

# Element Markets Renewable Energy CA-GREET Model

The applicant has conducted its analysis of direct effects on carbon intensity for this pathway in two phases:

- For all upstream steps of the LFG-to-LNG pathway up until NG liquefaction, carbon intensity analysis of pathway CNG007<sup>1</sup> (Johnstown Regional Energy LLC – Pennsylvania Landfill Gas to CNG) approved and published by ARB on 04/10/2013 was adopted.

Please see the Application Package for pathway CNG007 available on ARB's website for additional details.

- For NG liquefaction and all other downstream steps of the LFG-to-LNG pathway CA-GREET model v.1.8b (Dec. 2009) (See [http://www.arb.ca.gov/fuels/lcfs/ca\\_greet1.8b\\_dec09.xls](http://www.arb.ca.gov/fuels/lcfs/ca_greet1.8b_dec09.xls)) was used.

This document only contains changes made CA-GREET model v.1.8b for the analysis of liquefaction and downstream steps.

The standard inputs and parameters specified in the CA-GREET model remain unchanged except as noted in the input tables below. The input table below specifies the spreadsheet location of the CA-GREET inputs and other parameters that were claimed as confidential business information or trade secret by the

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<sup>1</sup> Johnstown Regional Energy LLC – Pennsylvania Landfill Gas to CNG; posted on ARB website on 04/10/2013; <http://www.arb.ca.gov/fuels/lcfs/2a2b/apps/jre-040913.pdf>

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.

Input table for NG liquefaction and all downstream steps of the LFG-to-LNG pathway (changes made to CA-GREET model v.1.8b)

<b>GREET sheet</b>	<b>GREET cell</b>	<b>Default value/formula</b>	<b>New value/formula</b>
Inputs	E179	100%	
Regional LT	I83	0.0%	
Regional LT	I84	33.5%	
Regional LT	I85	51.6%	
Regional LT	I86	0.0%	
Regional LT	I87	5.8%	
Regional LT	I88	9.1%	
NG	AD75	100.0%	
NG	AD66	80.0%	
T&D_Flowcharts	M578	50	