Comment 1 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Beth
Last Name: Hilbourn
Email Address: beth.hilbourn@weaver.com
Affiliation: Weaver and Tidwell, L.L.P.

Subject: New Tier 1 Simplified CI-Calculator for Hydrogen
Comment:

I found the hydrogen simplified calculator very helpful and easy to use. I appreciate CARB drafting this as it will expedite hydrogen projects as a tier 1 application. The application of the calculator is vast as it considers both SMR and electrolysis in addition to book and claim for both RNG and low-CI electricity.

I performed a detailed check on the calculations and found little to point out. I also included minor comments on the instruction manual.

• The calculator states that it is for hydrogen used as either a transportation fuel or as a process input for alternate transportation fuels; however, the calculator seems set up as only as a transportation fuel since a CI is not calculated when Field 4.10 or Field 4.11 (To Fueling Station) is not input. Also, the defaults (SMR & Electrolysis), do not even have as input Field 4.9 Hydrogen Produced at Fuel Production Facility.
• I understand that only one Book and Claim option can be chosen per Section D of the instruction manual; however, RNG should be possible (though not likely) for electrolysis. Natural gas is an option for electrolysis, and it might be possible to have Direct-CI Electricity and RNG. It is also allowed per 9588.8(i)(2).
• The values in columns D and F of 'Pathway Summary' are hard to read being in scientific notation.
• The following are potential errors in the calculator:
o The Quantity Matched for both Fields 4.6 and 4.8 is not utilized in the CI calculation.
o Field 4.10 or Field 4.11 (To Fueling Station is not input) is not utilized in the CI calculation for site-specific data, only Field 4.9 is.
• The Introduction tab of the calculator, states, "The Predefined Inputs" worksheet contains..." when the worksheet tab is labeled 'CA-GREET4.0'. The instructions also uses 'CA-GREET4.0' as the worksheet name.
• The instructions for Field 3.8 H2 Transport Distance (miles) refers only to the fueling station. Can it instead include mileage to the alternate transportation fuel production facility?
• The instructions for Field 4.4 Direct Supply Low-CI Electricity (kWh) refers to Regulation section 95488.xx. Should 95488.xx be 95488.8(h)?
• Consider adding the following to Field 4.6 Quantity Matched (MMBtu, HHV), "For more details refer to LCFS Regulation section 95488.8(i)(2).
• Consider adding the following to Field 4.8 Quantity Matched (MMBtu, HHV), "For more details refer to LCFS Regulation section 95488.8(i)(1).

I am eager to discuss these comments and help in expediting the implementation of the calculator in any way I can.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-03-09 14:16:15

No Duplicates.

Comment 2 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Robert
Last Name: Juhl
Email Address: rjuhl@dejongfamilyfarms.com
Affiliation: de Jong Family Farms, LLC

Subject: Comments Regarding Potential Changes to the Low Carbon Fuel Standard
Comment:

Dear Chair Randolph,

We would like to support the comments offered by Newtrient LLC on behalf of the dairy industry in response to the February 22, 2023, Public Workshop regarding potential changes to the Low Carbon Fuel Standard (LCFS).

Newtrient applauds the leadership the California Air Resources Board (CARB) is taking on climate change and appreciates being a part of this important dialogue surrounding potential changes to the Low Carbon Fuel Standard (LCFS). The dairy industry has answered the call to action and is embracing environmental responsibility - from family farms in California, to farms across America. By installing and utilizing biogas systems, farms are offering practical solutions to the challenges CARB seeks to address.

We would like to highlight our support of the following:
· We encourage CARB to adopt higher Carbon Intensity (CI) reductions.
· We urge CARB to reconsider elimination of Book and Claim.
· We strongly oppose phasing out avoided methane emission crediting.

Additionally, we would ask that CARB do the following:
· Advocate For Ongoing Investment in Dairy Digester Methane Capture and Beneficial Use
· Update GREET Modelling
· Oppose RNG Market Use Limitations
· Support Market Mechanism
· Reject Calls to Regulate Dairies.

We appreciate CARB's efforts to lead a robust stakeholder process ahead of formal rulemaking. We look forward to continuing to partner with the California dairy industry, CARB, and other stakeholders in the successful achievement of the State's climate goals, particularly the world leading short-lived climate pollutants (SLCP) target and programs. Greenhouse gas ("GHG") emissions have a global impact, and it is important that CARB demonstrate that its programs can harmonize environmental goals and protect the state's economy. This is particularly true of local economies in the disadvantaged communities the State says it will prioritize. California's dairy farm families and developers are striving to develop projects that not only reduce potent SLCP emissions, but also create opportunities for economic development that helps protect jobs and improve baseline environmental conditions in these communities.

Thank you for your consideration of these comments.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-03-17 10:30:58

No Duplicates.

Comment 3 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Miles
Last Name: Heller
Email Address: hellermt@airproducts.com
Affiliation: Air Products

Subject: H2 Calculator Comments
Comment:

```
Thank you for the opportunity to submit comments.  Please find them
attached.
```

Attachment: www.arb.ca.gov/lists/com-attach/4-lcfscalculators23-ws-AGFRPgFyU19QJgZ0.pdf

Original File Name: Air Products Comments Tier 1 Hydrogen Calculator final.pdf

Date and Time Comment Was Submitted: 2023-04-28 08:38:41

No Duplicates.

Comment 4 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Joe
Last Name: Berti
Email Address: joe@p6technologies.com
Affiliation:

Subject: Electronic Submission of Data
Comment:

We would like to work with LCFS on the ability to submit electronically versus the current approach of using spreadsheets, similar to how taxes are submitted electronically today. This would greatly streamline the submission process for both CARB, the verifiers and the companies submitting. If California CARB board is open at least to a discussion on how this could work we would be interested to discuss.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-04-28 11:38:24

No Duplicates.

Comment 5 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Krysta
Last Name: Wanner
Email Address: krysta@westernpga.org
Affiliation: Western Propane Gas Association

Subject: Comments on GREET4.0
Comment:

Please see attached letter for comments.

Attachment: www.arb.ca.gov/lists/com-attach/6-lcfscalculators23-ws-Wm5SegEyBW9QeAQ2.pdf

Original File Name: 4.29.23 GREET Letter Final.pdf

Date and Time Comment Was Submitted: 2023-04-29 19:27:19

No Duplicates.

Comment 6 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Donna
Last Name: Davies
Email Address: dnndavies@gmail.com
Affiliation:

Subject: Tracking Methane Leaks from Space
Comment:

I wanted to make sure you were aware of the new satellite tracking system being created for detecting methane leaks from space. This should be in full power by 2024. Donna Davies:

Satellites are catching polluters in the act
By Aaron Clark

Think of them as speed cameras, but for methane. Just like roadside instruments are used to identify drivers breaking traffic rules, new powerful satellites are starting to catch oil and gas operators releasing the planet-warming gas into the atmosphere.

At least two dozen high-resolution satellites are expected to be in orbit by the end of this year, quietly tracking the super pollutant that's invisible to the naked eye. Their sensors are able to detect the natural gas component as it spews from pipelines, unlit flares, storage tanks and compressor stations around the world. The images sent back are crystal clear and leave little doubt about who is responsible for leaks.

Commercial and state interests are driving an acceleration in satellite launches at a time when fossil fuel companies face investor pressure to quantify and slash their emissions, and governments intent on meeting global climate targets seek to benchmark progress. The satellite missions include public and private efforts and are poised to deliver climate transparency on a scale never before seen.

"There's been strong demand for facility-level information on emissions because it's directly actionable,'' said Daniel Varon, a postdoctoral researcher studying atmospheric composition and satellite remote sensing at Harvard University. Varon and peers published an overview of how high- and low-resolution satellites are used to track methane last year.

Methane has more than 80 times the warming power of carbon dioxide during its first two decades in the atmosphere. Halting emissions of the greenhouse gas could do more to slow climate change in the near-term than almost any other single measure.

While fines and enforcement vary, companies increasingly face reputational risks and potential loss of business if their operations are seen as contributing more than peers to the climate crisis. In the US, the world's largest oil and gas producer, the Biden administration is hammering out new rules that would empower private citizens to police oil wells and gas pipelines for leaks using information such as satellite data.

