Appendix G

Greenhouse Gas Emission Calculations

Great River Energy
Pilot Knob to Burnsville
Construction Greenhouse Gas Emissons
Summary

	Greenhouse Gas Emissions From Construction Engines (tons)			
Description	**CO_2**	**CH_4**	**N_2O**	**CO_2e [a]**
Off-Road Engine Emissions	774.77	0.03	0.01	777.42
Commuters and Delivery Vehicles	362.42	0.00	0.00	362.42
TOTAL	**1137.18**	**0.03**	**0.01**	**1139.84**

[a] CO_2e = carbon dioxide equivalent. Includes global warming potentials from 40 CFR 98 Table A-1.

Global Warming Potentials		
CO_2	**CH_4**	**N_2O**
1	25	298

Source: 40 CFR 98 Table A-1: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98#Table-A-1-to-Subpart-A-of-Part-98

Great River Energy
Pilot Knob to Burnsville
Construction Greenhouse Gas Emissons
Greenhouse Gas Emissions from On Road Construction Traffic

On-Road Vehicles					
	Vehicles per day	**Miles per vehicle**	**Number of Days**	**Fuel Used (gallons)**	**CO_2 Emissions [a] (tons)**
Commuter Vehicles - Gasoline [b,c]	25	60	560	35,000	343
Delivery Trucks - Diesel [d]	1	60	160	1,477	16.58
Concrete Mixer Trucks - Diesel [e]	1	60	15	265	2.97

[a] Assumes 1 gallon of gasoline = 8,887 grams CO_2 and 1 gallon of diesel = 10,180 g CO_2, per US EPA's "Greenhouse Gas Emissions from a Typical Passenger Vehicle," available online at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100U8YT.pdf

[b] Assumes commuters travel 30 miles each way (60 miles round trip) per day, with a fuel economy of 24 miles per gallon, per US EPA and US Department of Energy Fuel Economy data for combined city and highway driving in 2023, available online at: https://www.fueleconomy.gov/feg/download.shtml.

[c] Assumes commuters will travel for 112 weeks, 5 days a week.

[d] Assumes delivery trucks travel 30 miles each way (60 miles round trip) per day, with a fuel economy of 6.5 miles per gallon, industry average.

[e] Assumes concrete mixer trucks travel 30 miles each way (60 miles round trip) per day, with a fuel economy of 3.4 miles per gallon, industry average.
http://ascpro0.ascweb.org/archives/cd/2012/paper/CPRT221002012.pdf#:~:text=The%20National%20Ready%20Mix%20Concrete%20Association%20%28NRMCA%29%20in,average%203.4%20miles%20per%20gallon%20of%20diesel%20fuel.

1 short ton =	907,185	grams
1 gal gasoline =	8,887	g CO2
1 gal diesel =	10,182	g CO2

Commuter Vehicle MPG=	24
Delivery Trucks (Diesel) MPG=	6.5
Concrete Mixer Truck MPG=	3.4