03	0.00	0.14	0.04
Riser Structures at Oakland X													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	20	NA	30	0.06	0.30	7.15	0.06	1.75	0.54
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	20	NA	25	0.02	1.69	0.13	0.01	0.70	0.18
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	20	NA	25	0.19	1.63	1.39	0.02	0.89	0.26
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	25	0.19	1.63	1.39	0.02	0.89	0.26
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	20	5	NA	4.65	38.41	6.10	0.12	1.76	1.62
100 - 280 Ton Crane	Cranes	367	0.29	1	20	8	NA	7.43	61.46	9.76	0.19	2.82	2.59

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of E

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[f]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[f]				
								CO_2e	2026	2027	2028	2029	2030
Worker Commutes	Light-duty Truck	NA	NA	2	135	NA	10	0.87	0.14	0.86	0	0	0
Structures Replacement (Poles and Towers)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	135	NA	30	20.16	0.14	0.86	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	135	NA	25	2.17	0.14	0.86	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	135	NA	25	5.24	0.14	0.86	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	135	NA	25	5.24	0.14	0.86	0	0	0
Hydro Seed Truck	Heavy-duty Diesel	NA	NA	1	20	NA	60	1.99	0.14	0.86	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	135	5	NA	76.03	0.14	0.86	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	3	135	8	NA	182.48	0.14	0.86	0	0	0
Helicopter[b]	UH-60 Blackhawk	NA	NA	3	22	5	NA	194.59	0.14	0.86	0	0	0
Water Truck[a]	Heavy-duty Diesel	NA	NA	1	22	NA	10	0.37	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	135	NA	10	1.08	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.72	0.14	0.86	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	135	NA	10	0.72	0.14	0.86	0	0	0
Transition Structures Estates/Park - South of Park (C3/C4)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	1.49	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.16	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.39	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.39	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	2.82	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	4.51	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.08	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.05	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.06	0	1	0	0	0
Transition Structures Estates/Park - North of Park (C1/C2)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	10	NA	30	1.49	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	10	NA	25	0.16	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	10	NA	25	0.39	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	25	0.39	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	10	5	NA	2.82	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	10	8	NA	4.51	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	10	NA	10	0.08	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	10	NA	10	0.05	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	10	NA	10	0.06	0	1	0	0	0
Riser Structures at Oakland X													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	20	NA	30	2.99	0	1	0	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	20	NA	25	0.32	0	1	0	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	20	NA	25	0.78	0	1	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	25	0.78	0	1	0	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	1	20	5	NA	5.63	0	1	0	0	0
100 - 280 Ton Crane	Cranes	367	0.29	1	20	8	NA	9.01	0	1	0	0	0

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of Estates Dr[n]
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[l]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	20	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	20	NA	10	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	20	NA	10	0	1	0	0	0
Conductor Replacement												
Line Puller	Other Construction Equipment	82	0.42	2	133	8	NA	0	4	3	0	0
Trailer-Mounted Tensioner	Other Construction Equipment	82	0.42	2	133	8	NA	0	4	3	0	0
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	4	133	7	NA	0	4	3	0	0
Transport of 55-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	4	133	NA	20	0	4	3	0	0
105-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	0	4	3	0	0
Transport of 105-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0	4	3	0	0
120-foot Crane Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	0	4	3	0	0
Transport of 120-foot Crane Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0	4	3	0	0
10,000 Pound Capacity Forklift	Forklifts	82	0.20	1	133	7	NA	0	4	3	0	0
Transport of 10,000 Pound Capacity Forklift[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0	4	3	0	0
Generator	Generator Sets	14	0.74	2	133	7	NA	0	4	3	0	0
Transport of Generator[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0	4	3	0	0
Tractor Trailer (40-foot flatbed){f}[f]	Off-Highway Trucks	376	0.38	1	133	5	NA	0	4	3	0	0
Transport of Tractor Trailer (40-foot flatbed)[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0	4	3	0	0
Light Ship Helicopter[b]	MD500	NA	NA	3	32	6	NA	0	4	3	0	0
Medium-sized Ship Helicopter[b]	407 Long Ranger/Jet	NA	NA	3	32	6	NA	0	4	3	0	0
Water Truck[o]	Heavy-duty Diesel	NA	NA	1	32	NA	10	0	4	3	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	133	NA	50	0	4	3	0	0
Worker Commutes[k]	Medium-duty Diesel	NA	NA	8	133	NA	50	0	4	3	0	0
Worker Commutes	Light-duty Truck	NA	NA	10	133	NA	50	0	4	3	0	0
Truck - Light Duty Pickup	Light-duty Truck	NA	NA	8	133	NA	30	0	4	3	0	0
Crew Cab Heavy Duty Pickup	Heavy-duty Diesel	NA	NA	6	133	NA	30	0	4	3	0	0
Restoration (including SWPPP inspections)												
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	20	NA	60	0	0	9	12	3
Crew Trucks	Light-duty Truck	NA	NA	2	20	NA	60	0	0	9	12	3
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0	0	9	12	3
Worker Commutes - Dry Weather Monthly Insp.	Light-duty Truck	NA	NA	1	6	NA	60	0	0	9	12	3
Worker Commutes - Wet Weather Monthly Insp.	Light-duty Truck	NA	NA	1	26	NA	60	0	0	9	12	3

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of E

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[i]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment, g/mile for vehicles, and g/LTO for helicopters)[k]						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	20	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	20	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	2	20	NA	10	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Conductor Replacement														
Line Puller	Other Construction Equipment	82	0.42	2	133	8	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
Trailer-Mounted Tensioner	Other Construction Equipment	82	0.42	2	133	8	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	4	133	7	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
Transport of 55-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	4	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
105-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
Transport of 105-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
120-foot Crane Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
Transport of 120-foot Crane Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
10,000 Pound Capacity Forklift	Forklifts	82	0.20	1	133	7	NA	0.25	3.58	2.34	0.01	0.11	0.10	528.81
Transport of 10,000 Pound Capacity Forklift[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Generator	Generator Sets	14	0.74	2	133	7	NA	0.54	2.86	4.32	0.01	0.17	0.16	570.39
Transport of Generator[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Tractor Trailer (40-foot flatbed){f}[f]	Off-Highway Trucks	376	0.38	1	133	5	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
Transport of Tractor Trailer (40-foot flatbed)[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Light Ship Helicopter[b]	MD500	NA	NA	3	32	6	NA	344.44	457.70	85.10	114.60	1.52	1.48	61,276.50
Medium-sized Ship Helicopter[b]	407 Long Ranger/Jet	NA	NA	3	32	6	NA	278.13	365.50	130.50	141.60	2.13	2.07	75,713.37
Water Truck[o]	Heavy-duty Diesel	NA	NA	1	32	NA	10	0.02	0.08	1.80	0.02	6.24	58.74	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	133	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes[a]	Medium-duty Diesel	NA	NA	8	133	NA	50	0.02	0.10	1.02	0.01	0.37	0.10	1,189.11
Worker Commutes	Light-duty Truck	NA	NA	10	133	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Truck - Light Duty Pickup	Light-duty Truck	NA	NA	8	133	NA	30	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Crew Cab Heavy Duty Pickup	Heavy-duty Diesel	NA	NA	6	133	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Restoration (including SWPPP inspections)														
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	20	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Crew Trucks	Light-duty Truck	NA	NA	2	20	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes - Dry Weather Monthly Insp.	Light-duty Truck	NA	NA	1	6	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Worker Commutes - Wet Weather Monthly Insp.	Light-duty Truck	NA	NA	1	26	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of E

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[i]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	20	NA	10	0.01	0.84	0.05	0.00	0.42	0.11
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	20	NA	10	0.01	0.56	0.04	0.00	0.28	0.07
Worker Commutes	Light-duty Truck	NA	NA	2	20	NA	10	0.01	0.67	0.05	0.00	0.28	0.07
Conductor Replacement													
Line Puller	Other Construction Equipment	82	0.42	2	133	8	NA	45.56	566.14	441.73	0.81	25.53	23.43
Trailer-Mounted Tensioner	Other Construction Equipment	82	0.42	2	133	8	NA	45.56	566.14	441.73	0.81	25.53	23.43
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	4	133	7	NA	206.45	1,381.83	304.99	5.87	42.23	38.71
Transport of 55-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	4	133	NA	20	0.38	1.78	42.25	0.35	10.31	3.21
105-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	103.23	690.91	152.49	2.93	21.11	19.35
Transport of 105-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.19	0.89	21.13	0.18	5.16	1.60
120-foot Crane Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	103.23	690.91	152.49	2.93	21.11	19.35
Transport of 120-foot Crane Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.19	0.89	21.13	0.18	5.16	1.60
10,000 Pound Capacity Forklift	Forklifts	82	0.20	1	133	7	NA	8.28	120.47	78.83	0.17	3.77	3.47
Transport of 10,000 Pound Capacity Forklift[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0.09	0.45	10.56	0.09	2.58	0.80
Generator	Generator Sets	14	0.74	2	133	7	NA	22.92	121.63	183.89	0.34	7.40	6.80
Transport of Generator[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	0.19	0.89	21.13	0.18	5.16	1.60
Tractor Trailer (40-foot flatbed){f}[f]	Off-Highway Trucks	376	0.38	1	133	5	NA	36.87	246.75	54.46	1.05	7.54	6.91
Transport of Tractor Trailer (40-foot flatbed)[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	0.09	0.45	10.56	0.09	2.58	0.80
Light Ship Helicopter[b]	MD500	NA	NA	3	32	6	NA	389.31	503.22	314.31	320.63	4.95	4.83
Medium-sized Ship Helicopter[b]	407 Long Ranger/Jet	NA	NA	3	32	6	NA	330.07	424.44	497.46	409.40	7.30	7.13
Water Truck[o]	Heavy-duty Diesel	NA	NA	1	32	NA	10	0.01	0.05	1.27	0.01	4.40	41.44
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	133	NA	50	1.15	93.63	6.06	0.38	46.23	11.78
Worker Commutes[k]	Medium-duty Diesel	NA	NA	8	133	NA	50	2.74	11.34	120.09	1.26	43.04	12.18
Worker Commutes	Light-duty Truck	NA	NA	10	133	NA	50	1.53	112.05	8.70	0.46	46.40	11.86
Truck - Light Duty Pickup	Light-duty Truck	NA	NA	8	133	NA	30	0.73	53.79	4.17	0.22	22.27	5.69
Crew Cab Heavy Duty Pickup	Heavy-duty Diesel	NA	NA	6	133	NA	30	0.85	4.01	95.06	0.79	23.21	7.22
Restoration (including SWPPP inspections)													
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	20	NA	60	0.04	0.20	4.77	0.04	1.16	0.36
Crew Trucks	Light-duty Truck	NA	NA	2	20	NA	60	0.06	4.04	0.31	0.02	1.67	0.43
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0.05	0.24	5.72	0.05	1.40	0.43
Worker Commutes - Dry Weather Monthly Insp.	Light-duty Truck	NA	NA	1	6	NA	60	0.01	0.61	0.05	0.00	0.25	0.06
Worker Commutes - Wet Weather Monthly Insp.	Light-duty Truck	NA	NA	1	26	NA	60	0.04	2.63	0.20	0.01	1.09	0.28

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of E

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[i]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[i]				
								CO_2e	2026	2027	2028	2029	2030
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	20	NA	10	0.16	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	20	NA	10	0.11	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	20	NA	10	0.13	0	1	0	0	0
Conductor Replacement													
Line Puller	Other Construction Equipment	82	0.42	2	133	8	NA	38.79	0	0.57	0.43	0	0
Trailer-Mounted Tensioner	Other Construction Equipment	82	0.42	2	133	8	NA	38.79	0	0.57	0.43	0	0
55-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	4	133	7	NA	282.48	0	0.57	0.43	0	0
Transport of 55-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	4	133	NA	20	17.65	0	0.57	0.43	0	0
105-foot Bucket Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	141.24	0	0.57	0.43	0	0
Transport of 105-foot Bucket Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	8.83	0	0.57	0.43	0	0
120-foot Crane Truck[f]	Off-Highway Trucks	376	0.38	2	133	7	NA	141.24	0	0.57	0.43	0	0
Transport of 120-foot Crane Truck[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	8.83	0	0.57	0.43	0	0
10,000 Pound Capacity Forklift	Forklifts	82	0.20	1	133	7	NA	8.07	0	0.57	0.43	0	0
Transport of 10,000 Pound Capacity Forklift[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	4.41	0	0.57	0.43	0	0
Generator	Generator Sets	14	0.74	2	133	7	NA	11.00	0	0.57	0.43	0	0
Transport of Generator[j]	Heavy-duty Diesel	NA	NA	2	133	NA	20	8.83	0	0.57	0.43	0	0
Tractor Trailer (40-foot flatbed)(f)[f]	Off-Highway Trucks	376	0.38	1	133	5	NA	50.44	0	0.57	0.43	0	0
Transport of Tractor Trailer (40-foot flatbed)[j]	Heavy-duty Diesel	NA	NA	1	133	NA	20	4.41	0	0.57	0.43	0	0
Light Ship Helicopter[b]	MD500	NA	NA	3	32	6	NA	77.77	0	0.57	0.43	0	0
Medium-sized Ship Helicopter[b]	407 Long Ranger/Jet	NA	NA	3	32	6	NA	99.29	0	0.57	0.43	0	0
Water Truck[o]	Heavy-duty Diesel	NA	NA	1	32	NA	10	0.53	0	0.57	0.43	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	10	133	NA	50	17.72	0	0.57	0.43	0	0
Worker Commutes[k]	Medium-duty Diesel	NA	NA	8	133	NA	50	63.26	0	0.57	0.43	0	0
Worker Commutes	Light-duty Truck	NA	NA	10	133	NA	50	21.36	0	0.57	0.43	0	0
Truck - Light Duty Pickup	Light-duty Truck	NA	NA	8	133	NA	30	10.25	0	0.57	0.43	0	0
Crew Cab Heavy Duty Pickup	Heavy-duty Diesel	NA	NA	6	133	NA	30	39.72	0	0.57	0.43	0	0
Restoration (including SWPPP inspections)													
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	20	NA	60	1.99	0	0	0.38	0.5	0.13
Crew Trucks	Light-duty Truck	NA	NA	2	20	NA	60	0.77	0	0	0.38	0.5	0.13
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	2.39	0	0	0.38	0.5	0.13
Worker Commutes - Dry Weather Monthly Insp.	Light-duty Truck	NA	NA	1	6	NA	60	0.12	0	0	0.38	0.5	0.13
Worker Commutes - Wet Weather Monthly Insp.	Light-duty Truck	NA	NA	1	26	NA	60	0.50	0	0	0.38	0.5	0.13

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of Estates Dr[n]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[i]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Hours per Day data provided for the helicopters should represent hours of operation per day for the helicopter. Quantity per day for the helicopters represents the number of LTO cycles per day. It was assumed that one of each type of

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 ton =	2,000	lbs
1 metric ton =	1,000,000	g

[d] PM_{10} and $PM_{2.5}$ emissions include paved and unpaved road fugitive dust emissions associated with onroad and offroad travel, respectively, as follows:

- For Phase 1-2, each truck is expected to travel on unpaved roads for up to:	2	miles per day.		
- For Phase 1-4, each commute truck, dump truck, 4x4, and lowboy truck is expected to travel on unpaved roads for up to:	2	miles per day for	25	days.
- For Phase 1-5, each truck is expected to travel on unpaved roads for up to:	2	miles per day for	25	days (or the entire duration if used for less than 25 days).
- For Phase 1-9, the water truck is expected to travel on unpaved roads for up to:	1	mile per day.		