So far this year, at least three high-resolution satellites have launched, and four more are expected to enter orbit before 2024. Much of the demand for the data is coming from oil and gas operators themselves, who are increasingly using the systems to

identify leaks along thousands of miles of pipeline or remote facilities. GHGSat Inc., a private company that has worked with operators, including Royal Dutch Shell Plc, Chevron Corp. and TotalEnergies SE to detect leaks, made about a million facility measurements last year and is on track to double that in 2023.

How methane is detected from space

Satellites observe concentrations of methane from space by analyzing the way sunlight reflects off the Earth. As light passes through a cloud of the gas, its intensity is weakened on certain wavelengths. Methane absorbs light in the short-wave infrared portion of the electromagnetic spectrum.

Firms, including GHGSat and Carbon Mapper, a non-profit working with partners including Planet Labs PBC, are launching satellites designed specifically to detect methane. But much of the new high-resolution imagery is the result of data processing innovations that leverage observations from public satellites that weren't explicitly built to observe the greenhouse gas yet have spectral bands that include the short-wave infrared.

An illustration of high- and low-resolution satellites that can detect methane. Courtesy: D.J. Jacob et al.

The methane observations are exposing flaws in decades-old reporting approaches used by companies and government agencies that have typically underestimated emissions. In the US, for instance, methane emissions from oil and gas operations exceeded amounts reported by the Environmental Protection Agency by 70% between 2010 and 2019, an analysis of satellite data published this month showed.

The detections are also empowering regulators and the public. New Mexico officials said in March they were inspecting any methane plumes detected by NASA and other entities and would use the data to evaluate reporting and compliance by operators.

Bloomberg Green has used high-resolution satellite data from EMIT, Landsat and Sentinel-2 satellites to report on five previously unreported methane emission events, four of which were in the US. You can read a short synopsis of what happened here.

This year could see a wave of new reports on operator leaks, as new orbitals increase the coverage and frequency of observations. For operators unable to halt their emissions, that may mean a loss of credibility, fees or trouble insuring future projects.

Click here to see recent methane emissions captured via satellite.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-05-04 14:37:22

No Duplicates.

Comment 7 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Nicholas
Last Name: Yeh
Email Address: nicholas.yeh@cleanenergyfuels.com
Affiliation: Clean Energy

Subject: Adding information on CARB CA-GREET4.0 Technical Support Documentation
Comment:

Dear CARB Staff,

In the new CA-GREET4.0 calculators, just like in CA-GREET3.0, you have the same 3.66 and 3.75 CI g CO2e/MJ for tailpipe emissions (CH4 and N2O and other GHG's) for biomethane/RNG pathways on landfill, wastewater pathways.

Previously on page 18 & 22, you have the CI-stackup for fossil NG pathways, on page 22 that breakout the tailpipe emissions for CO2, CH4 and N2O.

Can you make it so that the new technical manual shows if the calculator is to have 3.66 or 3.75 CI, how much CI/biogenic CO2 is also in the tailpipe CI stackup? This would help the question on how much impact there is from tailpipe emissions reporting.

https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/ca-greet/lut-doc.pdf

Attachment: www.arb.ca.gov/lists/com-attach/301-lcfscalculators23-ws-BnZWMQBmUGYHXgMx.bmp

Original File Name: Page 22.bmp

Date and Time Comment Was Submitted: 2023-05-16 15:16:17

No Duplicates.

Comment 8 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Matthew
Last Name: Webb
Email Address: matt.webb@webbassociates.com
Affiliation:

Subject: Balboa Island Ferry
Comment:

Dear CARB Board and Staff,

I certainly hope you are going to find a way to save the Balboa Island ferry. I really don't want to have to get in my car, drive over 5 miles, and look for parking every time I need to visit Balboa Island. (Currently I can walk and take the ferry.) Thank you for your consideration.

Sincerely,

Matt Webb
504 West Oceanfront
Newport Beach

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-05-18 12:20:42

No Duplicates.

Comment 9 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Margaret
Last Name: Laub
Email Address: margaret.laub@anaergia.com
Affiliation: Anaergia

Subject: Comments on Proposed New Tier 1 Simplified Calculator for Biomethane from Anaerobic Digest
Comment:

Please see attached comments.

Attachment: www.arb.ca.gov/lists/com-attach/303-lcfscalculators23-ws-AmMBaQdnBTNRJVA3.pdf

Original File Name: Anaergia CARB - OW Calculator Comments - 20230530.pdf

Date and Time Comment Was Submitted: 2023-05-30 16:41:49

No Duplicates.

Comment 10 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Marc
Last Name: Ventura
Email Address: marc.v.ventura@p66.com
Affiliation: Phillips 66

Subject: LCFS - Proposed New Tier 1 Renewable Diesel (HEFA) Calculator
Comment:

Please see attached comment letter.

Attachment: www.arb.ca.gov/lists/com-attach/304-lcfscalculators23-ws-VydVZVxrVFhQNVAx.pdf

Original File Name: P66_CA_LCFS_Comments_RD_Calculator.pdf

Date and Time Comment Was Submitted: 2023-05-31 09:36:03

No Duplicates.

Comment 11 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Marc
Last Name: Ventura
Email Address: marc.v.ventura@p66.com
Affiliation: Phillips 66

Subject: LCFS - Proposed New Tier 1 Hydrogen Calculator
Comment:

Please see attached comment letter.

Attachment: www.arb.ca.gov/lists/com-attach/305-lcfscalculators23-ws-VyddbV1qAw9QNVQ1.pdf

Original File Name: P66_CA_LCFS_Comments_H2_Calculator.pdf

Date and Time Comment Was Submitted: 2023-05-31 09:41:57

No Duplicates.

Comment 12 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Marc
Last Name: Ventura
Email Address: marc.v.ventura@p66.com
Affiliation: Phillips 66

Subject: LCFS - Proposed Lookup Table Pathways
Comment:

Please see attached comment letter.

Attachment: www.arb.ca.gov/lists/com-attach/306-lcfscalculators23-ws-UCBRYVJlUFwEYVU0.pdf

Original File Name: P66_CA_LCFS_Comments_Lookup_Values.pdf

Date and Time Comment Was Submitted: 2023-05-31 09:45:00

No Duplicates.

Comment 13 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Marc
Last Name: Ventura
Email Address: marc.v.ventura@p66.com
Affiliation: Phillips 66

Subject: LCFS - Proposed Lookup Table Pathways
Comment:

Please see attached comment letter.

Attachment: www.arb.ca.gov/lists/com-attach/307-lcfscalculators23-ws-UyMCMlxrWFQGY1Iz.pdf

Original File Name: P66_CA_LCFS_Comments_Lookup_Values.pdf

Date and Time Comment Was Submitted: 2023-05-31 09:45:00

No Duplicates.

Comment 14 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Laura
Last Name: VerduzcoFlores
Email Address: laurav@chevron.com
Affiliation: Chevron

Subject: Comments on HEFA calculator
Comment:

Please find attached Chevron's comments on the HEFA calculator.

Attachment: www.arb.ca.gov/lists/com-attach/308-lcfscalculators23-ws-VT0BYlUyUGIAWQlq.pdf

Original File Name: HEFA Calculator - Chevron Comments.pdf

Date and Time Comment Was Submitted: 2023-05-31 10:22:15

No Duplicates.

Comment 15 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Laura
Last Name: Verduzco Flores
Email Address: laurav@chevron.com
Affiliation: Chevron

Subject: Chevron's comments on the Biodiesel calculator.
Comment:

```
Please find attached Chevron's comments on the Biodiesel
calculator.
```

Attachment: www.arb.ca.gov/lists/com-attach/309-lcfscalculators23-ws-VDZQMlwCAjIKbQBs.pdf

Original File Name: BD Calculator - Chevron Comments.pdf

Date and Time Comment Was Submitted: 2023-05-31 10:26:44

No Duplicates.

