

**Vista Canyon Ranch Proposed Project
Locomotive Idling Emissions**

Number of Trains	22
Number of Engines/Train	2
Engine Size	400 kW
Conversion (Power)	1.341 hp/kW
Brake Horse Power	1,073 bhp/train
Idling Time	5 minutes
Idling Time for 22 trains/day	110 minutes/day
Idling Time for 22 trains/day	1.833 hrs/day
Conversion (Mass)	0.002 lbs/gram
Conversion (Fuel)	20.8 bhp-hr/gal

Buildout Year: 2015	Criteria Pollutant Emissions ¹					GHG Emissions ²		
	VOC	CO	NO _x	SO _x	PM	CO ₂	N ₂ O	CH ₄
Emission Factor (g/bhp-hr)	0.41	1.32	7.26	--	0.25	487.98	0.01	0.04
Emissions (lbs/day)	1.78	5.72	31.48	--	1.08	2,115.94	0.05	0.17
Emissions (metric ton CO ₂ e/yr)						353.68		

Sources:

1. U.S. Environmental Protection Agency, *Emission Factors for Locomotives*, (1997).
2. California Climate Action Registry, General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions Version 3.1, (2009) 45, 100.

Notes:

SO_x emissions are considered to be negligible.

Emission factor for PM assumes all PM is less than 2.5 microns in diameter.