[e] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] Based on the usage data provided, this vehicle was treated as a construction equipment which will primarily remain onsite.

[g] Light-duty trucks with a power rating > 300 hp were conservatively treated as medium-duty trucks.

[h] Based on the equipment/vehicle type, this equipment/vehicle was assumed to be construction equipment which will primarily remain onsite and operate 8 hours per day.

[i] A number of vehicles and equipment will be used for only a portion of the total duration for each phase.

[j] These equipment will be transported to/from the site each day, with a one-way trip length of 10 miles.

[k] Emission factors associated with hourly operation of the helicopters are provided in Appendix A, Table 15 and are factored into the emissions calculations presented herein.

[l] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[m] Fugitive Dust emissions from Grading activities are a result of smoothing unpaved access roads and were estimated per the details provided below.

[n] Emissions incorporate Applicant-proposed Measures to reduce fugitive dust and construction equipment exhaust emissions, as applicable.

[o] One water truck conservatively added to each phase in which helicopters are used to minimize potential dust associated with the helicopter landing zones. It was assumed that each water truck would be used for the same number of days as the helicopters for up to 10 miles per day.

NA = Parameter not required for computing emissions.

Fugitive Dust emissions from Grading

Activity	Year	Area Graded (acres/ phase)[a]	Grader VMT (miles/ phase)[b]	Emission Factors (lb/mile)		Emissions (lb/phase)	
				PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading	2026	2.60	1.78	0.694	0.075	1.2	0.1
Grading	2027	0.00	0.00	0.694	0.075	0.0	0.0
Grading	2028	0.00	0.00	0.694	0.075	0.0	0.0
Grading	2029	0.00	0.00	0.694	0.075	0.0	0.0
Grading	2030	0.00	0.00	0.694	0.075	0.0	0.0

[a] Total area to be graded is as follows, based on the length of access roads to be improved and an assumed roadway width of 20 feet: 2.60 acres.

[b] Vehicle miles traveled by graders estimated as follows, per methodology provided in Section 4.4.1 of Appendix C of the *CalEEMod User's Guide* (ICF 2022):

VMT (mile/phase) = Area Graded (acres/phase) / Wb (ft) X 43,560 (ft^2/acre) / 5,280 (ft/mile), where

Wb is the blade width of the grader; the CalEEMod default for Wb is = 12 ft.

Table A5.3-5. Phase/Activity #1 - Emissions with Applicant-proposed Measures for Rebuild Lines Overhead and Remove Existing East of Estates Dr[n]
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used[l]	Hours per Day	Miles per Day per Vehicle	Number of Months with Activities				
								2026	2027	2028	2029	2030

Annual Emissions Summary

Year[a]	Emissions (lbs/year)						Emissions (metric tons/ year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	457	3,286	436	117	96	408	133
2027	1,301	6,040	3,630	1,125	499	1,062	1,214
2028	557	2,400	1,283	321	166	109	471
2029	0.10	3.86	5.52	0.06	2.79	0.78	2.88
2030	0.02	0.97	1.38	0.01	0.70	0.20	0.72

[a] Yearly emissions were estimated using a weight factor based on the schedule and months of activity per year.

Table A5.3-6. Phase/Activity #2 - Emissions for Rebuild Western Extent of Lines as Underground - West of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment / Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030
Mobilization and Survey (Construction Marking, Veg Removal)												
10-Cu Dump Truck (remove green waste from trees)	Heavy-duty Diesel	NA	NA	1	3	NA	60	2	0	0	0	0
Boom Truck (tree removal)	Medium-duty Diesel	NA	NA	1	3	NA	60	2	0	0	0	0
Chain Saws	Chainsaws	1.86	0.70	2	3	4	NA	2	0	0	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	2	0	0	0	0
Utility Truck	Light-duty Truck	NA	NA	1	20	NA	15	2	0	0	0	0
Delivery Vehicles	Light-duty Truck	NA	NA	1	20	NA	15	2	0	0	0	0
Traffic Control Trucks	Light-duty Truck	NA	NA	3	10	NA	50	2	0	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	15	2	0	0	0	0
1-Ton Crew Cab Flatbed, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	15	2	0	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	2	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	2	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	2	0	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	6	30	NA	50	2	0	0	0	0
Vaults (1 crew)												
CAT 328 Excavator	Excavators	36	0.38	1	120	5	NA	2	4	0	0	0
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	1	120	5	NA	2	4	0	0	0
JD 225 Excavator	Excavators	36	0.38	1	120	5	NA	2	4	0	0	0
RT 100 - Terex Rough Terrain Crane	Cranes	367	0.29	1	120	5	NA	2	4	0	0	0
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	2	4	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	2	4	0	0	0
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	1	120	5	NA	2	4	0	0	0
Concrete Truck	Off-Highway Trucks	376	0.38	2	120	8	NA	2	4	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	120	NA	50	2	4	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	120	NA	50	2	4	0	0	0
Trenching and Duct Bank (2-3 crews)												
CAT 450 Backhoe	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	2	10	0	0	0
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	2	10	0	0	0
JD 225 Excavator	Excavators	36	0.38	3	240	5	NA	2	10	0	0	0
Doosan Air Compressor 185 CFM	Air Compressors	37	0.48	3	240	5	NA	2	10	0	0	0
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	3	240	10	NA	2	10	0	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	3	240	NA	110	2	10	0	0	0
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	110	2	10	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	6	2	10	0	0	0
Ingersoll Rand DD 24 Roller	Rollers	36	0.38	1	240	10	NA	2	10	0	0	0
Volvo VNX 300 Tractor	Off-Highway Trucks	376	0.38	2	240	3	NA	2	10	0	0	0
350 kW Generator	Generator Sets	14	0.74	1	60	5	NA	2	10	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	1	60	NA	6	2	10	0	0	0
Welding Machine	Welders	46	0.45	1	60	4	NA	2	10	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	1	60	NA	6	2	10	0	0	0
Concrete Truck	Heavy-duty Diesel	NA	NA	1	90	NA	60	2	10	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	24	240	NA	50	2	10	0	0	0

Table A5.3-6. Phase/Activity #2 - Emissions for Rebuild Western Extent of Lines as Underground - West of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment / Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment and g/mile for vehicles)						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Mobilization and Survey (Construction Marking, Veg Removal)														
10-Cu Dump Truck (remove green waste from trees)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Boom Truck (tree removal)	Medium-duty Diesel	NA	NA	1	3	NA	60	0.02	0.10	1.02	0.01	0.37	0.10	1,189.11
Chain Saws	Chainsaws	1.86	0.70	2	3	4	NA	47.48	128.98	1.45	0.01	0.41	0.55	694.41
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	15.90	278.24	2.11	0.01	0.01	0.01	647.75
Utility Truck	Light-duty Truck	NA	NA	1	20	NA	15	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Delivery Vehicles	Light-duty Truck	NA	NA	1	20	NA	15	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Traffic Control Trucks	Light-duty Truck	NA	NA	3	10	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	15	0.09	0.74	0.63	0.01	0.40	0.12	775.74
1-Ton Crew Cab Flatbed, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	15	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	6	30	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Vaults (1 crew)														
CAT 328 Excavator	Excavators	36	0.38	1	120	5	NA	0.39	4.22	3.41	0.01	0.10	0.09	589.12
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	1	120	5	NA	0.18	3.48	1.89	0.01	0.06	0.06	531.42
JD 225 Excavator	Excavators	36	0.38	1	120	5	NA	0.39	4.22	3.41	0.01	0.10	0.09	589.12
RT 100 - Terex Rough Terrain Crane	Cranes	367	0.29	1	120	5	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	1	120	5	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
Concrete Truck	Off-Highway Trucks	376	0.38	2	120	8	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	120	NA	50	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	120	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Trenching and Duct Bank (2-3 crews)														
CAT 450 Backhoe	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	0.18	3.48	1.89	0.01	0.06	0.06	531.42
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	0.18	3.48	1.89	0.01	0.06	0.06	531.42
JD 225 Excavator	Excavators	36	0.38	3	240	5	NA	0.39	4.22	3.41	0.01	0.10	0.09	589.12
Doosan Air Compressor 185 CFM	Air Compressors	37	0.48	3	240	5	NA	0.51	4.82	3.65	0.01	0.10	0.09	570.35
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	3	240	10	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	3	240	NA	110	0.01	0.76	0.06	0.00	0.32	0.08	321.14
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	110	0.09	0.74	0.63	0.01	0.40	0.12	775.74
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	6	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Ingersoll Rand DD 24 Roller	Rollers	36	0.38	1	240	10	NA	0.54	4.09	3.61	0.01	0.15	0.14	589.00
Volvo VNX 300 Tractor	Off-Highway Trucks	376	0.38	2	240	3	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
350 kW Generator	Generator Sets	14	0.74	1	60	5	NA	0.54	2.86	4.32	0.01	0.17	0.16	570.39
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	1	60	NA	6	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Welding Machine	Welders	46	0.45	1	60	4	NA	0.47	4.49	3.57	0.01	0.10	0.09	570.36
Boom Truck	Heavy-duty Diesel	NA	NA	1	60	NA	6	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Concrete Truck	Heavy-duty Diesel	NA	NA	1	90	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	24	240	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53

Table A5.3-6. Phase/Activity #2 - Emissions for Rebuild Western Extent of Lines as Underground - West of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment / Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
Mobilization and Survey (Construction Marking, Veg Removal)													
10-Cu Dump Truck (remove green waste from trees)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.01	0.03	0.71	0.01	0.17	0.05
Boom Truck (tree removal)	Medium-duty Diesel	NA	NA	1	3	NA	60	0.01	0.04	0.41	0.00	0.15	0.04
Chain Saws	Chainsaws	1.86	0.70	2	3	4	NA	3.27	8.89	0.10	0.00	0.03	0.04
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	1.59	27.85	0.21	0.00	0.00	0.00
Utility Truck	Light-duty Truck	NA	NA	1	20	NA	15	0.01	0.51	0.04	0.00	0.21	0.05
Delivery Vehicles	Light-duty Truck	NA	NA	1	20	NA	15	0.01	0.51	0.04	0.00	0.21	0.05
Traffic Control Trucks	Light-duty Truck	NA	NA	3	10	NA	50	0.03	2.53	0.20	0.01	1.05	0.27
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	15	0.06	0.49	0.42	0.00	0.27	0.08
1-Ton Crew Cab Flatbed, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	15	0.11	0.98	0.84	0.01	0.53	0.16
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	0.00	0.00	0.08	0.00	0.02	0.01
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	0.16	12.67	0.82	0.05	6.26	1.59
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	0.16	12.67	0.82	0.05	6.26	1.59
Worker Commutes	Light-duty Truck	NA	NA	6	30	NA	50	0.21	15.17	1.18	0.06	6.28	1.60
Vaults (1 crew)													
CAT 328 Excavator	Excavators	36	0.38	1	120	5	NA	7.11	76.38	61.65	0.09	1.79	1.65
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	1	120	5	NA	7.56	143.11	77.49	0.21	2.59	2.38
JD 225 Excavator	Excavators	36	0.38	1	120	5	NA	7.11	76.38	61.65	0.09	1.79	1.65
RT 100 - Terex Rough Terrain Crane	Cranes	367	0.29	1	120	5	NA	27.87	230.46	258.61	0.70	10.56	9.71
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	2.26	19.53	16.70	0.20	10.67	3.17
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	2.26	19.53	16.70	0.20	10.67	3.17
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	1	120	5	NA	33.26	222.64	191.07	0.94	6.80	6.24
Concrete Truck	Off-Highway Trucks	376	0.38	2	120	8	NA	106.44	712.43	611.44	3.02	21.77	19.96
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	120	NA	50	0.21	1.00	23.83	0.20	5.82	1.81
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	120	NA	50	0.62	50.69	3.28	0.21	25.03	6.38
Trenching and Duct Bank (2-3 crews)													
CAT 450 Backhoe	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	45.39	858.65	464.97	1.23	15.54	14.31
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	45.39	858.65	464.97	1.23	15.54	14.31
JD 225 Excavator	Excavators	36	0.38	3	240	5	NA	42.67	458.28	369.90	0.54	10.75	9.88
Doosan Air Compressor 185 CFM	Air Compressors	37	0.48	3	240	5	NA	72.17	679.67	513.91	0.99	13.95	12.83
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	3	240	10	NA	399.16	2,671.63	2,292.88	11.34	81.65	74.84
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	3	240	NA	110	1.82	133.45	10.36	0.55	55.27	14.12
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	110	14.93	128.90	110.23	1.29	70.45	20.90
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	6	0.81	7.03	6.01	0.07	3.84	1.14
Ingersoll Rand DD 24 Roller	Rollers	36	0.38	1	240	10	NA	39.23	296.26	261.58	0.36	11.15	10.28
Volvo VNX 300 Tractor	Off-Highway Trucks	376	0.38	2	240	3	NA	79.83	534.33	458.58	2.27	16.33	14.97
350 kW Generator	Generator Sets	14	0.74	1	60	5	NA	3.69	19.60	29.63	0.05	1.19	1.10
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	1	60	NA	6	0.07	0.59	0.50	0.01	0.32	0.09
Welding Machine	Welders	46	0.45	1	60	4	NA	5.09	49.21	39.10	0.08	1.04	0.96
Boom Truck	Heavy-duty Diesel	NA	NA	1	60	NA	6	0.01	0.06	1.43	0.01	0.35	0.11
Concrete Truck	Heavy-duty Diesel	NA	NA	1	90	NA	60	0.19	0.90	21.44	0.18	5.24	1.63
Worker Commutes	Light-duty Auto/Truck	NA	NA	24	240	NA	50	4.99	405.50	26.25	1.66	200.20	51.03