Comment 16 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Laura
Last Name: Verduzco Flores
Email Address: laurav@chevron.com
Affiliation: Chevron

Subject: Chevron's comments on the Landfill Gas calculator
Comment:

```
Please find attached Chevron's comments on the Landfill Gas
calculator.
```

Attachment: www.arb.ca.gov/lists/com-attach/310-lcfscalculators23-ws-WzdcPAZgBAhWM1My.pdf

Original File Name: LFG Calculator - Chevron Comments.pdf

Date and Time Comment Was Submitted: 2023-05-31 10:29:14

No Duplicates.

Comment 17 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Laura
Last Name: Verduzco Flores
Email Address: laurav@chevron.com
Affiliation: Chevron

Subject: Chevron's comments on the Hydrogen calculator
Comment:

```
Please find attached Chevron's comments on the Hydrogen calculator.
```

Attachment: www.arb.ca.gov/lists/com-attach/311-lcfscalculators23-ws-UTlWYlQKAjILbABs.pdf

Original File Name: H2 Calculator - Chevron Comments.pdf

Date and Time Comment Was Submitted: 2023-05-31 10:31:24

No Duplicates.

Comment 18 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Rebecca
Last Name: O'Brien
Email Address: rebeccaobrien@tnrenewableenergy.com
Affiliation: TNRE

Subject: T1 OW Calculator
Comment:

```
Please see attached document with TNRE's comments and
recommendations.
Sincerely,
Rebecca R. O'Brien
```

Attachment: www.arb.ca.gov/lists/com-attach/312-lcfscalculators23-ws-UiYCal0uUGZXDgBs.pdf

Original File Name: TNRE LCFS T1OW Comments 5.31.23.pdf

Date and Time Comment Was Submitted: 2023-05-31 12:34:11

No Duplicates.

Comment 19 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Holly
Last Name: Yanai
Email Address: hyanai@divertinc.com
Affiliation: Divert

Subject: Divert Comments for the Proposed Simplified Tier 1 Calculator
Comment:

Good Afternoon -

Please find Divert's comments for the proposed Simplified Tier 1 Calculator for Biomethane from Anaerobic Digestion of Organic Waste attached.

Thank you,

Holly Yanai

Attachment: www.arb.ca.gov/lists/com-attach/313-lcfscalculators23-ws-Uj9WMQF5V1tRZAQ1.pdf

Original File Name: May 31 Comments- Tier 1 Simplified Calculator.pdf

Date and Time Comment Was Submitted: 2023-05-31 13:46:45

No Duplicates.

Comment 20 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Ellie
Last Name: Garland
Email Address: egarland@rmi.org
Affiliation: RMI

Subject: Biomethane from Anaerobic Digestion of Organic Waste
Comment:

```
Please see attached file. Thank you for the opportunity to provide
feedback.
```

Attachment: www.arb.ca.gov/lists/com-attach/315-lcfscalculators23-ws-VjQGaVY4WWdSMQh8.pdf

Original File Name: Biomethane from Anaerobic Digestion of Organic Waste.pdf

Date and Time Comment Was Submitted: 2023-05-31 13:50:20

No Duplicates.

Comment 21 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Ellie
Last Name: Garland
Email Address: egarland@rmi.org
Affiliation: RMI

Subject: Biomethane from North American Landfills
Comment:

Please see attached file. Thank you for the opportunity to provide feedback.

Attachment: www.arb.ca.gov/lists/com-attach/316-lcfscalculators23-ws-WzkCbVU7VWtSMVIm.pdf

Original File Name: Biomethane from NA Landfills.pdf

Date and Time Comment Was Submitted: 2023-05-31 13:54:30

No Duplicates.

Comment 22 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Kristin
Last Name: Henningson
Email Address: kristin.henningson@valero.com
Affiliation:

Subject: Valero LCFS HEFA Tier 1 Update Comments
Comment:

Comments to HEFA Tier 1 are attached.

Attachment: www.arb.ca.gov/lists/com-attach/317-lcfscalculators23-ws-ATNSZFxvUDAAKwIy.pdf

Original File Name: 2023-05 Valero LCFS HEFA Tier 1 Update Comments FINAL.pdf

Date and Time Comment Was Submitted: 2023-05-31 14:16:32

No Duplicates.

Comment 23 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Kent
Last Name: Hartwig
Email Address: khartwig@gevo.com
Affiliation: Gevo

Subject: Comments on new Tier 1 Simplified Calculator for Starch and Fiber Ethanol
Comment:

Starch and Fiber Ethanol Calculator

Global Warming Potentials
Although the manual for the calculator says that global warming potentials of greenhouse gases can be found on the Predefined Inputs worksheet, these values seem to be missing. Not having global warming potentials for reference made it somewhat difficult to verify other parts of the calculator.

The most recent GWP values listed in GREET 2022 are from the 6th IPCC Assessment (AR6) for N2O, CH4, and CO2. In case AR6 values are not adopted, it should be noted that that the AR5 GWP-100 for methane is listed incorrectly in GREET 2022 as 30. The published value from IPCC is 28.

Corn Feedstock
The value assigned to corn farming in the new calculator is 6,945 g CO2e/bushel, with GREET 2022 cited as the source. However, the default value in GREET 2022 is just 6,762 g/bu. This value can be found by either summing all non-transportation GHG emissions from corn farming (EtOH tab, Table 3, cells C518:I528, plus the miscellaneous N2O and CO2 emissions listed below these value) and multiplying by AR6 GWPs, or more simply by checking the default corn farming value in the 2022 GREET Feedstock Carbon Intensity Calculator (FD-CIC). Both methods will give 6,762 g/bu.

Since the previous version of the Tier 1 calculator included emissions from VOC, CO, and NO2, we assumed that the discrepancy could be due to these additional GHGs, which have GWPs of zero by default in GREET 2022. However, even after trying various sets of GREET 2022 GWPs for these other gases we were unable to verify the 6,945 g/bu value.

It would be greatly appreciated to show the reference and calculation of how the corn farming emission value was derived and/or where it came from in GREET 2022, especially given that the corn farming emissions factor is one of the few emission factors in the calculator that has increased. Listing the GWPs that were used for the calculator as well as a more specific reference to the GREET 2022 model would help clarify this emission factor for corn.

Chemicals Usage
We noticed that the chemical usage emission factor in the current calculator accounts for the EtOH feedstock and fuel loss factor. The new workbook doesn't account for this factor. The amount is negligible.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-05-31 14:17:13

No Duplicates.

Comment 24 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Kristin
Last Name: Henningson
Email Address: kristin.henningson@valero.com
Affiliation:

Subject: Valero LCFS Hydrogen Tier 1 Comments
Comment:

Valero LCFS Hydrogen Tier 1 Update Comments

Attachment: www.arb.ca.gov/lists/com-attach/319-lcfscalculators23-ws-BTdWYFBjUTFXfFBg.pdf

Original File Name: 2023-05 Valero LCFS Hydrogen Tier 1 Update Comments FINAL.pdf

Date and Time Comment Was Submitted: 2023-05-31 14:20:21

No Duplicates.

Comment 25 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Sam
Last Name: Wade
Email Address: sam@rngcoalition.com
Affiliation:

Subject: RNG Coalition Comments on T1 OW Calculator
Comment:

Please find our comments attached.

Attachment: www.arb.ca.gov/lists/com-attach/320-lcfscalculators23-ws-VGYCN1JjAmQANQQ1.pdf

Original File Name: 230531 RNG Coalition Comments on Draft Tier 1 Calculator for Biomethane from Anaerobic Digestion of Organic Waste.pdf

Date and Time Comment Was Submitted: 2023-05-31 14:23:20

No Duplicates.

Comment 26 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Kristin
Last Name: Henningson
Email Address: kristin.henningson@valero.com
Affiliation:

Subject: Valero LCFS Ethanol Tier 1 Comments
Comment:

```
Valero LCFS Ethanol Tier 1 Comments
```

Attachment: www.arb.ca.gov/lists/com-attach/321-lcfscalculators23-ws-UmBVY1xvAmJVflVl.pdf

Original File Name: 2023-05 Valero LCFS Ethanol Tier 1 Update Comments FINAL.pdf

Date and Time Comment Was Submitted: 2023-05-31 14:24:32

No Duplicates.

