

PG&E Winsor Substation Project
 Calculation of Criteria Pollutant Emissions Estimates for Substation operation.
 Mobile Sources

BAAQMD CEQA Guidelines – Section 3.4 – Calculating Mobile Source Emissions – “Manual Calculation Method”.
 Emissions from vehicle use:

Light truck	U	T	L'	R	S	g/day	lb/day	tons/day
ROG	1	1	6.7	0.22	0.79	2.264	0.004991182	2.49559E-06
NOx	1	1	6.7	0.76	0.89	5.982	0.013187831	6.59392E-06
CO	1	1	6.7	3.66	12.85	37.372	0.082389771	4.11949E-05
SOx	1	1	6.7	0.03		0.201	0.000443122	2.21561E-07
PM10	1	1	6.7	0.44		2.948	0.006499118	3.24956E-06
Heavy truck	U	T	L'	R	S	g/day	lb/day	tons/day
ROG	1	1	1.7	0.22	0.79	1.164	0.002566138	1.28307E-06
NOx	1	1	1.7	0.76	0.89	2.182	0.004810406	2.4052E-06
CO	1	1	1.7	3.66	12.85	19.072	0.042045855	2.10229E-05
SOx	1	1	1.7	0.03		0.051	0.000112434	5.62169E-08
PM10	1	1	1.7	0.44		0.748	0.00164903	8.24515E-07

Pollutant	Vehicle Sum	Sonoma county* emissions (tons/day)	Sonoma county emissions (lbs/day)	Percent
ROG	0.0076	28	56000	0.00001
NOx	0.018	26	52000	0.00003
CO	0.1244	159	318000	0.00004
SOx	0.0006	0	0	0.00000
PM10	0.0081	17	34000	0.00002

1) based on PG&E estimated miles per month and 22 work days per month.

* BAAMQD summary statistics for Sonoma County - 2005

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 Calculation of GHG Emissions Estimates for Substation operation.

SF6 from operations - info supplied by PG&E.

QB lb/breaker	substation # Breakers	QT lb/substation	Leak rate %/yr	Leak rate lb/year	GWP SF6	Leak rate lb CO2e/yr	Leak rate Mton CO2e/yr
61.2	3	183.6	0.5	0.92	23900	21940.2	9.95

Operations vehicles GHG emissions estimate*.

Vehicle	Fuel effic. miles/ gallon**	Trip Miles/month	Annual Miles	Fuel use Gal/year	Gasoline vehicle, Model year 2005			Emissions Mt CO2	Emissions kg N2O	Emissions kg CH4	GWP N2O	GWP CH4	N2O MtCO2e	CH4 MtCO2e	Total emissions MtCO2e/year
					Emis. factor kgCO2/gal	Emis. factor gN2O/mile	Emis. factor gCH4/mile								
Light truck	15	200	2400	160	8.81	0.0101	0.0157	1.4096	0.02424	0.03768	310	21	0.0075	0.0008	1.42
HD truck	5.8	50	600	103	8.81	0.0177	0.0326	0.9114	0.01062	0.01956	310	21	0.0033	0.0004	0.92

* emissions factors from The Climate Registry General Reporting Protocol. Adapted from USEPA Climate Leaders.

** TCR GRP and manufacturers average for 2005.