Table A5.3-6. Phase/Activity #2 - Emissions for Rebuild Western Extent of Lines as Underground - West of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment / Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[d]				
								CO_2e	2026	2027	2028	2029	2030
Mobilization and Survey (Construction Marking, Veg Removal)													
10-Cu Dump Truck (remove green waste from trees)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.30	1	0	0	0	0
Boom Truck (tree removal)	Medium-duty Diesel	NA	NA	1	3	NA	60	0.21	1	0	0	0	0
Chain Saws	Chainsaws	1.86	0.70	2	3	4	NA	0.02	1	0	0	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	0.03	1	0	0	0	0
Utility Truck	Light-duty Truck	NA	NA	1	20	NA	15	0.10	1	0	0	0	0
Delivery Vehicles	Light-duty Truck	NA	NA	1	20	NA	15	0.10	1	0	0	0	0
Traffic Control Trucks	Light-duty Truck	NA	NA	3	10	NA	50	0.48	1	0	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	15	0.23	1	0	0	0	0
1-Ton Crew Cab Flatbed, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	15	0.47	1	0	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	0.03	1	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	2.40	1	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	2.40	1	0	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	6	30	NA	50	2.89	1	0	0	0	0
Vaults (1 crew)													
CAT 328 Excavator	Excavators	36	0.38	1	120	5	NA	4.84	0.33	0.67	0	0	0
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	1	120	5	NA	9.91	0.33	0.67	0	0	0
JD 225 Excavator	Excavators	36	0.38	1	120	5	NA	4.84	0.33	0.67	0	0	0
RT 100 - Terex Rough Terrain Crane	Cranes	367	0.29	1	120	5	NA	33.79	0.33	0.67	0	0	0
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	9.31	0.33	0.67	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	9.31	0.33	0.67	0	0	0
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	1	120	5	NA	45.51	0.33	0.67	0	0	0
Concrete Truck	Off-Highway Trucks	376	0.38	2	120	8	NA	145.64	0.33	0.67	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	120	NA	50	9.96	0.33	0.67	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	120	NA	50	9.60	0.33	0.67	0	0	0
Trenching and Duct Bank (2-3 crews)													
CAT 450 Backhoe	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	59.46	0.17	0.83	0	0	0
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	59.46	0.17	0.83	0	0	0
JD 225 Excavator	Excavators	36	0.38	3	240	5	NA	29.01	0.17	0.83	0	0	0
Doosan Air Compressor 185 CFM	Air Compressors	37	0.48	3	240	5	NA	36.47	0.17	0.83	0	0	0
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	3	240	10	NA	546.14	0.17	0.83	0	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	3	240	NA	110	25.43	0.17	0.83	0	0	0
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	110	61.44	0.17	0.83	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	6	3.35	0.17	0.83	0	0	0
Ingersoll Rand DD 24 Roller	Rollers	36	0.38	1	240	10	NA	19.34	0.17	0.83	0	0	0
Volvo VNX 300 Tractor	Off-Highway Trucks	376	0.38	2	240	3	NA	109.23	0.17	0.83	0	0	0
350 kW Generator	Generator Sets	14	0.74	1	60	5	NA	1.77	0.17	0.83	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	1	60	NA	6	0.28	0.17	0.83	0	0	0
Welding Machine	Welders	46	0.45	1	60	4	NA	2.83	0.17	0.83	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	1	60	NA	6	0.60	0.17	0.83	0	0	0
Concrete Truck	Heavy-duty Diesel	NA	NA	1	90	NA	60	8.96	0.17	0.83	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	24	240	NA	50	76.76	0.17	0.83	0	0	0

Table A5.3-6. Phase/Activity #2 - Emissions for Rebuild Western Extent of Lines as Underground - West of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment / Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030
Cable Installation and Splicing (2 Crews)												
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	55	NA	50	0	5	3	0	0
Semi Tractor	Off-Highway Trucks	376	0.38	1	34	5	NA	0	5	3	0	0
Cable Winch	Other Construction Equipment	82	0.42	1	55	5	NA	0	5	3	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	90	NA	50	0	5	3	0	0
Cable Reel Cart	Other Construction Equipment	82	0.42	1	55	5	NA	0	5	3	0	0
2 kW Generator	Generator Sets	14	0.74	1	90	10	NA	0	5	3	0	0
Vacuum Truck	Heavy-duty Diesel	NA	NA	1	4	NA	35	0	5	3	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	90	NA	50	0	5	3	0	0
Cable System Comissioning and Testing (1 Crew)												
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	15	NA	50	0	0	1	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	15	NA	50	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	15	NA	50	0	0	1	0	0
Restoration and Paving												
Utility Truck	Light-duty Truck	NA	NA	1	25	NA	50	0	2	0	0	0
Traffic Control Trucks	Light-duty Truck	NA	NA	3	25	NA	50	0	2	0	0	0
Delivery Vehicles	Light-duty Truck	NA	NA	1	25	NA	50	0	2	0	0	0
Drum Type Compactor	Other Construction Equipment	82	0.42	1	25	5	NA	0	2	0	0	0
Road Grader	Other Construction Equipment	82	0.42	1	25	5	NA	0	2	0	0	0
Street Sweeper	Sweepers/Scrubbers	36	0.46	1	20	5	NA	0	2	0	0	0
Road Paving Machine	Other Construction Equipment	82	0.42	1	20	5	NA	0	2	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0	2	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0	2	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	6	25	NA	50	0	2	0	0	0
Inspections												
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	25	NA	50	2	12	4	0	0
Inspector Vehicles	Light-duty Auto/Truck	NA	NA	2	317	NA	50	2	12	4	0	0
Truck Drivers/Hauling												
Material Haul Trucks	Heavy-duty Diesel	NA	NA	14	122	NA	50	2	10	0	0	0
Long Haul Dump Truck	Heavy-duty Diesel	NA	NA	1	106	NA	50	2	10	0	0	0
Replant/Water Landscape Trees (2 Years)												
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	10	NA	60	0	2	12	10	0
Crew Trucks	Light-duty Truck	NA	NA	2	10	NA	60	0	2	12	10	0
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0	2	12	10	0

Table A5.3-6. Phase/Activity #2 - Emissions for Rebuild Western Extent of Lines as Underground - West of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment / Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment and g/mile for vehicles)						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Cable Installation and Splicing (2 Crews)														
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	55	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Semi Tractor	Off-Highway Trucks	376	0.38	1	34	5	NA	0.18	1.18	1.01	0.01	0.04	0.03	530.89
Cable Winch	Other Construction Equipment	82	0.42	1	55	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	90	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Cable Reel Cart	Other Construction Equipment	82	0.42	1	55	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
2 kW Generator	Generator Sets	14	0.74	1	90	10	NA	0.54	2.86	4.32	0.01	0.17	0.16	570.39
Vacuum Truck	Heavy-duty Diesel	NA	NA	1	4	NA	35	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	90	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Cable System Comissioning and Testing (1 Crew)														
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	15	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	15	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	15	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Restoration and Paving														
Utility Truck	Light-duty Truck	NA	NA	1	25	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Traffic Control Trucks	Light-duty Truck	NA	NA	3	25	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Delivery Vehicles	Light-duty Truck	NA	NA	1	25	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Drum Type Compactor	Other Construction Equipment	82	0.42	1	25	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
Road Grader	Other Construction Equipment	82	0.42	1	25	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
Street Sweeper	Sweepers/Scrubbers	36	0.46	1	20	5	NA	0.58	4.73	3.76	0.01	0.17	0.16	588.75
Road Paving Machine	Other Construction Equipment	82	0.42	1	20	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	6	25	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Inspections														
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	25	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Inspector Vehicles	Light-duty Auto/Truck	NA	NA	2	317	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Truck Drivers/Hauling														
Material Haul Trucks	Heavy-duty Diesel	NA	NA	14	122	NA	50	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Long Haul Dump Truck	Heavy-duty Diesel	NA	NA	1	106	NA	50	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Replant/Water Landscape Trees (2 Years)														
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	10	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Crew Trucks	Light-duty Truck	NA	NA	2	10	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19

Table A5.3-6. Phase/Activity #2 - Emissions for Rebuild Western Extent of Lines as Underground - West of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment / Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
Cable Installation and Splicing (2 Crews)													
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	55	NA	50	1.04	8.95	7.66	0.09	4.89	1.45
Semi Tractor	Off-Highway Trucks	376	0.38	1	34	5	NA	9.42	63.08	54.14	0.27	1.93	1.77
Cable Winch	Other Construction Equipment	82	0.42	1	55	5	NA	5.89	73.16	57.08	0.10	3.30	3.03
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	90	NA	50	0.21	15.17	1.18	0.06	6.28	1.60
Cable Reel Cart	Other Construction Equipment	82	0.42	1	55	5	NA	5.89	73.16	57.08	0.10	3.30	3.03
2 kW Generator	Generator Sets	14	0.74	1	90	10	NA	11.08	58.79	88.88	0.16	3.58	3.29
Vacuum Truck	Heavy-duty Diesel	NA	NA	1	4	NA	35	0.00	0.02	0.56	0.00	0.14	0.04
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	90	NA	50	2.50	202.75	13.13	0.83	100.10	25.52
Cable System Comissioning and Testing (1 Crew)													
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	15	NA	50	0.28	2.44	2.09	0.02	1.33	0.40
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	15	NA	50	0.03	2.53	0.20	0.01	1.05	0.27
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	15	NA	50	0.42	33.79	2.19	0.14	16.68	4.25
Restoration and Paving													
Utility Truck	Light-duty Truck	NA	NA	1	25	NA	50	0.03	2.11	0.16	0.01	0.87	0.22
Traffic Control Trucks	Light-duty Truck	NA	NA	3	25	NA	50	0.09	6.32	0.49	0.03	2.62	0.67
Delivery Vehicles	Light-duty Truck	NA	NA	1	25	NA	50	0.03	2.11	0.16	0.01	0.87	0.22
Drum Type Compactor	Other Construction Equipment	82	0.42	1	25	5	NA	2.68	33.26	25.95	0.05	1.50	1.38
Road Grader	Other Construction Equipment	82	0.42	1	25	5	NA	2.68	33.26	25.95	0.05	1.50	1.38
Street Sweeper	Sweepers/Scrubbers	36	0.46	1	20	5	NA	2.13	17.27	13.72	0.02	0.62	0.57
Road Paving Machine	Other Construction Equipment	82	0.42	1	20	5	NA	2.14	26.60	20.76	0.04	1.20	1.10
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0.13	10.56	0.68	0.04	5.21	1.33
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0.13	10.56	0.68	0.04	5.21	1.33
Worker Commutes	Light-duty Truck	NA	NA	6	25	NA	50	0.17	12.64	0.98	0.05	5.23	1.34
Inspections													
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	25	NA	50	0.04	3.52	0.23	0.01	1.74	0.44
Inspector Vehicles	Light-duty Auto/Truck	NA	NA	2	317	NA	50	0.55	44.63	2.89	0.18	22.04	5.62
Truck Drivers/Hauling													
Material Haul Trucks	Heavy-duty Diesel	NA	NA	14	122	NA	50	3.04	14.29	339.12	2.83	82.79	25.75
Long Haul Dump Truck	Heavy-duty Diesel	NA	NA	1	106	NA	50	0.19	0.89	21.05	0.18	5.14	1.60
Replant/Water Landscape Trees (2 Years)													
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	10	NA	60	0.02	0.10	2.38	0.02	0.58	0.18
Crew Trucks	Light-duty Truck	NA	NA	2	10	NA	60	0.03	2.02	0.16	0.01	0.84	0.21
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0.05	0.24	5.72	0.05	1.40	0.43

Table A5.3-6. Phase/Activity #2 - Emissions for Rebuild Western Extent of Lines as Underground - West of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment / Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[d]				
								CO_2e	2026	2027	2028	2029	2030
Cable Installation and Splicing (2 Crews)													
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	55	NA	50	4.27	0	0.63	0.38	0	0
Semi Tractor	Off-Highway Trucks	376	0.38	1	34	5	NA	12.89	0	0.63	0.38	0	0
Cable Winch	Other Construction Equipment	82	0.42	1	55	5	NA	5.01	0	0.63	0.38	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	90	NA	50	2.89	0	0.63	0.38	0	0
Cable Reel Cart	Other Construction Equipment	82	0.42	1	55	5	NA	5.01	0	0.63	0.38	0	0
2 kW Generator	Generator Sets	14	0.74	1	90	10	NA	5.32	0	0.63	0.38	0	0
Vacuum Truck	Heavy-duty Diesel	NA	NA	1	4	NA	35	0.23	0	0.63	0.38	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	90	NA	50	38.38	0	0.63	0.38	0	0
Cable System Comissioning and Testing (1 Crew)													
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	15	NA	50	1.16	0	0	1	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	15	NA	50	0.48	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	15	NA	50	6.40	0	0	1	0	0
Restoration and Paving													
Utility Truck	Light-duty Truck	NA	NA	1	25	NA	50	0.40	0	1	0	0	0
Traffic Control Trucks	Light-duty Truck	NA	NA	3	25	NA	50	1.20	0	1	0	0	0
Delivery Vehicles	Light-duty Truck	NA	NA	1	25	NA	50	0.40	0	1	0	0	0
Drum Type Compactor	Other Construction Equipment	82	0.42	1	25	5	NA	2.28	0	1	0	0	0
Road Grader	Other Construction Equipment	82	0.42	1	25	5	NA	2.28	0	1	0	0	0
Street Sweeper	Sweepers/Scrubbers	36	0.46	1	20	5	NA	0.97	0	1	0	0	0
Road Paving Machine	Other Construction Equipment	82	0.42	1	20	5	NA	1.82	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	2.00	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	2.00	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	6	25	NA	50	2.41	0	1	0	0	0
Inspections													
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	25	NA	50	0.67	0.11	0.67	0.22	0	0
Inspector Vehicles	Light-duty Auto/Truck	NA	NA	2	317	NA	50	8.45	0.11	0.67	0.22	0	0
Truck Drivers/Hauling													
Material Haul Trucks	Heavy-duty Diesel	NA	NA	14	122	NA	50	141.69	0.17	0.83	0	0	0
Long Haul Dump Truck	Heavy-duty Diesel	NA	NA	1	106	NA	50	8.79	0.17	0.83	0	0	0
Replant/Water Landscape Trees (2 Years)													
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	10	NA	60	1.00	0	0.08	0.5	0.42	0
Crew Trucks	Light-duty Truck	NA	NA	2	10	NA	60	0.39	0	0.08	0.5	0.42	0
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	2.39	0	0.08	0.5	0.42	0

Table A5.3-6. Phase/Activity #2 - Emissions for Rebuild Western Extent of Lines as Underground - West of Estates Dr

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment / Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[d] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[e] A number of vehicles and equipment will be used for only a portion of the total duration for each phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

NA = Parameter not required for computing emissions.