Comment 27 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Janie
Last Name: Kilgore
Email Address: janie.kilgore@poet.com
Affiliation: POET, LLC

Subject: Starch and Fiber Ethanol Calculator
Comment:

```
Please find attached POET, LLC's comment in response to CARB's
Proposed Starch and Fiber Ethanol Calculator. Thank you.
```

Attachment: www.arb.ca.gov/lists/com-attach/322-lcfscalculators23-ws-UiJcNVA0U3RSCwNg.pdf

Original File Name: POET Comments RE Proposed Tier 1 Simplified Calculator, Starch and Fiber Ethanol (5.31.23).pdf

Date and Time Comment Was Submitted: 2023-05-31 14:38:55

No Duplicates.

Comment 28 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Leticia
Last Name: Phillips
Email Address: leticia@unica.com.br
Affiliation: UNICA - Brazilian Sugarcane Industry Ass

Subject: UNICA Comments Draft Proposed Changes Tier1 Sugarcane Calculator
Comment:

```
Dear CARB Team,
Attached is UNICA's initial comments on the Draft Proposed Changes
to the Tier 1 Sugarcane Ethanol Calculator.
We appreciate this opportunity to comment and stand ready to answer
any questions.
Thank you,
Leticia Phillips
```

Attachment: www.arb.ca.gov/lists/com-attach/323-lcfscalculators23-ws-AGQCdl09WWwCcABf.pdf

Original File Name: Draft Tier 1 Simplified Sugarcane Calculator Updates Comments - UNICA Comments to CARB May 31 2023.pdf

Date and Time Comment Was Submitted: 2023-05-31 14:43:05

No Duplicates.

Comment 29 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Leticia
Last Name: Phillips
Email Address: leticia@unica.com.br
Affiliation: UNICA - Brazilian Sugarcane Industry Ass

Subject: UNICA Comments Draft Proposed Changes Tier1 Sugarcane Calculator
Comment:

```
Dear CARB Team,
Attached is UNICA's initial comments on the Draft Proposed Changes
to the Tier 1 Sugarcane Ethanol Calculator.
We appreciate this opportunity to comment and stand ready to answer
any questions.
Thank you,
Leticia Phillips
```

Attachment: www.arb.ca.gov/lists/com-attach/324-lcfscalculators23-ws-BmJQJFExWG0GdAdY.pdf

Original File Name: Draft Tier 1 Simplified Sugarcane Calculator Updates Comments - UNICA Comments to CARB May 31 2023.pdf

Date and Time Comment Was Submitted: 2023-05-31 14:43:05

No Duplicates.

Comment 30 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Leticia
Last Name: Phillips
Email Address: leticia@unica.com.br
Affiliation: UNICA

Subject: UNICA Comments Draft Proposed Changes Tier1 Sugarcane Calculator
Comment:

```
Dear CARB Team,
Attached is UNICA's initial comments on the Draft Proposed Changes
to the Tier 1 Sugarcane Ethanol Calculator.
We appreciate this opportunity to comment and stand ready to answer
any questions.
Thank you,
Leticia Phillips
```

Attachment: www.arb.ca.gov/lists/com-attach/325-lcfscalculators23-ws-UDRRJVAwUGVWJAlW.pdf

Original File Name: Draft Tier 1 Simplified Sugarcane Calculator Updates Comments - UNICA Comments to CARB May 31 2023.pdf

Date and Time Comment Was Submitted: 2023-05-31 14:43:05

No Duplicates.

Comment 31 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Leticia
Last Name: Phillips
Email Address: leticia@unica.com.br
Affiliation: UNICA

Subject: UNICA Comments Draft Proposed Changes Tier1 Sugarcane Calculator
Comment:

```
Dear CARB Team,
Attached is UNICA's initial comments on the Draft Proposed Changes
to the Tier 1 Sugarcane Ethanol Calculator.
We appreciate this opportunity to comment and stand ready to answer
any questions.
Thank you,
Leticia Phillips
```

Attachment: www.arb.ca.gov/lists/com-attach/326-lcfscalculators23-ws-Wj5RJVw8BDFVJwVa.pdf

Original File Name: Draft Tier 1 Simplified Sugarcane Calculator Updates Comments - UNICA Comments to CARB May 31 2023.pdf

Date and Time Comment Was Submitted: 2023-05-31 14:43:05

No Duplicates.

Comment 32 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Kristin
Last Name: Henningson
Email Address: kristin.henningson@valero.com
Affiliation:

Subject: Valero LCFS Lookup Table Comments
Comment:

Valero LCFS Lookup Table Comments

Attachment: www.arb.ca.gov/lists/com-attach/327-lcfscalculators23-ws-VWdRZ1FiVjYLIAk5.pdf

Original File Name: 2023-05 Valero LCFS Lookup Table Comments FINAL.pdf

Date and Time Comment Was Submitted: 2023-05-31 15:08:34

No Duplicates.

Comment 33 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Alex
Last Name: Piper
Email Address: apiper@rmi.org
Affiliation: RMI

Subject: Lookup Table Pathways Technical Support Documentation
Comment:

```
Thank you for the opportunity to comment.
```

Attachment: www.arb.ca.gov/lists/com-attach/328-lcfscalculators23-ws-VTlcOVI1U3NVDFMw.pdf

Original File Name: LCFS Comment_Lookup Table Pathways Technical Support Documentation.pdf

Date and Time Comment Was Submitted: 2023-05-31 15:19:00

No Duplicates.

Comment 34 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Alex
Last Name: Piper
Email Address: apiper@rmi.org
Affiliation: RMI

Subject: Hydrogen + Broader LCFS Reforms
Comment:

```
Thank you for the opportunity to comment. There are a few comments
included here that are not directly hydrogen related, however
without an open comment period on the topics in particular we
wanted to include them here for consideration.
```

Attachment: www.arb.ca.gov/lists/com-attach/329-lcfscalculators23-ws-VTlTNlA3VXVWDwFi.pdf

Original File Name: LCFS Comment_Hydrogen.pdf

Date and Time Comment Was Submitted: 2023-05-31 15:22:35

No Duplicates.

Comment 35 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Dallas
Last Name: Gerber
Email Address: dgerber@growthenergy.org
Affiliation: Growth Energy

Subject: LCFS Tier 1 Starch and Ethanol Calculator Comments
Comment:

Please see the attached comments from Chris Bliley, Senior Vice President of Regulatory Affairs for Growth Energy.

Attachment: www.arb.ca.gov/lists/com-attach/330-lcfscalculators23-ws-BmVVMlUmU2ICW1U5.pdf

Original File Name: CARB_LCFSCalculators05302023.pdf

Date and Time Comment Was Submitted: 2023-05-31 15:23:48

No Duplicates.

Comment 36 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: John
Last Name: Fleming
Email Address: jfleming@biologicaldiversity.org
Affiliation: Center for Biological Diversity

Subject: Comments on Draft Proposed Changes for Tier 1 Hydrogen Simplified Calculator and Lookup Ta
Comment:

```
Hello,

Please see attached comments on the draft proposed changes for Tier
1 hydrogen simplified calculator and lookup table values
collectively from the Center for Biological Diversity, Leadership
Council for Justice and Accountability, Center for Food Safety,
Center on Race, Poverty & the Environment, and Communities for a
Better Environment.

Best Regards,
John Fleming
Center for Biological Diversity
```

Attachment: www.arb.ca.gov/lists/com-attach/331-lcfscalculators23-ws-UWMHMlAOA2BSYVQL.pdf

Original File Name: 23 05 31 LCFS Hydrogen Calculator comments.pdf

Date and Time Comment Was Submitted: 2023-05-31 16:03:47

No Duplicates.

Comment 37 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Imre
Last Name: Kormendy
Email Address: ikormendy@anewclimate.com
Affiliation:

Subject: Biomethane from Anaerobic Digestion of Organic Waste
Comment:

On the instruction manual, table C.3, field 3.3, possible mislabeled the facility as "ethanol production facility"

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-05-31 15:51:18

No Duplicates.

Comment 38 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Imre
Last Name: Kormendy
Email Address: ikormendy@anewclimate.com
Affiliation:

Subject: Hydrogen
Comment:

Can clarification be added to both the GREET and instruction manual that multiple book-and-claim feedstocks may be elected as process fuel and the user is not limited to only one FPC in sections 3.4 - 3.7? For example, if RNG or electricity is elected as process fuel then can the user use a blended CI of multiple FPCs? Furthermore, can clarification be added to the GREET and instruction manual if the CI of book-and-claim feedstocks as process fuel inputs will be adjusted without the portion of the CI attributed to the CNG or LNG end use CI score?

