

Clean Energy Fuels

CA-GREET Model for North Shelby LNG Pathway

The applicant has conducted its analysis of direct effects on carbon intensity for this pathway using CA-GREET, v.1.8b (Dec. 2009) (See http://www.arb.ca.gov/fuels/lcfs/ca_greet1.8b_dec09.xls). The standard inputs and parameters specified in CA-GREET remain unchanged except as noted in the input table below. The input table below specifies the spreadsheet location of the CA-GREET inputs and other parameters that were claimed as confidential business information by the applicant, but it does not disclose the actual value of such inputs and parameters because they are claimed to be confidential business information or trade secret. These tables can also be found in the technical reports.

Clean Energy Fuels input data table (Locations of cells containing Confidential Business Information are shown, but the actual values of such confidential information are not disclosed):

Parameter	Unit	Value	CA-GREET Cell Changed
LFG Recovery and Transport			
Thermal	Btu/MMBtu	Confidential	CA-GREET Default (L85)
Electricity	Btu/MMBtu	Confidential	CA-GREET Default ¹ (L91)
Total Energy	Btu/MMBtu	Confidential	N/A
LFG Plant		NG Tab	
LFG Processing Efficiency	%	Confidential	AI66 (via C182)
Electricity Fuel Share	%	Confidential	AI79 (via C184)
LFG Fuel Share	%	Confidential	AI75 (via C183)
Natural Gas Fuel Share	%	Confidential	AI76 (via C185)
Electricity	kWh/MMBtu	Confidential	N/A
Electricity	Btu/MMBtu	Confidential	Calculated in CA-GREET (AI91)
Natural Gas	Btu/MMBtu	Confidential	Calculated in CA-GREET (AI85)
LFG	Btu/MMBtu	Confidential	Calculated in CA-GREET (AI87)
Credit for Not Flaring	Btu/MMBtu	Confidential	Calculated in CA-GREET (AJ88)
Total Energy	Btu/MMBtu	Confidential	N/A
Electricity Grid Mix		Regional LT Tab	
Residual oil	%	0.9	J83
Natural gas	%	39.3	J84
Coal	%	58.8	J85
Nuclear	%	0	J86
Biomass	%	0.8	J87
Other (renewables)	%	0.2	J88

¹ http://www.arb.ca.gov/fuels/lcfs/022709lcfs_lfg.pdf, pages 9-10.

Natural Gas Transport			T&D Flowcharts Tab (via NG Tab)
Pipeline Distance	mi	1,925	F479 (via E148)
Liquefaction			NG Tab
Electricity	kWh/Gallon	Confidential	N/A
Liquefaction Efficiency	%	Confidential	AD66
Electricity Fuel Share	%	Confidential	AD79
Natural Gas Fuel Share	%	Confidential	AD75
Electricity	Btu/MMBtu	Confidential	Calculated in CA-GREET (AD91)
LNG Transport			T&D Tab
Truck LNG Fuel Share	%	90	CD97
Truck Diesel Fuel Share	%	10	CD95
LNG Storage			Inputs Tab
Boil-Off Rate: % per Day	%/day	0.05 / 0.1	E171 / F171
Duration of Storage or Transit: Days	Days	5 / 0.1	E174 / F174
Recovery Rate for Boil-Off Gas	%	80% / 80%	E179 / F179
L/CNG			NG Tab
L/CNG Conversion	gCO ₂ e/MJ	2.89	J171