Annual Emissions Summary

Year[e]	Emissions (lbs/year)						Emissions (metric tons/year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	197	1,791	1,352	6.33	155	69.9	303
2027	795	7,463	5,675	26.1	675	301	1,249
2028	14.4	236	114	0.87	72	21.6	40
2029	0.04	0.98	3.44	0.03	1.17	0.35	1.57
2030	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[g] Yearly emissions were estimated using a weight factor based on the schedule and months of activity per year.

Table A5.3-7. Phase/Activity #2 - Emissions with Applicant-proposed Measures for Rebuild Western Extent of Lines as Underground - West of Estates Dr[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030
Mobilization and Survey (Construction Marking, Veg Removal)												
10-Cu Dump Truck (remove green waste from trees)	Heavy-duty Diesel	NA	NA	1	3	NA	60	2	0	0	0	0
Boom Truck (tree removal)	Medium-duty Diesel	NA	NA	1	3	NA	60	2	0	0	0	0
Chain Saws	Chainsaws	1.86	0.70	2	3	4	NA	2	0	0	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	2	0	0	0	0
Utility Truck	Light-duty Truck	NA	NA	1	20	NA	15	2	0	0	0	0
Delivery Vehicles	Light-duty Truck	NA	NA	1	20	NA	15	2	0	0	0	0
Traffic Control Trucks	Light-duty Truck	NA	NA	3	10	NA	50	2	0	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	15	2	0	0	0	0
1-Ton Crew Cab Flatbed, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	15	2	0	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	2	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	2	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	2	0	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	6	30	NA	50	2	0	0	0	0
Vaults (1 Crew)												
CAT 328 Excavator	Excavators	36	0.38	1	120	5	NA	2	4	0	0	0
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	1	120	5	NA	2	4	0	0	0
JD 225 Excavator	Excavators	36	0.38	1	120	5	NA	2	4	0	0	0
RT 100 - Terex Rough Terrain Crane	Cranes	367	0.29	1	120	5	NA	2	4	0	0	0
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	2	4	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	2	4	0	0	0
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	1	120	5	NA	2	4	0	0	0
Concrete Truck	Off-Highway Trucks	376	0.38	2	120	8	NA	2	4	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	120	NA	50	2	4	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	120	NA	50	2	4	0	0	0
Trenching and Duct Bank (2-3 Crews)												
CAT 450 Backhoe	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	2	10	0	0	0
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	2	10	0	0	0
JD 225 Excavator	Excavators	36	0.38	3	240	5	NA	2	10	0	0	0
Doosan Air Compressor 185 CFM	Air Compressors	37	0.48	3	240	5	NA	2	10	0	0	0
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	3	240	10	NA	2	10	0	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	3	240	NA	110	2	10	0	0	0
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	110	2	10	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	6	2	10	0	0	0
Ingersoll Rand DD 24 Roller	Rollers	36	0.38	1	240	10	NA	2	10	0	0	0
Volvo VNX 300 Tractor	Off-Highway Trucks	376	0.38	2	240	3	NA	2	10	0	0	0
350 kW Generator	Generator Sets	14	0.74	1	60	5	NA	2	10	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	1	60	NA	6	2	10	0	0	0
Welding Machine	Welders	46	0.45	1	60	4	NA	2	10	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	1	60	NA	6	2	10	0	0	0
Concrete Truck	Heavy-duty Diesel	NA	NA	1	90	NA	60	2	10	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	24	240	NA	50	2	10	0	0	0

Table A5.3-7. Phase/Activity #2 - Emissions with Applicant-proposed Measures for Rebuild Western Extent of Lines as Underground - West

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[a]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment and g/mile for vehicles)						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Mobilization and Survey (Construction Marking, Veg Removal)														
10-Cu Dump Truck (remove green waste from trees)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Boom Truck (tree removal)	Medium-duty Diesel	NA	NA	1	3	NA	60	0.02	0.10	1.02	0.01	0.37	0.10	1,189.11
Chain Saws	Chainsaws	1.86	0.70	2	3	4	NA	47.48	128.98	1.45	0.01	0.41	0.55	694.41
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	15.90	278.24	2.11	0.01	0.01	0.01	647.75
Utility Truck	Light-duty Truck	NA	NA	1	20	NA	15	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Delivery Vehicles	Light-duty Truck	NA	NA	1	20	NA	15	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Traffic Control Trucks	Light-duty Truck	NA	NA	3	10	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	15	0.09	0.74	0.63	0.01	0.40	0.12	775.74
1-Ton Crew Cab Flatbed, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	15	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	6	30	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Vaults (1 Crew)														
CAT 328 Excavator	Excavators	36	0.38	1	120	5	NA	0.39	4.22	3.41	0.01	0.10	0.09	589.12
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	1	120	5	NA	0.18	3.48	0.26	0.01	0.06	0.06	531.42
JD 225 Excavator	Excavators	36	0.38	1	120	5	NA	0.39	4.22	3.41	0.01	0.10	0.09	589.12
RT 100 - Terex Rough Terrain Crane	Cranes	367	0.29	1	120	5	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	1	120	5	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
Concrete Truck	Off-Highway Trucks	376	0.38	2	120	8	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	120	NA	50	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	120	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Trenching and Duct Bank (2-3 Crews)														
CAT 450 Backhoe	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	0.18	3.48	0.26	0.01	0.06	0.06	531.42
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	0.18	3.48	0.26	0.01	0.06	0.06	531.42
JD 225 Excavator	Excavators	36	0.38	3	240	5	NA	0.39	4.22	3.41	0.01	0.10	0.09	589.12
Doosan Air Compressor 185 CFM	Air Compressors	37	0.48	3	240	5	NA	0.51	4.82	3.65	0.01	0.10	0.09	570.35
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	3	240	10	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	3	240	NA	110	0.01	0.76	0.06	0.00	0.32	0.08	321.14
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	110	0.09	0.74	0.63	0.01	0.40	0.12	775.74
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	6	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Ingersoll Rand DD 24 Roller	Rollers	36	0.38	1	240	10	NA	0.54	4.09	3.61	0.01	0.15	0.14	589.00
Volvo VNX 300 Tractor	Off-Highway Trucks	376	0.38	2	240	3	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
350 kW Generator	Generator Sets	14	0.74	1	60	5	NA	0.54	2.86	4.32	0.01	0.17	0.16	570.39
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	1	60	NA	6	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Welding Machine	Welders	46	0.45	1	60	4	NA	0.47	4.49	3.57	0.01	0.10	0.09	570.36
Boom Truck	Heavy-duty Diesel	NA	NA	1	60	NA	6	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Concrete Truck	Heavy-duty Diesel	NA	NA	1	90	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	24	240	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53

Table A5.3-7. Phase/Activity #2 - Emissions with Applicant-proposed Measures for Rebuild Western Extent of Lines as Underground - West

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
Mobilization and Survey (Construction Marking, Veg Removal)													
10-Cu Dump Truck (remove green waste from trees)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.01	0.03	0.71	0.01	0.17	0.05
Boom Truck (tree removal)	Medium-duty Diesel	NA	NA	1	3	NA	60	0.01	0.04	0.41	0.00	0.15	0.04
Chain Saws	Chainsaws	1.86	0.70	2	3	4	NA	3.27	8.89	0.10	0.00	0.03	0.04
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	1.59	27.85	0.21	0.00	0.00	0.00
Utility Truck	Light-duty Truck	NA	NA	1	20	NA	15	0.01	0.51	0.04	0.00	0.21	0.05
Delivery Vehicles	Light-duty Truck	NA	NA	1	20	NA	15	0.01	0.51	0.04	0.00	0.21	0.05
Traffic Control Trucks	Light-duty Truck	NA	NA	3	10	NA	50	0.03	2.53	0.20	0.01	1.05	0.27
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	15	0.06	0.49	0.42	0.00	0.27	0.08
1-Ton Crew Cab Flatbed, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	15	0.11	0.98	0.84	0.01	0.53	0.16
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	0.00	0.00	0.08	0.00	0.02	0.01
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	0.16	12.67	0.82	0.05	6.26	1.59
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	0.16	12.67	0.82	0.05	6.26	1.59
Worker Commutes	Light-duty Truck	NA	NA	6	30	NA	50	0.21	15.17	1.18	0.06	6.28	1.60
Vaults (1 Crew)													
CAT 328 Excavator	Excavators	36	0.38	1	120	5	NA	7.11	76.38	61.65	0.09	1.79	1.65
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	1	120	5	NA	7.56	143.11	10.69	0.21	2.59	2.38
JD 225 Excavator	Excavators	36	0.38	1	120	5	NA	7.11	76.38	61.65	0.09	1.79	1.65
RT 100 - Terex Rough Terrain Crane	Cranes	367	0.29	1	120	5	NA	27.87	230.46	36.60	0.70	10.56	9.71
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	2.26	19.53	16.70	0.20	10.67	3.17
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	2.26	19.53	16.70	0.20	10.67	3.17
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	1	120	5	NA	33.26	222.64	49.14	0.94	6.80	6.24
Concrete Truck	Off-Highway Trucks	376	0.38	2	120	8	NA	106.44	712.43	157.24	3.02	21.77	19.96
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	120	NA	50	0.21	1.00	23.83	0.20	5.82	1.81
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	120	NA	50	0.62	50.69	3.28	0.21	25.03	6.38
Trenching and Duct Bank (2-3 Crews)													
CAT 450 Backhoe	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	45.39	858.65	64.13	1.23	15.54	14.31
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	45.39	858.65	64.13	1.23	15.54	14.31
JD 225 Excavator	Excavators	36	0.38	3	240	5	NA	42.67	458.28	369.90	0.54	10.75	9.88
Doosan Air Compressor 185 CFM	Air Compressors	37	0.48	3	240	5	NA	72.17	679.67	513.91	0.99	13.95	12.83
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	3	240	10	NA	399.16	2,671.63	589.66	11.34	81.65	74.84
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	3	240	NA	110	1.82	133.45	10.36	0.55	55.27	14.12
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	110	14.93	128.90	110.23	1.29	70.45	20.90
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	6	0.81	7.03	6.01	0.07	3.84	1.14
Ingersoll Rand DD 24 Roller	Rollers	36	0.38	1	240	10	NA	39.23	296.26	261.58	0.36	11.15	10.28
Volvo VNX 300 Tractor	Off-Highway Trucks	376	0.38	2	240	3	NA	79.83	534.33	117.93	2.27	16.33	14.97
350 kW Generator	Generator Sets	14	0.74	1	60	5	NA	3.69	19.60	29.63	0.05	1.19	1.10
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	1	60	NA	6	0.07	0.59	0.50	0.01	0.32	0.09
Welding Machine	Welders	46	0.45	1	60	4	NA	5.09	49.21	39.10	0.08	1.04	0.96
Boom Truck	Heavy-duty Diesel	NA	NA	1	60	NA	6	0.01	0.06	1.43	0.01	0.35	0.11
Concrete Truck	Heavy-duty Diesel	NA	NA	1	90	NA	60	0.19	0.90	21.44	0.18	5.24	1.63
Worker Commutes	Light-duty Auto/Truck	NA	NA	24	240	NA	50	4.99	405.50	26.25	1.66	200.20	51.03

Table A5.3-7. Phase/Activity #2 - Emissions with Applicant-proposed Measures for Rebuild Western Extent of Lines as Underground - West

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[a]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[f]				
								CO_2e	2026	2027	2028	2029	2030
Mobilization and Survey (Construction Marking, Veg Removal)													
10-Cu Dump Truck (remove green waste from trees)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.30	1	0	0	0	0
Boom Truck (tree removal)	Medium-duty Diesel	NA	NA	1	3	NA	60	0.21	1	0	0	0	0
Chain Saws	Chainsaws	1.86	0.70	2	3	4	NA	0.02	1	0	0	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	0.03	1	0	0	0	0
Utility Truck	Light-duty Truck	NA	NA	1	20	NA	15	0.10	1	0	0	0	0
Delivery Vehicles	Light-duty Truck	NA	NA	1	20	NA	15	0.10	1	0	0	0	0
Traffic Control Trucks	Light-duty Truck	NA	NA	3	10	NA	50	0.48	1	0	0	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	10	NA	15	0.23	1	0	0	0	0
1-Ton Crew Cab Flatbed, 4 × 4	Heavy-duty Truck	NA	NA	2	20	NA	15	0.47	1	0	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	10	NA	2	0.03	1	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	2.40	1	0	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	30	NA	50	2.40	1	0	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	6	30	NA	50	2.89	1	0	0	0	0
Vaults (1 Crew)													
CAT 328 Excavator	Excavators	36	0.38	1	120	5	NA	4.84	0.33	0.67	0	0	0
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	1	120	5	NA	9.91	0.33	0.67	0	0	0
JD 225 Excavator	Excavators	36	0.38	1	120	5	NA	4.84	0.33	0.67	0	0	0
RT 100 - Terex Rough Terrain Crane	Cranes	367	0.29	1	120	5	NA	33.79	0.33	0.67	0	0	0
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	9.31	0.33	0.67	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	120	NA	50	9.31	0.33	0.67	0	0	0
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	1	120	5	NA	45.51	0.33	0.67	0	0	0
Concrete Truck	Off-Highway Trucks	376	0.38	2	120	8	NA	145.64	0.33	0.67	0	0	0
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	1	120	NA	50	9.96	0.33	0.67	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	120	NA	50	9.60	0.33	0.67	0	0	0
Trenching and Duct Bank (2-3 Crews)													
CAT 450 Backhoe	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	59.46	0.17	0.83	0	0	0
CAT 928 Loader	Tractors/Loaders/Backhoes	84	0.37	3	240	5	NA	59.46	0.17	0.83	0	0	0
JD 225 Excavator	Excavators	36	0.38	3	240	5	NA	29.01	0.17	0.83	0	0	0
Doosan Air Compressor 185 CFM	Air Compressors	37	0.48	3	240	5	NA	36.47	0.17	0.83	0	0	0
T 880 Kenworth Dump Truck	Off-Highway Trucks	376	0.38	3	240	10	NA	546.14	0.17	0.83	0	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	3	240	NA	110	25.43	0.17	0.83	0	0	0
2500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	110	61.44	0.17	0.83	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	3	240	NA	6	3.35	0.17	0.83	0	0	0
Ingersoll Rand DD 24 Roller	Rollers	36	0.38	1	240	10	NA	19.34	0.17	0.83	0	0	0
Volvo VNX 300 Tractor	Off-Highway Trucks	376	0.38	2	240	3	NA	109.23	0.17	0.83	0	0	0
350 kW Generator	Generator Sets	14	0.74	1	60	5	NA	1.77	0.17	0.83	0	0	0
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	1	60	NA	6	0.28	0.17	0.83	0	0	0
Welding Machine	Welders	46	0.45	1	60	4	NA	2.83	0.17	0.83	0	0	0
Boom Truck	Heavy-duty Diesel	NA	NA	1	60	NA	6	0.60	0.17	0.83	0	0	0
Concrete Truck	Heavy-duty Diesel	NA	NA	1	90	NA	60	8.96	0.17	0.83	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	24	240	NA	50	76.76	0.17	0.83	0	0	0