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-05-31 16:19:44

No Duplicates.

Comment 39 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Suzanne
Last Name: Hunt
Email Address: suzanne.hunt@generateupcycle.com
Affiliation: Generate Upcycle, Generate Capital PBC

Subject: Tier 1 Carbon Intensity Calculator for Biomethane from Anaerobic Digestion of Organic Wast
Comment:

```
We respectfully submit our comments regarding the Tier 1 Carbon
Intensity Calculator for Biomethane from Anaerobic Digestion of
Organic Waste.
```

Attachment: www.arb.ca.gov/lists/com-attach/334-lcfscalculators23-ws-UTZUN1I9UmRXI1Q1.pdf

Original File Name: Generate Comments on Draft Tier 1 Calculator re Landfill Leakage - May 31 2023.pdf

Date and Time Comment Was Submitted: 2023-05-31 16:27:08

No Duplicates.

Comment 40 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Dallas
Last Name: Gerber
Email Address: dgerber@growthenergy.org
Affiliation: Growth Energy

Subject: Starch and Fiber Ethanol Calculator Comments
Comment:

```
Please see attached file for comments from Chris Bliley, Senior
Vice President of Regulatory Affairs for Growth Energy.
```

Attachment: www.arb.ca.gov/lists/com-attach/335-lcfscalculators23-ws-WzgCZVUmAzJSCwNv.pdf

Original File Name: CARB_LCFSCalculators05312023.pdf

Date and Time Comment Was Submitted: 2023-05-31 16:39:29

No Duplicates.

Comment 41 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Stefan
Last Name: Unnasch
Email Address: unnasch@lifecycleassociates.com
Affiliation: Life Cycle Associates

Subject: Corn Oil
Comment:

```
CI of corn oil in GREET is 31 g/lb 47 g/lb in draft calculator
Also LCI data from GREET should translate to Tier1 calculator
```

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-05-31 16:59:03

No Duplicates.

Comment 42 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Stefan
Last Name: Unnasch
Email Address: unnasch@lifecycleassociates.com
Affiliation: Life Cycle Associates

Subject: Standard Values for Hydrogen Station
Comment:

CARB provides standard values for hydrogen compression/chilling at the fuel station. CARB should allow the use of these standard values for ALL Tier2 application. Currently, Tier2 pathways which combine RNG with hydrogen are able to use standard values for compression. For example, pathways with Food Waste to hydrogen delivered by tube trailer or anything delivered by tube trailer should be allowed the same standard value.
1. Station operators have many stations
2. Data on power use is difficult to measure in some situation
3. Chilling of hydrogen goes above and beyond the requirement of the fuel pathway
Please provide guidance to this effect so that pathway applicants do not need to rely on knowledge of precedent.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-05-31 17:00:43

No Duplicates.

Comment 43 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Devin
Last Name: Mogler
Email Address: devin.mogler@gpreinc.com
Affiliation: Green Plains Inc.

Subject: RE: LCFS Workshop Issue- CI of Distillers Corn Oil
Comment:

The proposed changes in carbon intensity (CI) for distillers corn oil (DCO) as a feedstock for advanced biofuels is inconsistent with science and with CARB's track record, and this increase from 100 g CO2e/lb oil to 225 g CO2e/lb oil should not be adopted. This apparently arbitrary increase in the CI of DCO - a waste oil from the ethanol production process that in unfit for human consumption - would make its CI higher than that of soybean oil, which is 233 g CO2e/lb oil.

Ethanol producers continue to find new ways to extract more DCO from the production process without negatively impacting the feed quality of the distillers grains, and the domestic industry captures over 5.5 billion lbs of DCO each year. Unfairly penalizing this inedible oil would slow or halt investments in technology that is being rapidly deployed across the ethanol industry to capture more DCO to serve as a low carbon feedstock for the production of advanced biofuels.

Originally, CARB only ascribed 4 g CO2e/lb oil to DCO, and the current 100 g CO2e/lb oil is higher than Argonne GREET's 39 g CO2e/lb oil, so one could argue the CI is already too high, and a further increase seems out of line with the latest modeling. We strongly encourage CARB to reconsider this proposed increase, and to adopt the Argonne GREET value of 39 g CO2e/lb oil. In addition, it may be worthwhile to complete a full GTAP analysis before any further proposals to increase this CI value, and provide more visibility into the modeling behind future changes going forward.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-05-31 17:23:00

No Duplicates.

Comment 44 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Floyd
Last Name: Vergara
Email Address: FVergara@cleanfuels.org
Affiliation: Clean Fuels Alliance America

Subject: Simplified Tier 1 Calculator for Biodiesel
Comment:

Comments from Clean Fuels Alliance America for your consideration.

Attachment: www.arb.ca.gov/lists/com-attach/339-lcfscalculators23-ws-VTZXNwBgADIBWFIx.pdf

Original File Name: CFAA Comments to CARB_BD and HEFA Tier 1 Calculators (FINAL WITH ATTACHMENTS).pdf

Date and Time Comment Was Submitted: 2023-06-01 11:03:22

No Duplicates.

Comment 45 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Floyd
Last Name: Vergara
Email Address: FVergara@cleanfuels.org
Affiliation: Clean Fuels Alliance America

Subject: Simplified Tier 1 Calculator for Hydroprocessed Ester and Fatty Acid Fuels
Comment:

```
Comments from Clean Fuels Alliance America for your consideration.
```

Attachment: www.arb.ca.gov/lists/com-attach/340-lcfscalculators23-ws-AmEAYARkVmQCWwlq.pdf

Original File Name: CFAA Comments to CARB_BD and HEFA Tier 1 Calculators (FINAL WITH ATTACHMENTS).pdf

Date and Time Comment Was Submitted: 2023-06-01 11:05:03

No Duplicates.

Comment 46 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Gustavo
Last Name: Aldana
Email Address: Gusaldana40@yahoo.com
Affiliation: Owner operator

Subject: Carb. Rules and regulations
Comment:

As an owner operator I find myself in the middle of CARB rules and regulations.
We all know that major changes are needed in order to stop polluting our air, however in trying to comply with CARB we find ourselves in financial stress due to the maintenance of DEF and PDF filters that don't work properly and break engines due to lack of engineering. In some occasions forcing us to take matters in our own hands and finding ourselves in trouble with CARB and getting citations, maybe 30-40% of the trucking industry, run a citation survey. If the filters were engineered properly and maintenance friendly the pollution by trucks wouldn't be as severe.
The government gives us vouchers to purchase equipment, but not to maintain filter systems that need engineer improvements.
Solution: if both CARB and truckers made the necessary improvements, things wouldn't be so bad here in California. Gus

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2023-06-22 14:21:08

No Duplicates.

Comment 47 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Anna
Last Name: Redmond
Email Address: redmond@lifecycleassociates.com
Affiliation: Life Cycle Associates

Subject: Comment Letter on Potential Changes to the OW Calculator
Comment:

```
Thank you for providing an opportunity for public comment. Please
see the attached comments to the proposed OW Calculator.
```

Attachment: www.arb.ca.gov/lists/com-attach/343-lcfscalculators23-ws-VDhVMFQ0BQlQOVIl.pdf

Original File Name: LCA OW Tier 1 Comment Letter.pdf

Date and Time Comment Was Submitted: 2023-07-10 09:38:10

No Duplicates.

Comment 48 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Roel
Last Name: Hammerschlag
Email Address: roel@hammerschlag.llc
Affiliation: Hammerschlag LLC

Subject: proposed Tier 1 simplified calculator (biogas from manure)
Comment:

see attachment

Attachment: www.arb.ca.gov/lists/com-attach/344-lcfscalculators23-ws-WjJQNwMvVjUKPFRt.pdf

Original File Name: HA-009a comments - draft CA-GREET Tier 1 manure calculator.pdf

Date and Time Comment Was Submitted: 2023-07-11 10:28:25

No Duplicates.

Comment 49 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 1st Workshop.

