



Don Gilstrap

Manager, Fuels Regulations

May 31, 2023

Cheryl Laskowski
Branch Chief
Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Dr. Laskowski:

Subject: Landfill Gas (LFG) Tier 1 Calculator

Chevron appreciates the opportunity to review and comment on the Tier 1 Calculators for LCFS pathways.

Company Background:

Chevron is a major refiner and marketer of petroleum products and renewable fuels in the state of California and a regulated party under the Low Carbon Fuel Standard (LCFS). With the recent acquisition of Renewable Energy Group, Inc., Chevron is also an international producer of lower carbon intensity fuels with a global integrated procurement, distribution, and logistics network, and 11 biorefineries in the U.S. and Europe. Additionally, Chevron has created partnerships with dairy biomethane producers to safely deliver lower carbon energy in the renewable natural gas and hydrogen markets.

Comment Summary:

Below are our comments on the LFG Tier 1 Calculator. We also plan to submit comments on the Biomethane from Anaerobic Digestion of Dairy and Swine Manure Draft Tier 1 Calculator under a separate response letter per the instructions on CARB's website. Some comments, particularly as they relate to feedstock production and transport, apply to all RNG calculators. Thus, we would encourage CARB staff responsible for the LFG Calculator to also review our comments on the various RNG calculators as consistency in inputs common to all RNG calculators is essential.

Timeline for Feedback:

CARB has set the deadline for providing feedback on proposed Tier 1 simplified calculators and lookup tables as May 31, 2023. While this is sufficient time for some of the calculators, such as those published in February and March, it is not sufficient time for those published in late April and/or May 2023. We request a minimum of 60 days to complete our review of the draft calculators and instruction manuals after they are published on CARB's website.



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The following are our comments on the LFG Tier 1 calculator:

- Cell F20 (CA-GREET 4.0 Upgrading Fugitive Feed Loss Emission Factor) in the Pathway Summary table does not reference the CA-GREET 4.0 tab. We understand that the 25 gCO₂e/gCH₄ is referencing the global warming potential (GWP) of methane; to enhance transparency, we suggest including GWP values in the CA-GREET4.0 Tab and link them to the appropriate cells.
- We appreciate the enhancements made to the Tier 1 calculator, including the use of macros to hide unneeded data columns compared to the CA-GREET 3.0 Calculator. However, during our review some users had functionality issues with selecting buttons/checkboxes used in the spreadsheet. There may be workarounds to use these, but the sheet should be modified to remove/modify the buttons so that users can easily use the workbook without macro or other IT firewalls. Dropdowns are an effective way to select multiple options and we have not experienced any issues using them.
 - After some trials, we were able to populate the carbon intensity by going to Formulas>Calculate Now. We would recommend adding a separate "Calculate Now" button to increase efficiency.
- The eGRID factors listed in the CA-GREET 4.0 sheet do not appear to match the 2021 factors released on the EPA website. We would like to confirm the data source and any conversions and modifications carried out.
 - The difference ranges between -37% and 261% at the extremes. See **Appendix A** for a breakout by subregions and comparisons.
 - It appears that eGRID does not include upstream fuel production/transport emissions. We would like to understand how the numbers in CA-GREET 4.0 were generated and what lifecycle stages are included, as well as their source.
- CARB's values in the CA-GREET 4.0 tab should align with the latest values published in the scientific literature, which we believe are reflected in the latest GREET model. If CARB chooses to use different numbers, we would like to understand the reasoning for the modified values.

If you have any questions regarding our comments, please contact me at dgilstrap@chevron.com.

Sincerely,



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Appendix A- Comparison of eGRID factors between CA-GREET 4.0 and EPA 2021

EGRID Subregion	2021 EPA eGRID	CA-GREET 4.0	Percent Difference
AKGD	487.0	307	-37%
AKMS	220.9	573	159%
AZNM	373.3	432	16%
CAMX	242.0	314	30%
ERCT	370.7	449	21%
FRCC	379.4	473	25%
HIMS	518.9	880	70%
HIOA	746.4	650	-13%
MROE	722.2	780	8%
MROW	455.0	517	14%
NEWE	246.7	167	-32%
NWPP	289.6	349	21%
NYCW	371.0	365	-2%
NYLI	552.9	460	-17%
NYUP	106.2	383	261%
PRMS	709.4	949	34%
RFCE	306.6	520	70%
RFCM	554.2	625	13%
RFCW	477.4	558	17%
RMPA	529.0	571	8%
SPNO	453.2	523	15%
SPSO	470.4	512	9%
SRMV	351.7	450	28%
SRMW	705.2	812	15%
SRSO	406.6	318	-22%
SRTV	425.2	500	18%
SRVC	291.6	512	75%
U.S.	388.7	459.6	18%