Table A5.3-7. Phase/Activity #2 - Emissions with Applicant-proposed Measures for Rebuild Western Extent of Lines as Underground - West of Estates Dr[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030
Cable Installation and Splicing (2 Crews)												
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	55	NA	50	0	5	3	0	0
Semi Tractor	Off-Highway Trucks	376	0.38	1	34	5	NA	0	5	3	0	0
Cable Winch	Other Construction Equipment	82	0.42	1	55	5	NA	0	5	3	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	90	NA	50	0	5	3	0	0
Cable Reel Cart	Other Construction Equipment	82	0.42	1	55	5	NA	0	5	3	0	0
2 kW Generator	Generator Sets	14	0.74	1	90	10	NA	0	5	3	0	0
Vacuum Truck	Heavy-duty Diesel	NA	NA	1	4	NA	35	0	5	3	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	90	NA	50	0	5	3	0	0
Cable System Comissioning and Testing (1 Crew)												
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	15	NA	50	0	0	1	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	15	NA	50	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	15	NA	50	0	0	1	0	0
Restoration and Paving												
Utility Truck	Light-duty Truck	NA	NA	1	25	NA	50	0	2	0	0	0
Traffic Control Trucks	Light-duty Truck	NA	NA	3	25	NA	50	0	2	0	0	0
Delivery Vehicles	Light-duty Truck	NA	NA	1	25	NA	50	0	2	0	0	0
Drum Type Compactor	Other Construction Equipment	82	0.42	1	25	5	NA	0	2	0	0	0
Road Grader	Other Construction Equipment	82	0.42	1	25	5	NA	0	2	0	0	0
Street Sweeper	Sweepers/Scrubbers	36	0.46	1	20	5	NA	0	2	0	0	0
Road Paving Machine	Other Construction Equipment	82	0.42	1	20	5	NA	0	2	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0	2	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0	2	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	6	25	NA	50	0	2	0	0	0
Inspections												
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	25	NA	50	2	12	4	0	0
Inspector Vehicles	Light-duty Auto/Truck	NA	NA	2	317	NA	50	2	12	4	0	0
Truck Drivers/Hauling												
Material Haul Trucks	Heavy-duty Diesel	NA	NA	14	122	NA	50	2	10	0	0	0
Long Haul Dump Truck	Heavy-duty Diesel	NA	NA	1	106	NA	50	2	10	0	0	0
Replant/Water Landscape Trees (2 Years)												
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	10	NA	60	0	2	12	10	0
Crew Trucks	Light-duty Truck	NA	NA	2	10	NA	60	0	2	12	10	0
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0	2	12	10	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[d] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[e] A number of vehicles and equipment will be used for only a portion of the total duration for each phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Emissions incorporate Applicant-proposed Measures to reduce construction equipment exhaust emissions, as applicable.

NA = Parameter not required for computing emissions.

Table A5.3-7. Phase/Activity #2 - Emissions with Applicant-proposed Measures for Rebuild Western Extent of Lines as Underground - West

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emission factors (g/hp-hr for equipment and g/mile for vehicles)						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Cable Installation and Splicing (2 Crews)														
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	55	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Semi Tractor	Off-Highway Trucks	376	0.38	1	34	5	NA	0.18	1.18	0.26	0.01	0.04	0.03	530.89
Cable Winch	Other Construction Equipment	82	0.42	1	55	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	90	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Cable Reel Cart	Other Construction Equipment	82	0.42	1	55	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
2 kW Generator	Generator Sets	14	0.74	1	90	10	NA	0.54	2.86	4.32	0.01	0.17	0.16	570.39
Vacuum Truck	Heavy-duty Diesel	NA	NA	1	4	NA	35	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	90	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Cable System Comissioning and Testing (1 Crew)														
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	15	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	15	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	15	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Restoration and Paving														
Utility Truck	Light-duty Truck	NA	NA	1	25	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Traffic Control Trucks	Light-duty Truck	NA	NA	3	25	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Delivery Vehicles	Light-duty Truck	NA	NA	1	25	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Drum Type Compactor	Other Construction Equipment	82	0.42	1	25	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
Road Grader	Other Construction Equipment	82	0.42	1	25	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
Street Sweeper	Sweepers/Scrubbers	36	0.46	1	20	5	NA	0.58	4.73	3.76	0.01	0.17	0.16	588.75
Road Paving Machine	Other Construction Equipment	82	0.42	1	20	5	NA	0.28	3.50	2.73	0.01	0.16	0.15	529.26
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	6	25	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Inspections														
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	25	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Inspector Vehicles	Light-duty Auto/Truck	NA	NA	2	317	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Truck Drivers/Hauling														
Material Haul Trucks	Heavy-duty Diesel	NA	NA	14	122	NA	50	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Long Haul Dump Truck	Heavy-duty Diesel	NA	NA	1	106	NA	50	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Replant/Water Landscape Trees (2 Years)														
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	10	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Crew Trucks	Light-duty Truck	NA	NA	2	10	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[d] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[e] A number of vehicles and equipment will be used for only a portion of the total duration for each phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Emissions incorporate Applicant-proposed Measures to reduce construction equipment exhaust emissions, as applicable.

NA = Parameter not required for computing emissions.

Table A5.3-7. Phase/Activity #2 - Emissions with Applicant-proposed Measures for Rebuild Western Extent of Lines as Underground - West

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[c]					
								ROG	CO	NOx	SOx	PM_{10}[d]	$PM_{2.5}$[d]
Cable Installation and Splicing (2 Crews)													
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	55	NA	50	1.04	8.95	7.66	0.09	4.89	1.45
Semi Tractor	Off-Highway Trucks	376	0.38	1	34	5	NA	9.42	63.08	13.92	0.27	1.93	1.77
Cable Winch	Other Construction Equipment	82	0.42	1	55	5	NA	5.89	73.16	57.08	0.10	3.30	3.03
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	90	NA	50	0.21	15.17	1.18	0.06	6.28	1.60
Cable Reel Cart	Other Construction Equipment	82	0.42	1	55	5	NA	5.89	73.16	57.08	0.10	3.30	3.03
2 kW Generator	Generator Sets	14	0.74	1	90	10	NA	11.08	58.79	88.88	0.16	3.58	3.29
Vacuum Truck	Heavy-duty Diesel	NA	NA	1	4	NA	35	0.00	0.02	0.56	0.00	0.14	0.04
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	90	NA	50	2.50	202.75	13.13	0.83	100.10	25.52
Cable System Comissioning and Testing (1 Crew)													
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	15	NA	50	0.28	2.44	2.09	0.02	1.33	0.40
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	15	NA	50	0.03	2.53	0.20	0.01	1.05	0.27
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	15	NA	50	0.42	33.79	2.19	0.14	16.68	4.25
Restoration and Paving													
Utility Truck	Light-duty Truck	NA	NA	1	25	NA	50	0.03	2.11	0.16	0.01	0.87	0.22
Traffic Control Trucks	Light-duty Truck	NA	NA	3	25	NA	50	0.09	6.32	0.49	0.03	2.62	0.67
Delivery Vehicles	Light-duty Truck	NA	NA	1	25	NA	50	0.03	2.11	0.16	0.01	0.87	0.22
Drum Type Compactor	Other Construction Equipment	82	0.42	1	25	5	NA	2.68	33.26	25.95	0.05	1.50	1.38
Road Grader	Other Construction Equipment	82	0.42	1	25	5	NA	2.68	33.26	25.95	0.05	1.50	1.38
Street Sweeper	Sweepers/Scrubbers	36	0.46	1	20	5	NA	2.13	17.27	13.72	0.02	0.62	0.57
Road Paving Machine	Other Construction Equipment	82	0.42	1	20	5	NA	2.14	26.60	20.76	0.04	1.20	1.10
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0.13	10.56	0.68	0.04	5.21	1.33
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	0.13	10.56	0.68	0.04	5.21	1.33
Worker Commutes	Light-duty Truck	NA	NA	6	25	NA	50	0.17	12.64	0.98	0.05	5.23	1.34
Inspections													
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	25	NA	50	0.04	3.52	0.23	0.01	1.74	0.44
Inspector Vehicles	Light-duty Auto/Truck	NA	NA	2	317	NA	50	0.55	44.63	2.89	0.18	22.04	5.62
Truck Drivers/Hauling													
Material Haul Trucks	Heavy-duty Diesel	NA	NA	14	122	NA	50	3.04	14.29	339.12	2.83	82.79	25.75
Long Haul Dump Truck	Heavy-duty Diesel	NA	NA	1	106	NA	50	0.19	0.89	21.05	0.18	5.14	1.60
Replant/Water Landscape Trees (2 Years)													
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	10	NA	60	0.02	0.10	2.38	0.02	0.58	0.18
Crew Trucks	Light-duty Truck	NA	NA	2	10	NA	60	0.03	2.02	0.16	0.01	0.84	0.21
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	0.05	0.24	5.72	0.05	1.40	0.43

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[d] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[e] A number of vehicles and equipment will be used for only a portion of the total duration for each phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Emissions incorporate Applicant-proposed Measures to reduce construction equipment exhaust emissions, as applicable.

NA = Parameter not required for computing emissions.

Table A5.3-7. Phase/Activity #2 - Emissions with Applicant-proposed Measures for Rebuild Western Extent of Lines as Underground - West

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[e]	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[c]	Weight Factor[f]				
								CO_2e	2026	2027	2028	2029	2030
Cable Installation and Splicing (2 Crews)													
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	55	NA	50	4.27	0	0.63	0.38	0	0
Semi Tractor	Off-Highway Trucks	376	0.38	1	34	5	NA	12.89	0	0.63	0.38	0	0
Cable Winch	Other Construction Equipment	82	0.42	1	55	5	NA	5.01	0	0.63	0.38	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	90	NA	50	2.89	0	0.63	0.38	0	0
Cable Reel Cart	Other Construction Equipment	82	0.42	1	55	5	NA	5.01	0	0.63	0.38	0	0
2 kW Generator	Generator Sets	14	0.74	1	90	10	NA	5.32	0	0.63	0.38	0	0
Vacuum Truck	Heavy-duty Diesel	NA	NA	1	4	NA	35	0.23	0	0.63	0.38	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	90	NA	50	38.38	0	0.63	0.38	0	0
Cable System Comissioning and Testing (1 Crew)													
3500 Dodge Ram Pickup	Heavy-duty Truck	NA	NA	2	15	NA	50	1.16	0	0	1	0	0
1500 Dodge Ram Pickup	Light-duty Truck	NA	NA	2	15	NA	50	0.48	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	32	15	NA	50	6.40	0	0	1	0	0
Restoration and Paving													
Utility Truck	Light-duty Truck	NA	NA	1	25	NA	50	0.40	0	1	0	0	0
Traffic Control Trucks	Light-duty Truck	NA	NA	3	25	NA	50	1.20	0	1	0	0	0
Delivery Vehicles	Light-duty Truck	NA	NA	1	25	NA	50	0.40	0	1	0	0	0
Drum Type Compactor	Other Construction Equipment	82	0.42	1	25	5	NA	2.28	0	1	0	0	0
Road Grader	Other Construction Equipment	82	0.42	1	25	5	NA	2.28	0	1	0	0	0
Street Sweeper	Sweepers/Scrubbers	36	0.46	1	20	5	NA	0.97	0	1	0	0	0
Road Paving Machine	Other Construction Equipment	82	0.42	1	20	5	NA	1.82	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	2.00	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	6	25	NA	50	2.00	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	6	25	NA	50	2.41	0	1	0	0	0
Inspections													
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	25	NA	50	0.67	0.11	0.67	0.22	0	0
Inspector Vehicles	Light-duty Auto/Truck	NA	NA	2	317	NA	50	8.45	0.11	0.67	0.22	0	0
Truck Drivers/Hauling													
Material Haul Trucks	Heavy-duty Diesel	NA	NA	14	122	NA	50	141.69	0.17	0.83	0	0	0
Long Haul Dump Truck	Heavy-duty Diesel	NA	NA	1	106	NA	50	8.79	0.17	0.83	0	0	0
Replant/Water Landscape Trees (2 Years)													
Flat Bed (plants to install)	Heavy-duty Diesel	NA	NA	1	10	NA	60	1.00	0	0.08	0.5	0.42	0
Crew Trucks	Light-duty Truck	NA	NA	2	10	NA	60	0.39	0	0.08	0.5	0.42	0
Water Truck	Heavy-duty Diesel	NA	NA	1	24	NA	60	2.39	0	0.08	0.5	0.42	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[c] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[d] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[e] A number of vehicles and equipment will be used for only a portion of the total duration for each phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Emissions incorporate Applicant-proposed Measures to reduce construction equipment exhaust emissions, as applicable.

NA = Parameter not required for computing emissions.

Table A5.3-7. Phase/Activity #2 - Emissions with Applicant-proposed Measures for Rebuild Western Extent of Lines as Underground - West of Estates Dr[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[b]	Equipment Load Factor[b]	Quantity per Day	Number of Days Used[a]	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030

Annual Emissions Summary

Year[a]	Emissions (lbs/year)						Emissions (metric tons/
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	197	1,791	583	6.33	155	69.9	303
2027	795	7,463	2,689	26.1	675	301	1,249
2028	14.4	236	99	0.87	72	21.6	40
2029	0.04	0.98	3.44	0.03	1.17	0.35	1.57
2030	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[a] Yearly emissions were estimated using a weight factor based on the schedule and months of activity per year.