First Name: Daren
Last Name: Daugaard
Email Address: dd@burningoakenergy.com
Affiliation: W2E

Subject: W2E LCFS Calculator Comments
Comment:

```
Please see attached letter.

Thank you.
```

Attachment: www.arb.ca.gov/lists/com-attach/345-lcfscalculators23-ws-AnVcaANnWFRQNQhp.pdf

Original File Name: W2E CARB LCFS Calculator Comments.pdf

Date and Time Comment Was Submitted: 2023-07-11 13:16:28

No Duplicates.

Comment 50 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: James
Last Name: Duffy
Email Address: duffje@msn.com
Affiliation: No affiliation

Subject: RNG from dairy and swine manure
Comment:

Attachment: www.arb.ca.gov/lists/com-attach/346-lcfscalculators23-ws-UDQGdVUyBTAHeAZZ.pdf

Original File Name: Duffy_LCFS_7-11-2023.pdf

Date and Time Comment Was Submitted: 2023-07-11 15:34:50

No Duplicates.

Comment 51 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Helen
Last Name: Kemp
Email Address: hkemp@3degreesinc.com
Affiliation: 3Degrees

Subject: 3Degrees Comments on Biomethane from Anaerobic Digestion of DSM Calculator
Comment:

Please see attached. Thank you.

Attachment: www.arb.ca.gov/lists/com-attach/347-lcfscalculators23-ws-AjEGZAZiUWVXI1A1.pdf

Original File Name: 3Degrees Comments on LCFS Tier 1 Calculator - Biomethane from Anaerobic Digestion of Dairy and Swine Manure 7.12.pdf

Date and Time Comment Was Submitted: 2023-07-12 08:17:07

No Duplicates.

Comment 52 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Bernard
Last Name: Fenner
Email Address: bernard.fenner@ductor.com
Affiliation:

Subject: Ductor Americas Inc - LCA_tier1_DMS comment letter
Comment:

Dear CARB Staff,

Thank you for the opportunity to comment on the proposed Tier 1 dairy and swine manure (DSM) Calculator.
We have taken in interest in Low Carbon Fuel Standard (LCFS) programs throughout the United States and appreciate the opportunity to provide feedback on California's LCFS regulation.
CARB's exclusion of N2O emissions in the proposed DSM calculator represents a missed opportunity to leverage emissions reductions in the livestock sectors.
By allowing for avoided N2O and methane emissions from poultry farming, CARB can create incentives for emissions reductions in this important livestock category.
Including default co-product credits for the benefits of displaced fertilizer represents an additional opportunity to reduce agricultural emissions.
We appreciate the opportunity to provide feedback and contribute to the ongoing efforts to address agricultural emissions and mitigate environmental challenges. We believe that by including N2O emissions from manure management and allowing avoided emissions from poultry farming, CARB can unlock substantial potential for reducing greenhouse gas emissions in the agricultural sector. Thank you for your time and consideration in advancing sustainable solutions and working towards a greener future for California.

Attachment: www.arb.ca.gov/lists/com-attach/348-lcfscalculators23-ws-BWlWM1c3UFwKeFA5.pdf

Original File Name: LCA_tier_1_DSM_comment letter_final.pdf

Date and Time Comment Was Submitted: 2023-07-12 12:19:52

No Duplicates.

Comment 53 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Dan
Last Name: Evans
Email Address: Dan@promusenergy.com
Affiliation: Promus Energy

Subject: Comments on Draft Tier 1 Calculator for Anaerobic Digestion of Dairy and Swine Manure
Comment:

Please see comments attached.

Attachment: www.arb.ca.gov/lists/com-attach/349-lcfscalculators23-ws-AnJcKAZoV2lXJFUm.pdf

Original File Name: Promus Energy GREET 4 Calculator Comments 7.12.23.pdf

Date and Time Comment Was Submitted: 2023-07-12 12:38:29

No Duplicates.

Comment 54 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Laura
Last Name: Verduzco
Email Address: laurav@chevron.com
Affiliation: Chevron

Subject: Comments to DSM calculator
Comment:

Attachment: www.arb.ca.gov/lists/com-attach/350-lcfscalculators23-ws-Wz9XIgBsWVVWM1c2.pdf

Original File Name: DSM Calculator - Chevron Comments.pdf

Date and Time Comment Was Submitted: 2023-07-12 13:32:53

No Duplicates.

Comment 55 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Kent
Last Name: Hartwig
Email Address: khartwig@gevo.com
Affiliation: Gevo, Inc.

Subject: Newly Proposed Dairy and Swine Tier 1 Calculator
Comment:

See file, attached. Thank you for the opportunity to comment.

Attachment: www.arb.ca.gov/lists/com-attach/351-lcfscalculators23-ws-V2ddbFJ9BGYGMlR6.pdf

Original File Name: 07.12.2023_Gevo_Dairy and Swine Tier 1 Calculator_Comments.pdf

Date and Time Comment Was Submitted: 2023-07-12 13:38:08

No Duplicates.

Comment 56 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Jordan
Last Name: Flanagan
Email Address: jflanagan@ajw-inc.com
Affiliation:

Subject: Iogen Tier 1 Calculator Comments
Comment:

```
Hello,
I am submitting comments on behalf of Iogen Corporation. Thank for
the opportunity to provide this response.
```

Attachment: www.arb.ca.gov/lists/com-attach/352-lcfscalculators23-ws-UGJTZlxtUjYCNVBi.pdf

Original File Name: 230712 Iogen Tier 1 Calculator Comments_Final.pdf

Date and Time Comment Was Submitted: 2023-07-12 13:35:29

No Duplicates.

Comment 57 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Andrew
Last Name: Craig
Email Address: acraig@calbioenergy.com
Affiliation:

Subject: CalBio Comments on DSM CI Calculator
Comment:

July 12, 2023
Dr. Cheryl Laskowski
Branch Chief, Low Carbon Fuel Standard Team
California Air Resources Board
Submitted via LCFS Comments Upload Link

RE: CalBio Comments on CARB's Draft Tier 1 Simplified Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure released June 20th 2023

Dear Dr. Laskowski:

Thank you for the opportunity to provide comments to the California Air Resources Board (CARB) on the proposed new Tier 1 Simplified Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure released June 20th 2023.
California Bioenergy LLC (CalBio) is a leading developer of dairy digester projects. Founded in 2006, CalBio works closely with California dairy farm families, dairy co-ops and cheese producers, CARB, the California Department of Food and Agriculture (CDFA), the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and the U.S. Environmental Protection Agency (EPA). It develops projects that reduce greenhouse gas (GHG) emissions, improve local air quality, protect water quality, and create local jobs. It produces renewable natural gas and generates electricity, both used as a vehicle fuel to power low emission trucks, buses, and cars.

CalBio has extensive experience working with the Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure (DSM CI Calculator). With over 30 certified Tier 2 pathways, we have developed expertise in both using and understanding the complexities of this tool. In addition, both our in-house staff and consultants are skilled greenhouse gas (GHG) accountants that value incorporating the latest climate science and emissions factors into the DSM CI Calculator analysis framework and our project pathways. CalBio is thankful for the opportunity to share our feedback on the proposed updates and commends CARB on implementing changes that will make the DSM CI calculator more streamlined, require less user modifications, and reflect the latest industry standards for GHG accounting. To that end, please see our recommendations for improving the DSM CI calculator below:

1. Include controlled/metered venting in the Biogas-to-RNG tab similar to flaring
CalBio agrees with the revision to include flared biogas to Section 2 of the 'Biogas-to-RNG' tab. However, the DSM CI Calculator is set up to exclude directly flared biogas from the LCFS pathway system boundary. From a GHG accounting perspective, CalBio believes flared emissions at the digester should be treated consistently with how flared biogas is accounted for at the upgrading facility. To solve

this, CalBio proposes applying the same emissions factor used in Sections 2.26 and 2.27 to apply to Sections 2.6 and 2.7.