Table A5.3-8. Phase/Activity #3 - Emissions for Remove Existing Structures and Conductors West of Estates Dr
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030
ROW Clearing												
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	3	NA	60	0	0	1	0	0
Boom Truck (remove green waste)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0	0	1	0	0
Chain Saws	Chainsaws	1.86	0.70	1	3	4	NA	0	0	1	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	0	0	1	0	0
Blowers	Leaf Blowers/Vacuums	1.79	0.94	1	3	4	NA	0	0	1	0	0
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	1	3	4	NA	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	3	NA	60	0	0	1	0	0
Structure Removal (Poles and Towers)												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	40	NA	30	0	0	2	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	40	NA	25	0	0	2	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	40	NA	25	0	0	2	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	40	NA	25	0	0	2	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	40	5	NA	0	0	2	0	0
100 - 280 Ton Crane	Cranes	367	0.29	3	40	8	NA	0	0	2	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	40	NA	10	0	0	2	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	10	0	0	2	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	40	NA	10	0	0	2	0	0
Restoration												
Worker Commutes - Inspection[e]	Light-duty Truck	NA	NA	1	2	NA	60	0	0	1	0	0
Flat Bed (plants to install)[e]	Heavy-duty Diesel	NA	NA	1	2	NA	60	0	0	1	0	0
Crew Trucks	Light-duty Truck	NA	NA	2	5	NA	60	0	0	1	0	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[e] These vehicles will be used for only a portion of the total duration for this phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

NA = Parameter not required for computing emissions.

Table A5.3-8. Phase/Activity #3 - Emissions for Remove Existing Structures and Conductors West of Estates Dr
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Emission Factors (g/hp-hr for equipment and g/mile for vehicles)						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
ROW Clearing														
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Boom Truck (remove green waste)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Chain Saws	Chainsaws	1.86	0.70	1	3	4	NA	47.48	128.98	1.45	0.01	0.41	0.55	694.41
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	15.90	278.24	2.11	0.01	0.01	0.01	647.75
Blowers	Leaf Blowers/Vacuums	1.79	0.94	1	3	4	NA	40.08	135.48	0.64	0.01	0.44	0.58	908.57
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	1	3	4	NA	14.81	304.46	4.86	0.01	0.08	0.10	812.30
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	3	NA	60	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Structure Removal (Poles and Towers)														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	40	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	40	NA	25	0.01	0.76	0.06	0.00	0.32	0.08	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	40	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	40	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	40	5	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	3	40	8	NA	0.20	1.64	1.84	0.01	0.08	0.07	529.18
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	40	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	2	40	NA	10	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Restoration														
Worker Commutes - Inspection[e]	Light-duty Truck	NA	NA	1	2	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Flat Bed (plants to install)[e]	Heavy-duty Diesel	NA	NA	1	2	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Crew Trucks	Light-duty Truck	NA	NA	2	5	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[e] These vehicles will be used for only a portion of the total duration for this phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

NA = Parameter not required for computing emissions.

Table A5.3-8. Phase/Activity #3 - Emissions for Remove Existing Structures and Conductors West of Estates Dr
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[b]						Emissions (metric tons/ phase)[b]
								ROG	CO	NOx	SOx	PM_{10} [c]	$PM_{2.5}$ [c]	CO_2e
ROW Clearing														
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.01	0.03	0.71	0.01	0.17	0.05	0.30
Boom Truck (remove green waste)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.01	0.03	0.71	0.01	0.17	0.05	0.30
Chain Saws	Chainsaws	1.86	0.70	1	3	4	NA	1.64	4.44	0.05	0.00	0.01	0.02	0.01
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	1.59	27.85	0.21	0.00	0.00	0.00	0.03
Blowers	Leaf Blowers/Vacuums	1.79	0.94	1	3	4	NA	1.78	6.03	0.03	0.00	0.02	0.03	0.02
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	1	3	4	NA	0.62	12.75	0.20	0.00	0.00	0.00	0.02
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	3	NA	60	0.00	0.25	0.02	0.00	0.13	0.03	0.05
Structure Removal (Poles and Towers)														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	40	NA	30	0.13	0.60	14.30	0.12	3.49	1.09	5.97
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	40	NA	25	0.05	3.37	0.26	0.01	1.40	0.36	0.64
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	40	NA	25	0.38	3.25	2.78	0.03	1.78	0.53	1.55
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	40	NA	25	0.38	3.25	2.78	0.03	1.78	0.53	1.55
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	40	5	NA	18.58	153.64	172.41	0.47	7.04	6.48	22.53
100 - 280 Ton Crane	Cranes	367	0.29	3	40	8	NA	44.60	368.73	413.78	1.13	16.89	15.54	54.07
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	40	NA	10	0.02	1.69	0.11	0.01	0.83	0.21	0.32
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	10	0.01	1.13	0.07	0.00	0.56	0.14	0.21
Worker Commutes	Light-duty Truck	NA	NA	2	40	NA	10	0.02	1.35	0.10	0.01	0.56	0.14	0.26
Restoration														
Worker Commutes - Inspection[e]	Light-duty Truck	NA	NA	1	2	NA	60	0.00	0.20	0.02	0.00	0.08	0.02	0.04
Flat Bed (plants to install)[e]	Heavy-duty Diesel	NA	NA	1	2	NA	60	0.00	0.02	0.48	0.00	0.12	0.04	0.20
Crew Trucks	Light-duty Truck	NA	NA	2	5	NA	60	0.01	1.01	0.08	0.00	0.42	0.11	0.19

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[e] These vehicles will be used for only a portion of the total duration for this phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

NA = Parameter not required for computing emissions.

Table A5.3-8. Phase/Activity #3 - Emissions for Remove Existing Structures and Conductors West of Estates Dr
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Weight Factor[f]				
								2026	2027	2028	2029	2030
ROW Clearing												
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	3	NA	60	0	0	1	0	0
Boom Truck (remove green waste)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0	0	1	0	0
Chain Saws	Chainsaws	1.86	0.70	1	3	4	NA	0	0	1	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	0	0	1	0	0
Blowers	Leaf Blowers/Vacuums	1.79	0.94	1	3	4	NA	0	0	1	0	0
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	1	3	4	NA	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	3	NA	60	0	0	1	0	0
Structure Removal (Poles and Towers)												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	40	NA	30	0	0	1	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	40	NA	25	0	0	1	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	40	NA	25	0	0	1	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	40	NA	25	0	0	1	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	40	5	NA	0	0	1	0	0
100 - 280 Ton Crane	Cranes	367	0.29	3	40	8	NA	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	40	NA	10	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	10	0	0	1	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	40	NA	10	0	0	1	0	0
Restoration												
Worker Commutes - Inspection[e]	Light-duty Truck	NA	NA	1	2	NA	60	0	0	1	0	0
Flat Bed (plants to install)[e]	Heavy-duty Diesel	NA	NA	1	2	NA	60	0	0	1	0	0
Crew Trucks	Light-duty Truck	NA	NA	2	5	NA	60	0	0	1	0	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[e] These vehicles will be used for only a portion of the total duration for this phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

NA = Parameter not required for computing emissions.

Table A5.3-8. Phase/Activity #3 - Emissions for Remove Existing Structures and Conductors West of Estates Dr
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030

Annual Emissions Summary

Year[a]	Emissions (lbs/year)						Emissions (metric tons/year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	69.8	590	609	1.84	35.5	25.4	88.3
2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2030	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[a] Yearly emissions were estimated using a weight factor based on the schedule and months of activity per year.

Table A5.3-9. Phase/Activity #3 - Emissions with Applicant-proposed Measures for Remove Existing Structures and Conductors West of Estates Dr[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030
ROW Clearing												
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	3	NA	60	0	0	1	0	0
Boom Truck (remove green waste)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0	0	1	0	0
Chain Saws	Chainsaws	1.86	0.70	1	3	4	NA	0	0	1	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	0	0	1	0	0
Blowers	Leaf Blowers/Vacuums	1.79	0.94	1	3	4	NA	0	0	1	0	0
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	1	3	4	NA	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	3	NA	60	0	0	1	0	0
Structure Removal (Poles and Towers)												
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	40	NA	30	0	0	2	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	40	NA	25	0	0	2	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	40	NA	25	0	0	2	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	40	NA	25	0	0	2	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	40	5	NA	0	0	2	0	0
100 - 280 Ton Crane	Cranes	367	0.29	3	40	8	NA	0	0	2	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	40	NA	10	0	0	2	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	10	0	0	2	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	40	NA	10	0	0	2	0	0
Restoration												
Worker Commutes - Inspection[e]	Light-duty Truck	NA	NA	1	2	NA	60	0	0	1	0	0
Flat Bed (plants to install)[e]	Heavy-duty Diesel	NA	NA	1	2	NA	60	0	0	1	0	0
Crew Trucks	Light-duty Truck	NA	NA	2	5	NA	60	0	0	1	0	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[e] These vehicles will be used for only a portion of the total duration for this phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Emissions incorporate Applicant-proposed Measures to reduce construction equipment exhaust emissions, as applicable.

NA = Parameter not required for computing emissions.

Table A5.3-9. Phase/Activity #3 - Emissions with Applicant-proposed Measures for Remove Existing Structures and Conductors

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Emission Factors (g/hp-hr for equipment and g/mile for vehicles)						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
ROW Clearing														
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Boom Truck (remove green waste)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Chain Saws	Chainsaws	1.86	0.70	1	3	4	NA	47.48	128.98	1.45	0.01	0.41	0.55	694.41
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	15.90	278.24	2.11	0.01	0.01	0.01	647.75
Blowers	Leaf Blowers/Vacuums	1.79	0.94	1	3	4	NA	40.08	135.48	0.64	0.01	0.44	0.58	908.57
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	1	3	4	NA	14.81	304.46	4.86	0.01	0.08	0.10	812.30
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	3	NA	60	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Structure Removal (Poles and Towers)														
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	40	NA	30	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	40	NA	25	0.01	0.76	0.06	0.00	0.32	0.08	321.14
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	40	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	40	NA	25	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	40	5	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
100 - 280 Ton Crane	Cranes	367	0.29	3	40	8	NA	0.20	1.64	0.26	0.01	0.08	0.07	529.18
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	40	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	10	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	2	40	NA	10	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Restoration														
Worker Commutes - Inspection[e]	Light-duty Truck	NA	NA	1	2	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Flat Bed (plants to install)[e]	Heavy-duty Diesel	NA	NA	1	2	NA	60	0.02	0.08	1.80	0.02	0.44	0.14	1,659.19
Crew Trucks	Light-duty Truck	NA	NA	2	5	NA	60	0.01	0.76	0.06	0.00	0.32	0.08	321.14

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[e] These vehicles will be used for only a portion of the total duration for this phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Emissions incorporate Applicant-proposed Measures to reduce construction equipment exhaust emissions, as applicable.

NA = Parameter not required for computing emissions.

Table A5.3-9. Phase/Activity #3 - Emissions with Applicant-proposed Measures for Remove Existing Structures and Conductors

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[b]					
								ROG	CO	NOx	SOx	PM_{10}[c]	$PM_{2.5}$[c]
ROW Clearing													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.01	0.03	0.71	0.01	0.17	0.05
Boom Truck (remove green waste)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.01	0.03	0.71	0.01	0.17	0.05
Chain Saws	Chainsaws	1.86	0.70	1	3	4	NA	1.64	4.44	0.05	0.00	0.01	0.02
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	1.59	27.85	0.21	0.00	0.00	0.00
Blowers	Leaf Blowers/Vacuums	1.79	0.94	1	3	4	NA	1.78	6.03	0.03	0.00	0.02	0.03
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	1	3	4	NA	0.62	12.75	0.20	0.00	0.00	0.00
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	3	NA	60	0.00	0.25	0.02	0.00	0.13	0.03
Structure Removal (Poles and Towers)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	40	NA	30	0.13	0.60	14.30	0.12	3.49	1.09
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	40	NA	25	0.05	3.37	0.26	0.01	1.40	0.36
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	40	NA	25	0.38	3.25	2.78	0.03	1.78	0.53
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	40	NA	25	0.38	3.25	2.78	0.03	1.78	0.53
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	40	5	NA	18.58	153.64	24.40	0.47	7.04	6.48
100 - 280 Ton Crane	Cranes	367	0.29	3	40	8	NA	44.60	368.73	58.56	1.13	16.89	15.54
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	40	NA	10	0.02	1.69	0.11	0.01	0.83	0.21
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	10	0.01	1.13	0.07	0.00	0.56	0.14
Worker Commutes	Light-duty Truck	NA	NA	2	40	NA	10	0.02	1.35	0.10	0.01	0.56	0.14
Restoration													
Worker Commutes - Inspection[e]	Light-duty Truck	NA	NA	1	2	NA	60	0.00	0.20	0.02	0.00	0.08	0.02
Flat Bed (plants to install)[e]	Heavy-duty Diesel	NA	NA	1	2	NA	60	0.00	0.02	0.48	0.00	0.12	0.04
Crew Trucks	Light-duty Truck	NA	NA	2	5	NA	60	0.01	1.01	0.08	0.00	0.42	0.11

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[e] These vehicles will be used for only a portion of the total duration for this phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Emissions incorporate Applicant-proposed Measures to reduce construction equipment exhaust emissions, as applicable.

NA = Parameter not required for computing emissions.

Table A5.3-9. Phase/Activity #3 - Emissions with Applicant-proposed Measures for Remove Existing Structures and Conductors

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Emissions (metric tons/ phase)[b]	Weight Factor[f]				
								CO_2e	2026	2027	2028	2029	2030
ROW Clearing													
10-Cu Dump Truck	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.30	0	0	1	0	0
Boom Truck (remove green waste)	Heavy-duty Diesel	NA	NA	1	3	NA	60	0.30	0	0	1	0	0
Chain Saws	Chainsaws	1.86	0.70	1	3	4	NA	0.01	0	0	1	0	0
Large Chipper (12 inch diameter veg)	Chippers/Stump Grinders/Shredders Preempt	4.85	0.78	1	3	4	NA	0.03	0	0	1	0	0
Blowers	Leaf Blowers/Vacuums	1.79	0.94	1	3	4	NA	0.02	0	0	1	0	0
Weed Wacker	Trimmers/Edgers/Brush Cutters	1.74	0.91	1	3	4	NA	0.02	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	3	NA	60	0.05	0	0	1	0	0
Structure Removal (Poles and Towers)													
Lowboy Truck/Trailer	Heavy-duty Diesel	NA	NA	3	40	NA	30	5.97	0	0	1	0	0
Truck - Framer (Crew Pick Up)	Light-duty Truck	NA	NA	2	40	NA	25	0.64	0	0	1	0	0
F250 4X4 Crewcab (3/4 T) Foreman	Heavy-duty Truck	NA	NA	2	40	NA	25	1.55	0	0	1	0	0
¾-Ton Pick-up Truck, 4 × 4	Heavy-duty Truck	NA	NA	2	40	NA	25	1.55	0	0	1	0	0
Truck Cranes - 20 - 30 Ton	Cranes	367	0.29	2	40	5	NA	22.53	0	0	1	0	0
100 - 280 Ton Crane	Cranes	367	0.29	3	40	8	NA	54.07	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	3	40	NA	10	0.32	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	10	0.21	0	0	1	0	0
Worker Commutes	Light-duty Truck	NA	NA	2	40	NA	10	0.26	0	0	1	0	0
Restoration													
Worker Commutes - Inspection[e]	Light-duty Truck	NA	NA	1	2	NA	60	0.04	0	0	1	0	0
Flat Bed (plants to install)[e]	Heavy-duty Diesel	NA	NA	1	2	NA	60	0.20	0	0	1	0	0
Crew Trucks	Light-duty Truck	NA	NA	2	5	NA	60	0.19	0	0	1	0	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Default equipment power ratings and load factors were used from Table G-12 or Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[e] These vehicles will be used for only a portion of the total duration for this phase.

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Emissions incorporate Applicant-proposed Measures to reduce construction equipment exhaust emissions, as applicable.

NA = Parameter not required for computing emissions.

Table A5.3-9. Phase/Activity #3 - Emissions with Applicant-proposed Measures for Remove Existing Structures and Conductors West of Estates Dr[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[d]	Equipment Load Factor[d]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030

Annual Emissions Summary

Year[e]	Emissions (lbs/year)						Emissions (metric tons/year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	69.8	590	106	1.84	35.5	25.4	88.3
2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2030	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[e] Yearly emissions were estimated using a weight factor based on the schedule and months of activity per year.

Table A5.3-10. Phase/Activity #4a - Emissions for Construction Activities at Moraga Substation[g]
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030
Equipment Delivery and Setup												
1-Ton Crew Cab Pickup (delivery)[d]	Heavy-duty truck	NA	NA	1	1	NA	50	0	1	0	0	0
Equipment Installation												
Forklift	Forklifts	82	0.2	1	2	5	NA	0	2	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0	2	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	40	NA	50	0	2	1	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0	2	1	0	0
Dress/Test/Wire Equipment												
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0	1	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	40	NA	50	0	1	1	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0	1	1	0	0
Equipment Removal												
1-Ton Crew Cab Pickup (delivery)	Heavy-duty truck	NA	NA	1	1	NA	50	0	0	1	0	0
Inspections												
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	20	NA	50	0	0	1	0	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Mileage assumed consistent with other similarly sized vehicles used for this phase.

[e] Default equipment power ratings and load factors were used from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Applicant-proposed Measures are not relevant to the equipment used for this phase; therefore, separate emission estimates with incorporation of Applicant-proposed Measures are not provided.

NA = Parameter not required for computing emissions.

Table A5.3-10. Phase/Activity #4a - Emissions for Construction Activities at Moraga Substation[g]
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Emission Factors (g/hp-hr for equipment and g/mile for vehicles)						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Equipment Delivery and Setup														
1-Ton Crew Cab Pickup (delivery)[d]	Heavy-duty truck	NA	NA	1	1	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Equipment Installation														
Forklift	Forklifts	82	0.2	1	2	5	NA	0.25	3.58	2.34	0.01	0.11	0.10	528.81
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	40	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Dress/Test/Wire Equipment														
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	40	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Equipment Removal														
1-Ton Crew Cab Pickup (delivery)	Heavy-duty truck	NA	NA	1	1	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Inspections														
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	20	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Mileage assumed consistent with other similarly sized vehicles used for this phase.

[e] Default equipment power ratings and load factors were used from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Applicant-proposed Measures are not relevant to the equipment used for this phase; therefore, separate emission estimates with incorporation of Applicant-proposed Measures are not provided.

NA = Parameter not required for computing emissions.

Table A5.3-10. Phase/Activity #4a - Emissions for Construction Activities at Moraga Substation[g]
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[b]						Emissions (metric tons/ phase)[b]
								ROG	CO	NOx	SOx	PM_{10}[c]	$PM_{2.5}$[c]	CO_2e
Equipment Delivery and Setup														
1-Ton Crew Cab Pickup (delivery)[d]	Heavy-duty truck	NA	NA	1	1	NA	50	0.01	0.08	0.07	0.00	0.04	0.01	0.04
Equipment Installation														
Forklift	Forklifts	82	0.2	1	2	5	NA	0.09	1.29	0.85	0.00	0.04	0.04	0.09
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0.07	5.63	0.36	0.02	2.78	0.71	1.07
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	40	NA	50	0.00	0.00	0.00	0.00	0.00	0.00	0.53
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0.00	0.00	0.00	0.00	0.00	0.00	0.64
Dress/Test/Wire Equipment														
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0.07	5.63	0.36	0.02	2.78	0.71	1.07
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	40	NA	50	0.00	0.00	0.00	0.00	0.00	0.00	0.53
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0.00	0.00	0.00	0.00	0.00	0.00	0.64
Equipment Removal														
1-Ton Crew Cab Pickup (delivery)	Heavy-duty truck	NA	NA	1	1	NA	50	0.01	0.08	0.07	0.00	0.04	0.01	0.04
Inspections														
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	20	NA	50	0.02	1.41	0.09	0.01	0.70	0.18	0.27

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Mileage assumed consistent with other similarly sized vehicles used for this phase.

[e] Default equipment power ratings and load factors were used from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Applicant-proposed Measures are not relevant to the equipment used for this phase; therefore, separate emission estimates with incorporation of Applicant-proposed Measures are not provided.

NA = Parameter not required for computing emissions.

Table A5.3-10. Phase/Activity #4a - Emissions for Construction Activities at Moraga Substation[g]
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Weight Factor[f]				
								2026	2027	2028	2029	2030
Equipment Delivery and Setup												
1-Ton Crew Cab Pickup (delivery)[d]	Heavy-duty truck	NA	NA	1	1	NA	50	0	1	0	0	0
Equipment Installation												
Forklift	Forklifts	82	0.2	1	2	5	NA	0	0.67	0.33	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0	0.67	0.33	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	40	NA	50	0	0.67	0.33	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0	0.67	0.33	0	0
Dress/Test/Wire Equipment												
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0	0.5	0.5	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	40	NA	50	0	0.5	0.5	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0	0.5	0.5	0	0
Equipment Removal												
1-Ton Crew Cab Pickup (delivery)	Heavy-duty truck	NA	NA	1	1	NA	50	0	0	1	0	0
Inspections												
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	20	NA	50	0	0	1	0	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Mileage assumed consistent with other similarly sized vehicles used for this phase.

[e] Default equipment power ratings and load factors were used from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Applicant-proposed Measures are not relevant to the equipment used for this phase; therefore, separate emission estimates with incorporation of Applicant-proposed Measures are not provided.

NA = Parameter not required for computing emissions.

Table A5.3-10. Phase/Activity #4a - Emissions for Construction Activities at Moraga Substation[g]
PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030

Annual Emissions Summary

Year[a]	Emissions (lbs/year)						Emissions (metric tons/year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.15	7.52	1.06	0.03	3.32	0.87	2.71
2028	0.11	6.62	0.75	0.03	3.07	0.79	2.20
2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2030	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[a] Yearly emissions were estimated using a weight factor based on the schedule and months of activity per year.

Table A5.3-11. Phase/Activity #4b - Emissions for Construction Activities at Oakland X Substation[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030
Equipment Delivery and Setup												
Fork Lift	Forklifts	82	0.20	1	1	8	NA	0	1	0	0	0
1-Ton Crew Cab Pickup (delivery)[d]	Heavy-duty Truck	NA	NA	1	1	NA	50	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	1	NA	50	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	1	NA	50	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	1	NA	50	0	1	0	0	0
Equipment Installation												
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	80	NA	50	0	3	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	80	NA	50	0	3	1	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	80	NA	50	0	3	1	0	0
Dress/Test/Wire Equipment												
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0	0	2	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0	0	2	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0	0	2	0	0
Equipment Removal												
1-Ton Crew Cab Pickup (delivery)	Heavy-duty Truck	NA	NA	1	1	NA	50	0	0	1	0	0
Inspections												
Pick-up Truck	Light-duty Truck	NA	NA	3	40	NA	50	0	0	2	0	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Mileage assumed consistent with other similarly sized vehicles used for this phase.

[e] Default equipment power ratings and load factors were used from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Applicant-proposed Measures are not relevant to the equipment used for this phase; therefore, separate emission estimates with incorporation of Applicant-proposed Measures are not provided.

NA = Parameter not required for computing emissions.

Table A5.3-11. Phase/Activity #4b - Emissions for Construction Activities at Oakland X Substation[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Emission Factors (g/hp-hr for equipment and g/mile for vehicles)						
								ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
Equipment Delivery and Setup														
Fork Lift	Forklifts	82	0.20	1	1	8	NA	0.25	3.58	2.34	0.01	0.11	0.10	528.81
1-Ton Crew Cab Pickup (delivery)[d]	Heavy-duty Truck	NA	NA	1	1	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	1	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	1	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	1	1	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Equipment Installation														
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	80	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	80	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	1	80	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Dress/Test/Wire Equipment														
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0.01	0.64	0.04	0.00	0.32	0.08	266.53
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14
Equipment Removal														
1-Ton Crew Cab Pickup (delivery)	Heavy-duty Truck	NA	NA	1	1	NA	50	0.09	0.74	0.63	0.01	0.40	0.12	775.74
Inspections														
Pick-up Truck	Light-duty Truck	NA	NA	3	40	NA	50	0.01	0.76	0.06	0.00	0.32	0.08	321.14

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Mileage assumed consistent with other similarly sized vehicles used for this phase.

[e] Default equipment power ratings and load factors were used from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Applicant-proposed Measures are not relevant to the equipment used for this phase; therefore, separate emission estimates with incorporation of Applicant-proposed Measures are not provided.

NA = Parameter not required for computing emissions.

Table A5.3-11. Phase/Activity #4b - Emissions for Construction Activities at Oakland X Substation[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Emissions (lbs/phase)[b]						Emissions (metric tons/ phase)[b]
								ROG	CO	NOx	SOx	PM_{10}[c]	$PM_{2.5}$[c]	CO_2e
Equipment Delivery and Setup														
Fork Lift	Forklifts	82	0.20	1	1	8	NA	0.07	1.04	0.68	0.00	0.03	0.03	0.07
1-Ton Crew Cab Pickup (delivery)[d]	Heavy-duty Truck	NA	NA	1	1	NA	50	0.01	0.08	0.07	0.00	0.04	0.01	0.04
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	1	NA	50	0.00	0.14	0.01	0.00	0.07	0.02	0.03
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	1	NA	50	0.00	0.07	0.00	0.00	0.03	0.01	0.01
Worker Commutes	Light-duty Truck	NA	NA	1	1	NA	50	0.00	0.08	0.01	0.00	0.03	0.01	0.02
Equipment Installation														
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	80	NA	50	0.14	11.26	0.73	0.05	5.56	1.42	2.13
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	80	NA	50	0.14	11.26	0.73	0.05	5.56	1.42	2.13
Worker Commutes	Light-duty Truck	NA	NA	1	80	NA	50	0.09	6.74	0.52	0.03	2.79	0.71	1.28
Dress/Test/Wire Equipment														
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0.07	5.63	0.36	0.02	2.78	0.71	1.07
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0.07	5.63	0.36	0.02	2.78	0.71	1.07
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0.05	3.37	0.26	0.01	1.40	0.36	0.64
Equipment Removal														
1-Ton Crew Cab Pickup (delivery)	Heavy-duty Truck	NA	NA	1	1	NA	50	0.01	0.08	0.07	0.00	0.04	0.01	0.04
Inspections														
Pick-up Truck	Light-duty Truck	NA	NA	3	40	NA	50	0.14	10.11	0.78	0.04	4.19	1.07	1.93

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Mileage assumed consistent with other similarly sized vehicles used for this phase.

[e] Default equipment power ratings and load factors were used from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Applicant-proposed Measures are not relevant to the equipment used for this phase; therefore, separate emission estimates with incorporation of Applicant-proposed Measures are not provided.

NA = Parameter not required for computing emissions.

Table A5.3-11. Phase/Activity #4b - Emissions for Construction Activities at Oakland X Substation[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Weight Factor[f]				
								2026	2027	2028	2029	2030
Equipment Delivery and Setup												
Fork Lift	Forklifts	82	0.20	1	1	8	NA	0	1	0	0	0
1-Ton Crew Cab Pickup (delivery)[d]	Heavy-duty Truck	NA	NA	1	1	NA	50	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	1	NA	50	0	1	0	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	1	1	NA	50	0	1	0	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	1	NA	50	0	1	0	0	0
Equipment Installation												
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	80	NA	50	0	0.75	0.25	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	80	NA	50	0	0.75	0.25	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	80	NA	50	0	0.75	0.25	0	0
Dress/Test/Wire Equipment												
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0	0	1	0	0
Worker Commutes	Light-duty Auto/Truck	NA	NA	2	40	NA	50	0	0	1	0	0
Worker Commutes	Light-duty Truck	NA	NA	1	40	NA	50	0	0	1	0	0
Equipment Removal												
1-Ton Crew Cab Pickup (delivery)	Heavy-duty Truck	NA	NA	1	1	NA	50	0	0	1	0	0
Inspections												
Pick-up Truck	Light-duty Truck	NA	NA	3	40	NA	50	0	0	1	0	0

[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

[b] The following conversion factors were used to estimate emissions:

1 lb =	453.6	g
1 metric ton =	1,000,000	g
1 ton =	2,000	lbs

[c] PM_{10} and $PM_{2.5}$ emissions include paved road fugitive dust emissions associated with onroad travel; there is no travel on unpaved roads associated with this phase.

[d] Mileage assumed consistent with other similarly sized vehicles used for this phase.

[e] Default equipment power ratings and load factors were used from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] The weight factors are used to calculate annual emissions below and are derived based on the months of activity per year during the construction period.