Likewise, we strongly recommend adding controlled/metered venting to Section 2 of the 'Biogas-to-RNG' tab. It is important to note that California air quality management districts typically do not permit flares as the primary mechanism of handling excess biogas and request that it be vented instead because of air quality issues in their jurisdictions. Controlled/metered venting is similar to flaring in that it is biogas produced by the digester and initially metered at the digester itself but not used to make biomethane fuel. It likewise becomes a source of emissions that should be included in the GHG project boundary as part of the lifecycle production of the fuel. This would be consistent with how the calculator handles digester leakage and fugitive methane from upgrading. It is also important to note that venting is an atypical requirement for out-of-state projects. Therefore, by omitting the option to include controlled/metered venting as a standard feature in Section 2 of the DSM CI Calculator would unfairly disadvantage in-state projects by requiring them to modify the calculator and thus be ineligible for a Tier 1 pathway.

For the reasons stated above, CalBio believes both controlled/metered venting and flaring emissions should be included within the project boundary of the DSM CI Calculator's emissions analysis. For our certified pathways and applications in the queue, CalBio modifies the DSM CI Calculator to include controlled/metered venting that flows to Section L3 of the 'Manure-to-Biogas (LOP Inputs)' tab and is included in the calculation for project methane emissions from venting events. Including both flaring and venting emission sources is in alignment with best practices of lifecycle GHG analysis as they are project induced.
CalBio has provided CARB with a modified version of the proposed DSM CI Calculator to demonstrate how these changes could be implemented.

2. Applicability of New Tier 1 Calculator

CalBio recommends that pathways deemed complete prior to the effective date of the new LCFS regulation should not be required to use the new DSM CI Calculator for their first crediting period under LCFS. These Tier 2 pathway CI calculators have already been through the validation and projects have been developed, validated, and certified against a specific standard and public review process and projects should be given the option, but not the obligation, to upgrade to the latest version of the calculator. Allowing existing projects to continue to follow the CI framework in place as they committed capital and made contractual commitments is sound policy and consistent with the crediting period concept found in the current rule and other GHG programs such as Cap & Trade.

3. Account for other process fuels in the Biogas-to-RNG tab

CalBio agrees with the proposed changes to add more process fuel types in Section 2 of the 'Biogas-to-RNG' tab (e.g., utility sourced natural gas and diesel for digester energy use and diesel for biomethane transport). CalBio recommends adding additional fuel types for biomethane transport such as natural gas, electricity, and hydrogen. Currently, natural gas is a common fuel type utilized for biomethane transport in California, thanks to the LCFS, and its inclusion in the DSM CI Calculator will ensure producers who choose cleaner fuel types will not have to modify the calculator and require a Tier 2 submittal. Additionally, it is important to design the tool to have flexibility in the types of process fuels used in the DSM CI Calculator for circumstances where different types of fuel may be used in a single reporting period. For example, an applicant could start transporting biomethane using diesel fuel and then transition to natural gas. In this case, it would be practical to structure the DSM CI Calculator to have different columns representing each fuel type and its corresponding emission factor

for developers to select from.

4. Develop a separate Tier 1 CI Calculator for DSM to electricity pathways
CalBio requests that CARB develop a separate Tier 1 CI Calculator for DSM to electricity pathways to streamline the review process. Without a stand-alone CI Calculator, all DSM-to-electricity projects will need to be developed as Tier 2 pathways due to the required calculator modifications, creating a longer review process for CARB. CalBio also believes this request is in alignment with CARB's goals for supporting the electrification of the transportation sector in California. Project developers want to be responsive to that goal and build more electric projects to serve the growing demand for electric vehicles. A separate DSM-to-electricity CI Calculator will help to ensure there is a streamlined process for getting electricity projects approved through the Tier 1 review process. Additional modifications to improve the DSM-to-electricity CI Calculator are described below.

5. Make explicit that projects can Book & Claim RNG to an offsite electric generator
CalBio provides the following comments requesting CARB recognize RNG utilized for offsite electricity generation be allowed as an eligible pathway type under the existing "Book & Claim" framework. Under the current regulation, entities can generate LCFS credits by producing a low-CI transportation fuel such as RNG and injecting it into a common carrier natural gas pipeline where it is matched to a CNG fueling station, refinery, or hydrogen facility without having to physically trace the molecules. Similarly, projects are allowed to generate electricity at an onsite generator co-located at the dairy and match electricity production to electric vehicle charging. CARB recognizes both these transaction types to generate LCFS results by lowering GHG emissions in each fuel's pathway. However, the same cannot be said for the use of RNG directed to an offsite generator to produce electricity. CalBio respectfully requests CARB update its Book & Claim policy and extend it to apply when directed biogas RNG is used to generate electricity for recharging battery-electric vehicles (BEVs) at a location physically separated from the biogas or hydrogen production. It is important that these changes be made in the LCFS regulation to allow maximum flexibility. This will allow biomethane to continue to expand its contribution to the electric transportation conversion in-state and to be delivered to high efficiency power plants that are not always available for small on-site generators. In this way, the policy change we recommend can help "accelerate ZEV refueling infrastructure" in California. More renewable electricity is needed to charge California's growing fleet of battery electric vehicles (BEVs) and support a more resilient and reliable grid and CARB's electrification goals.

6. Include other types of electric generator options for DSM-to-electricity pathways
CalBio requests that CARB include additional generator types and associated emissions factors within the separate DSM CI Calculator for electricity projects. CalBio has built the first dairy biogas-to-fuel cell project, however, the emission factors provided in the DSM CI Calculator are only those associated with electricity generation from a conventional stationary reciprocating engine. CalBio requests there be an option to choose between multiple types of electricity generating units (e.g., fuel cell, linear generator, etc.) and use those technology-specific emissions factors. This is in alignment with CARB's goals of ensuring producers choose more efficient, cleaner technologies without being pushed into a Tier 2 pathway.

7. Correction to Final Electricity CI for Dairy Biogas-to-Electricity Pathways
CalBio believes there is flaw in the CARB guidance document 19-06, Determining Carbon Intensity of Dairy and Swine Manure Biogas to Electricity Pathways

(https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/guidance/lcfsguidance_19-06.pdf)
where it directs the user to divide the "Final electricity CI" by 'EF Table'!E89. The value in this cell represents the efficiency of the electric generator used in the project. This has the seemingly inadvertent effect of penalizing the project for achieving an efficiency greater than the 50% benchmark established by CARB. For example, if a project has a very old, inefficient engine, the CI is divided by a small number (i.e. 25%) which effectively improves the CI by making it more negative. An identical project with a generator efficiency that exceeds the CARB benchmark (i.e. 55%) means the formula is divided by a higher number, effectively making the CI score worse by being less negative. The DSM CI calculator is already structured in a way which caps avoided methane crediting based on either the lesser of biogas produced and the modeled "baseline minus project" emission reductions. It does not seem reasonable to further cap based on efficiency, especially when CARB's motivation has been to push projects to using more efficient and cleaner fuel cell technology. This inconsistency should be corrected in the new calculator such that a project with a higher efficiency does not get penalized for being more efficient.

8. User Defined Electricity Emission Factors
Every year CARB publishes the prior year's grid electricity factors (https://ww2.arb.ca.gov/resources/documents/lcfs-pathways-requiring-public-comments). Applicants should be able to update their Annual Fuel Pathway Reports to align with these CARB-published values to better reflect the emissions from electricity utilized at their facilities. This would require no change to the calculator given it already accommodates a user-defined electricity mix option, however, CARB should make it explicit that this is an option developers can make when submitting or updating their pathways.

9. Incorporate the 5th Assessment Report Global Warming Potentials (GWP)
CalBio recommends CARB should consider adopting the 100-year GWP factors from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5). These updated GWPs reflect the latest climate science on radiative properties and lifetimes of compounds. The AR5 GWP factors have been adopted by The Environmental Protection Agency for use in their Inventory of U.S. Greenhouse Gas Emissions and Sinks.