[g] Applicant-proposed Measures are not relevant to the equipment used for this phase; therefore, separate emission estimates with incorporation of Applicant-proposed Measures are not provided.

NA = Parameter not required for computing emissions.

Table A5.3-11. Phase/Activity #4b - Emissions for Construction Activities at Oakland X Substation[g]

PG&E Moraga-Oakland X 115 kV Rebuild Project

Vehicle and Equipment Emissions

Equipment/Vehicle List[a]	Equipment/Vehicle Type	Equipment Power Rating (hp)[e]	Equipment Load Factor[e]	Quantity per Day	Number of Days Used	Hours per Day	Miles per Day per Vehicle	Months with Activities				
								2026	2027	2028	2029	2030

Annual Emissions Summary

Year[a]	Emissions (lbs/year)						Emissions (metric tons/year)
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.36	23.4	2.25	0.09	10.7	2.74	4.33
2028	0.42	32.1	2.34	0.13	14.7	3.74	6.13
2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2030	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[a] Yearly emissions were estimated using a weight factor based on the schedule and months of activity per year.

Table A5.3-12. Fugitive Dust Emission Factors

PG&E Moraga-Oakland X 115 kV Rebuild Project

Fugitive Dust Emission Factors for Grading

Grading Equipment Passes

Parameter	PM_{10}	$PM_{2.5}$
S[a]	7.1	7.1
F[a]	0.6	0.031
Emission Factor (lb/mile)[b]	1.543	0.167
Control Efficiency for Watering 2x Daily[c]	55%	55%
Controlled Emission Factor (lb/mile)	0.694	0.075

[a] S and F taken from Section 4.4.1 of Appendix C of the *CalEEMod User's Guide* (ICF 2022).

[b] Emission factor calculated using the following equation from Section 4.4.1 of Appendix C of the *CalEEMod User's Guide* (ICF 2022):

PM_{10} Emission Factor (lb/VMT) = $0.051 \times [S\ (mph)]^{2.0} \times F_{PM10}$

$PM_{2.5}$ Emission Factor (lb/VMT) = $0.04 \times [S\ (mph)]^{2.5} \times F_{PM2.5}$

[c] Control efficiency for watering unpaved roads twice per day taken from the CalEEMod model.

Fugitive Dust Emissions from Paved and Unpaved Roads

Included in vehicle emissions.

Table A5.3-13. Construction Equipment Emission Factors

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase

OFFROAD Equipment Category	Fuel Type	Horsepower[a]	Load Factor[a]	Year[b]	Emission Factors (g/hp-hr)[c]										
					ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e[d]	CO_2	CH_4	N_2O	Controlled Nox[f]
Air Compressors	Diesel	37	0.48	2026	0.512	4.822	3.646	0.007	0.099	0.091	570.352	568.287	0.023	0.005	3.646
Bore/Drill Rigs	Diesel	83	0.50	2026	0.128	3.253	1.639	0.005	0.040	0.037	531.524	525.082	0.210	0.004	1.639
Chainsaws	Petrol/Gas[e]	1.86	0.70	2026	47.480	128.980	1.450	0.010	0.410	0.550	694.410	690.680	0.030	0.010	1.450
Chippers/Stump Grinders/Shredders Preempt	Petrol/Gas[e]	4.85	0.78	2026	15.900	278.240	2.110	0.010	0.010	0.010	647.750	644.020	0.030	0.010	2.110
Cranes	Diesel	367	0.29	2026	0.198	1.637	1.837	0.005	0.075	0.069	529.178	527.461	0.021	0.004	0.260
Excavators	Diesel	36	0.38	2026	0.393	4.221	3.407	0.005	0.099	0.091	589.119	587.029	0.024	0.005	3.407
Forklifts	Diesel	82	0.20	2026	0.246	3.579	2.342	0.005	0.112	0.103	528.814	527.097	0.021	0.004	2.342
Generator Sets	Diesel	14	0.74	2026	0.539	2.860	4.324	0.008	0.174	0.160	570.392	568.327	0.023	0.005	4.324
Graders	Diesel	148	0.41	2026	0.313	3.397	2.528	0.005	0.140	0.129	532.557	530.815	0.022	0.004	2.528
Leaf Blowers/Vacuums	Petrol/Gas[e]	1.79	0.94	2026	40.080	135.480	0.640	0.010	0.440	0.580	908.570	904.590	0.040	0.010	0.640
Off-Highway Trucks	Diesel	376	0.38	2026	0.176	1.178	1.011	0.005	0.036	0.033	530.885	529.168	0.021	0.004	0.260
Other Construction Equipment	Diesel	82	0.42	2026	0.282	3.504	2.734	0.005	0.158	0.145	529.258	527.541	0.021	0.004	2.734
Rollers	Diesel	36	0.38	2026	0.542	4.093	3.614	0.005	0.154	0.142	589.004	586.914	0.024	0.005	3.614
Rough Terrain Forklifts	Diesel	96	0.40	2026	0.115	3.220	1.643	0.005	0.033	0.030	530.606	528.889	0.021	0.004	1.643
Rubber Tired Dozers	Diesel	367	0.40	2026	0.353	2.726	3.223	0.005	0.142	0.131	534.292	532.550	0.022	0.004	3.223
Rubber Tired Loaders	Diesel	150	0.36	2026	0.211	3.293	1.398	0.005	0.073	0.067	528.132	526.415	0.021	0.004	1.398
Signal Boards	Diesel	6	0.82	2026	0.547	3.470	4.143	0.009	0.162	0.149	570.367	568.302	0.023	0.005	4.143
Skid Steer Loaders	Diesel	71	0.37	2026	0.134	3.245	1.807	0.005	0.051	0.047	530.338	528.621	0.021	0.004	1.807
Sweepers/Scrubbers	Diesel	36	0.46	2026	0.584	4.731	3.759	0.005	0.171	0.157	588.749	586.659	0.024	0.005	3.759
Tractors/Loaders/Backhoes	Diesel	84	0.37	2026	0.184	3.481	1.885	0.005	0.063	0.058	531.424	529.707	0.021	0.004	0.260
Trimmers/Edgers/Brush Cutters	Petrol/Gas[e]	1.74	0.91	2026	14.810	304.460	4.860	0.010	0.080	0.100	812.300	808.570	0.030	0.010	4.860
Welders	Diesel	46	0.45	2026	0.465	4.493	3.570	0.007	0.095	0.088	570.356	568.291	0.023	0.005	3.570

[a] Unless otherwise indicated, Horsepower and Load Factors taken from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[b] Construction emission factors conservatively based on the year construction activities begin (2026).

[c] Unless otherwise indicated, Emission Factors taken from Table G-11 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[d] CO_2e emissions were calculated using the following global warming potentials from 40 CFR Part 98, Table A-1:

CO_2 = 1

CH_4 = 25

N_2O = 298

[e] Gasoline-powered landscaping equipment (e.g., chainsaws, leaf blowers, trimmers/edgers/brush cutters) Horsepower and Load Factors taken from Table G-27 of Appendix G of the *CalEEMod User's Guide* (ICF 2022). Their Emission Factors taken from Table G-26 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

[f] Controlled NOx emission factors for the Cranes, Off-Highway Trucks, and Tractors/Loaders/Backhoes taken from Table G-13 of Appendix G of the *CalEEMod User's Guide* (ICF 2022), assuming these equipment would comply with the

Tier 4 Final emissions standard. All other equipment assumed to be a mix of Tier 2/Tier 3 equipment, as represented by the default emission factors provided in Table G-11 or Table G-27 of Appendix G of the *CalEEMod User's Guide*

Table A5.3-14. Vehicle Emission Factors

PG&E Moraga-Oakland X 115 kV Rebuild Project

Construction Phase Emission Factors for 2026[a]

Vehicle Class	EMFAC Vehicle Types	Exhaust Emission Factors (g/mile)[b]							Paved Road Emission Factors (g/mile)[c]		Unpaved Road Emission Factors (g/mile)[c]		Controlled Unpaved Road Emission Factors (g/mile)[c]	
		ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Light-duty Auto/Truck	LDA, LDT1, LDT2	0.01	0.64	0.04	0.00	0.02	0.01	266.53	0.30	0.07	65.07	651.31	29.28	293.09
Heavy-duty Diesel	HHDT	0.02	0.08	1.80	0.02	0.14	0.06	1,659.19	0.30	0.07	65.07	651.31	29.28	293.09
Heavy-duty Truck	LHDT1, LHDT2	0.09	0.74	0.63	0.01	0.10	0.05	775.74	0.30	0.07	65.07	651.31	29.28	293.09
Medium-duty Diesel	MHDT	0.02	0.10	1.02	0.01	0.07	0.03	1,189.11	0.30	0.07	65.07	651.31	29.28	293.09
Light-duty Truck	LDT1, LDT2	0.01	0.76	0.06	0.00	0.02	0.01	321.14	0.30	0.07	65.07	651.31	29.28	293.09

[a] Construction emission factors conservatively based on the year construction activities begin (2026).

[b] Vehicle Emission Factors from EMFAC2021 for the Bay Area AQMD, calendar year 2026. Vehicle class category for various trucks was assigned based on the vehicle GVWR, per Appendix 4 of the *EMFAC2021 User's Guide* (CARB 2021).

[c] Paved and unpaved road emission factors calculated using CalEEMod methodology, as described below.

Derivation of Paved Road Emission Factors

Parameter[a]	PM_{10}	$PM_{2.5}$
Average Weight	2.4	2.4
k	1	0.25
sL	0.1	0.1
P[b]	9	9
Emission Factor (g/mile)[c]	**0.299**	**0.075**

[a] Except for P, all parameters taken from Section 5.1.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022).

[b] P taken from the CalEEMod model for a location in or around Piedmont, California.

[c] Emission factor calculated using methodology from Section 5.1.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022), as follows:
Emission Factor (g/mile) = k (g/mile) x [sL $(g/m^2)]^{0.91}$ x [Average Weight (tons)]$^{1.02}$ x [1 - P (days) / 1,460 days]

Unpaved Road Emission Factors

Parameter[a]	PM_{10}	$PM_{2.5}$
k	81.65	816.47
s	8.5	8.5
S	40	40
M	0.5	0.5
C	0.07	0.03
P[b]	9	9
Emission Factor (g/mile)[c]	**65.068**	**651.306**
Control Efficiency for Watering 2x Daily[d]	**55%**	**55%**
Controlled Emission Factor (g/mile)	**29.281**	**293.088**

[a] Unless otherwise noted, all parameters taken from Section 5.1.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022).

[b] P taken from the CalEEMod model for a location in or around Piedmont, California.

[c] Emission factor calculated using methodology from Section 5.1.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022), as follows:
Emission Factor (g/mile) = [({k (g/mile) x [s (%) / 12]^1 x [S (miles/hr) / 30]$^{0.5}$ } / [M (%) / 0.5]$^{0.2}$) - C (g/mile)] x [1 - P (days) / 365 days]

[d] Control efficiency for watering unpaved roads twice per day taken from the CalEEMod model.

Table A5.3-15. Aircraft Emission Factors

PG&E Moraga-Oakland X 115 kV Rebuild Project

LTO and In-Flight Emission Factors

Aircraft Type	Aircraft Make/ Model	LTO Emission Factors (g/LTO)							In-Flight Emission Factors (kg/hr)						
		ROG[a]	CO[a]	Nox[a]	Sox[b]	PM_{10}[a]	$PM_{2.5}$[a]	CO_2[c]	ROG[a]	CO[a]	Nox[a]	Sox[b]	PM_{10}[a]	$PM_{2.5}$[a]	CO_2[c]
Light Ship	MD500	344.44	457.70	85.10	114.60	1.52	1.48	61,276.50	0.75	0.96	0.70	0.70	0.01	0.01	374.40
Medium Ship	407 Long Ranger/Jet	278.13	365.50	130.50	141.60	2.13	2.07	75,713.37	0.64	0.82	1.11	0.90	0.02	0.02	479.30
Medium Ship	UH-60 Blackhawk	554.33	724.90	575.30	438.00	8.55	8.35	234,198.12	1.08	1.32	5.43	3.05	0.01	0.01	1,628.48

[a] Emission Factors derived from data presented in Table 9 of the *Guidance on the Determination of Helicopter Emissions* (Rindlisbacher and Chabbey 2015), as shown below, using the following conversion factors:

Conversion of HC to VOC = 0.9708

Fraction of $PM_{2.5}$ in PM_{10} = 0.976

[b] SOx Emission Factors estimated assuming jet fuel is regulated to contain < 0.3% sulfur by weight and the following conversion factors:

Max Sulfur Content = 0.003

Ratio of Molecular Weights for SO_2 to S = 2

[c] CO_2 Emission Factors calculated using the following default parameters for jet fuel from 40 CFR Part 98, Table C-1:

Emission Factor =	72.22	kg CO_2/MMBtu
HHV =	0.135	MMBtu/gal
Density =	3.039	kg/gal

LTO and In-Flight Fuel Consumption and Emissions Data (Rindlisbacher and Chabbey 2015)

Aircraft Type	Aircraft Make/Model	LTO Fuel (kg)	LTO Emissions (g)				Hourly Fuel (kg)	Hourly Emissions (kg/hr)			
			NOx	HC	CO	PM		NOx	HC	CO	PM
Light Ship	MD500	19.1	85.10	354.80	457.70	3.00	116.7	0.70	0.77	0.96	0.02
Medium Ship	407 Long Ranger/Jet	23.6	130.50	286.50	365.50	4.20	149.4	1.11	0.66	0.82	0.03
Medium Ship	UH-60 Blackhawk	73	575.30	571.00	724.90	16.90	507.6	5.43	1.11	1.32	0.02

Table A5.8-16. GHG Emissions from SF6-Insulated Circuit Breakers

PG&E Moraga-Oakland X 115 kV Rebuild Project

Circuit Breaker Emissions

Equipment	Number of New Circuit Breakers	SF_6 Capacity per Breaker (lbs)	Leakage Rate[a]	SF_6 Emissions per Circuit Breaker (lbs/year)	Total SF_6 Emissions (lbs/year)	CO_2e Emissions (metric tons/year)[b, c]
SF_6 Circuit Breaker	2	132	0.5%	0.7	1.3	13.7

[a] It was conservatively assumed that the leakage rate would be 0.5% per APM GHG-2.

[b] CO_2e emissions were calculated using the following global warming potential from 40 CFR Part 98, Table A-1:

SF_6 = 22,800

[c] The following conversion factor was used to estimate emissions:

1 metric ton = 2,204.62 lb