10. Other small clerical requests
Listed below are few small clerical requests CalBio believes will enhance the tool.
• Tab: Manure-to-Biogas (LOP Inputs), Section L4.7: Volatile Solids to Effluent Ponds
o There is a 0.3 degradation factor included in this formula that is a hard entered value. CalBio recommends adding this value to the 'Reference' Tab with citation to add full transparency to the value being used in this calculation. This is similar to other values used throughout the calculator found in the 'Reference' Tab.
• Tab: Biogas-to-RNG, Section 1.10: Average Annual Temperature (°C)
o Source the average annual temperature from the 'Manure-to-Biogas (LOP Inputs)' Tab Section L1.1.10 Average Temperature using the following formula: =AVERAGE('Manure-to-Biogas (LOP Inputs)'!G9:G32)
• Tab: Biogas-to-RNG, G87; EF Table, F50: CI for compression of CNG
o With the lower electricity CI at 3-CAMX Mix (314.31 gCO2e/kWh vs. 370.22 gCO2e/kWh), should the CI of CNG compression in CA refueling stations be reduced to be below 3 gCO2e/MJ (3.5*314.31/370.22 = 2.97)?

We would like to thank CARB for the opportunity to comment and we look forward to engaging further on the topics above.

Sincerely,

Andrew Craig
Vice President, Greenhouse Gas Programs
California Bioenergy LLC

Attachment: www.arb.ca.gov/lists/com-attach/353-lcfscalculators23-ws-UTIHYANuU2IDbAJt.pdf

Original File Name: CalBio Comments 2023 Draft DSM CI Calculator.pdf

Date and Time Comment Was Submitted: 2023-07-12 13:42:49

No Duplicates.

Comment 58 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Kiki
Last Name: Velez
Email Address: kvelez@nrdc.org
Affiliation: NRDC

Subject: NRDC Comments on Biomethane Carbon Intensity (7-12-23)
Comment:

Attachment: www.arb.ca.gov/lists/com-attach/354-lcfscalculators23-ws-WjRQJFUwV2cAWVQ3.docx

Original File Name: NRDC Comments on Anaerobic Digestion of Dairy and Swine Manure (7-12-23).docx

Date and Time Comment Was Submitted: 2023-07-12 14:24:40

No Duplicates.

Comment 59 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Debbie
Last Name: Meeks
Email Address: deborah.meeks@shell.com
Affiliation:

Subject: Shell Comments to Draft Tier 1 CI Calculator for Biomethane from Anaerobic Digestion
Comment:

Attachment: www.arb.ca.gov/lists/com-attach/355-lcfscalculators23-ws-AXJdMwFlBzhRO1QL.pdf

Original File Name: Shell Comment Letter_Draft Tier 1 Calc.pdf

Date and Time Comment Was Submitted: 2023-07-12 15:07:49

No Duplicates.

Comment 60 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Brent
Last Name: Lilienthal
Email Address: blilienthal@lfbioenergy.com
Affiliation:

Subject: June 2023 comments to Dairy and Swine Manure calculator
Comment:

Thanks to CARB for your environmental leadership. Please find LF Bioenergy's comments to the proposed Dairy and Swine Manure calculator changes.

Attachment: www.arb.ca.gov/lists/com-attach/356-lcfscalculators23-ws-Uz9XMlI1WHgAWVQ+.pdf

Original File Name: LCFS June Dairy and Swine Manure calculator comments.pdf

Date and Time Comment Was Submitted: 2023-07-12 15:17:19

No Duplicates.

Comment 61 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Sean
Last Name: Trambley
Email Address: sean@americanbiogascouncil.org
Affiliation:

Subject: ABC Comment on Tier 1 Calculator
Comment:

Please see attached for comment. Thank you for your consideration.

Attachment: www.arb.ca.gov/lists/com-attach/357-lcfscalculators23-ws-UjNXMwNhBQlVMARl.pdf

Original File Name: ABC CARB Tier1 Comments_Final.pdf

Date and Time Comment Was Submitted: 2023-07-12 15:57:52

No Duplicates.

Comment 62 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Sam
Last Name: Wade
Email Address: sam@rngcoalition.com
Affiliation: Coalition for Renewable Natural Gas

Subject: RNG Coalition Comments on Dairy and Swine Biomethane Tier 1 Calculator
Comment:

Please find our comments attached.

Attachment: www.arb.ca.gov/lists/com-attach/358-lcfscalculators23-ws-UWNTZlFgWT0KPQQ2.pdf

Original File Name: 230712 RNG Coalition Comments on Dairy and Swine Tier 1 Calculator.pdf

Date and Time Comment Was Submitted: 2023-07-12 16:09:38

No Duplicates.

Comment 63 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Daryl
Last Name: Maas
Email Address: hannah.huffines@maasenergy.com
Affiliation:

Subject: Maas Energy Works - Public Comment
Comment:

Attachment: www.arb.ca.gov/lists/com-attach/359-lcfscalculators23-ws-VDlWMQdnAiJRCFA1.pdf

Original File Name: Maas Energy Works - Public Comment.pdf

Date and Time Comment Was Submitted: 2023-07-12 16:23:00

No Duplicates.

Comment 64 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Cassandra
Last Name: Farrant
Email Address: cfarrant@ampamericas.com
Affiliation: Amp Americas

Subject: Comments on the Draft Tier 1 Calculator
Comment:

```
Amp Americas appreciates the opportunity to submit comments in
response to the Draft Tier 1 Carbon Intensity Calculator for
Biomethane from Anaerobic Digestion of Dairy and Swine Manure.
Please see our comments attached
```

Attachment: www.arb.ca.gov/lists/com-attach/360-lcfscalculators23-ws-UTBVPgZ3U19QIgNq.pdf

Original File Name: Amp Tier 1 Calculator Comment Letter vF.pdf

Date and Time Comment Was Submitted: 2023-07-12 16:04:11

No Duplicates.

Comment 65 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Imre
Last Name: Kormendy
Email Address: ikormendy@anewclimate.com
Affiliation:

Subject: Biomethane from Anaerobic Digestion of Dairy and Swine Manure
Comment:

```
Thank you for the opportunity to submit feedback. Attached to this
submission is Anew's letter.
```

Attachment: www.arb.ca.gov/lists/com-attach/361-lcfscalculators23-ws-BmEBdVE1AzVVJwdY.pdf

Original File Name: GREET 4.0 Comments for Ag Digester 2023-Jul-12 (Anew).pdf

Date and Time Comment Was Submitted: 2023-07-12 16:53:07

No Duplicates.

Comment 66 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Tyler
Last Name: Lobdell
Email Address: tlobdell@fwwatch.org
Affiliation: Food & Water Watch

Subject: Comments on proposed simplified tier 1 calculator for dairy and swine manure biomethane
Comment:

See attachment.

Attachment: www.arb.ca.gov/lists/com-attach/362-lcfscalculators23-ws-ADJTZVRnUzNQeFBg.pdf

Original File Name: 2023.07.12_Coalition Cmts on Tier 1 Simplified Calculator.pdf

Date and Time Comment Was Submitted: 2023-07-12 16:55:09

No Duplicates.

Comment 67 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Bryan
Last Name: Sievers
Email Address: bsievers@roesleinae.com
Affiliation:

Subject: Draft Proposed Changes to the Low Carbon Fuel Standard, the Tier 1 Simplified Carbon Inten
Comment:

```
Roeslein Alternative Energy appreciates the opportunity to comment.
The primary issues identified in this document are key issues for
our organization and company as we continue to provide leadership
in this industry.  We hope these comments and suggestions are
helpful in the rulemaking and decision process.
```

Attachment: www.arb.ca.gov/lists/com-attach/363-lcfscalculators23-ws-UiABZlUxAw8LeQFo.docx

Original File Name: RAE_Tier 1 Simplified Calculators Letter_07122023_Final.docx

Date and Time Comment Was Submitted: 2023-07-12 19:27:39

No Duplicates.

Comment 68 for Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) - 2nd Workshop.

First Name: Jeff
Last Name: Rosenfeld
Email Address: jeffrey.rosenfeld@brightmark.com
Affiliation: Brightmark

Subject: Brightmark Comments RE: DSM Tier 1 Calculator
Comment:

Please see the attached letter.

Attachment: www.arb.ca.gov/lists/com-attach/364-lcfscalculators23-ws-VDYGclM7U2dVOwVx.pdf

Original File Name: Brightmark Comments to CARB - DSM Calculator.pdf

Date and Time Comment Was Submitted: 2023-07-12 22:35:51

No Duplicates.

There are no comments posted to Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard (lcfscalculators23-ws) that were presented during the Workshop at this time.