

**Comment 1 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Nick

Last Name: Rajkovich

Email Address: [nick@panochewestsidegroup.com](mailto:nick@panochewestsidegroup.com)

Affiliation:

Subject: CARB LCFS/CA GREET comments

Comment:

Please see attached file.

Nick Rajkovich  
I-5 Clean Fuels

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/2-ca-greet-comments-ws-UDITeFNnVFgGYwZq.pdf>

Original File Name: I-5 Clean Fuels Letter for Comments on LCFS CA-GREET Changes - 10 22 14.pdf

Date and Time Comment Was Submitted: 2014-10-22 14:10:09

No Duplicates.

**Comment 2 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Karen

Last Name: Szabo

Email Address: KSzabo@ImpcoTechnologies.com

Affiliation: IMPCO Technologies, Inc.

Subject: Comments Regarding the CA-GREET Model in the LCFS

Comment:

Please see the attached file.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/3-ca-greet-comments-ws-UWBUZl1tBGcBNVRm.pdf>

Original File Name: 141022 Letter to CARB re GREET Model.pdf

Date and Time Comment Was Submitted: 2014-10-22 16:22:38

No Duplicates.

**Comment 3 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Barry

Last Name: Carr

Email Address: bcarr@landiusa.com

Affiliation: NGV America Member

Subject: CA GREET Review

Comment:

Please note attached letter supporting further review of the GREET model.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/4-ca-greet-comments-ws-B2RdOlAOVGACdgVg.docx>

Original File Name: CA Greet Review Support Letter Landi Renzo.docx

Date and Time Comment Was Submitted: 2014-10-23 05:52:30

No Duplicates.

**Comment 4 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Martin

Last Name: Ryan

Email Address: mryan@montaukenergy.com

Affiliation:

Subject: LCFC Program - Comments on Proposed Changes to CA GREET Model

Comment:

Montauk Energy Capital is submitting the attached comments on the Proposed Changes to California GREET model.

Thanks!

Marty Ryan

Vice President,

Montauk Energy Holdings, LLC

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/5-ca-greet-comments-ws-VzpSMQduAg4GYwdo.pdf>

Original File Name: MEH comments on proposed changes to California GREET Model 10-14.pdf

Date and Time Comment Was Submitted: 2014-10-23 08:39:37

No Duplicates.

**Comment 5 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Carol

Last Name: Tjiong

Email Address: ctjiong@white-energy.com

Affiliation:

Subject: White Energy Comments on the LCFS Program-CA-Greet 2.0

Comment:

Thanks for the opportunity to comment. Please see the attachment.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/6-ca-greet-comments-ws-AjAGMAQ0UTZWfldm.pdf>

Original File Name: 2014.10.24 White Energy comments on CA-GREET 2.0.pdf

Date and Time Comment Was Submitted: 2014-10-24 06:54:48

No Duplicates.

**Comment 6 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Lyle

Last Name: Schlyer

Email Address: lschlyer@calgren.com

Affiliation: President, Calgren Renewable Fuels

Subject: Comments on LCFS Program - CA-GREET 2.0

Comment:

Calgren Renewable Fuels is a California fuel ethanol producer engaged in efforts to use more sorghum as feedstock. We feel sorghum has an important role to play in helping our state meet carbon reductions goals embodied in the LCFS. As an added benefit, sorghum significantly reduces water usage.

We understand the National Sorghum Producers (NSP) are submitting comments and encouraging you to consider revising several sorghum metrics. We have worked closely with NSP and respect their professionalism. NSP believes the values you propose to use for sorghum yield, sorghum nitrogen application rate, and sorghum stover nitrogen content are outdated or otherwise incorrect. In particular, I am told the sorghum stover nitrogen content figure you propose to use in CA-GREET 2.0 is based on data that is not representative of modern commercial sorghum production. Thus we endorse NSP's proposed changes.

Given it's substantial benefits for Californians, sorghum deserves a fair shake.

Thank you for giving us the opportunity to comment.

Very truly yours,

Lyle Schlyer

President, Calgren Renewable Fuels

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2014-10-24 07:32:19

No Duplicates.

## **Comment 7 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: John

Last Name: Duff

Email Address: john@sorghumgrowers.com

Affiliation:

Subject: National Sorghum Producers Comments on the LCFS Program – CA-GREET 2.0  
Comment:

October 24, 2014

Cal/EPA Headquarters Building  
1001 "I" Street  
Sacramento, CA 95812

RE: Comments on the LCFS Program – CA-GREET 2.0

Mr. Ingram and Mr. Pham,

National Sorghum Producers (NSP) is a trade association representing the interests of over 50,000 sorghum producers on issues related to legislative and regulatory policy in Washington as well as various state capitals. NSP led efforts to secure an advanced biofuel pathway for sorghum under the RFS2 and has performed extensive analysis on several models and datasets over the last four years, including several datasets similar to those used by the Argonne National Laboratory (ANL) as well as the ARB in modeling the CI of sorghum ethanol.

NSP applauds the ARB for undertaking an extensive update of the LCFS, but we have serious concerns about several of the assumptions underlying the portions of the GREET model used to estimate sorghum CI. We have been in close contact with personnel at the ANL regarding these concerns and present them in the attached comments (our comments are contained in the attached file titled "National Sorghum Producers CA-GREET 2.0 Comments"). Our concerns in brief:

- Sorghum yield. Sorghum yield has been lowered based on data gathered in a historic drought. Sorghum yields are unlikely to ever again be as low as they have been over the last few years, so this value should be left unchanged.
- Sorghum farming energy use. The energy use value should ultimately reflect the fact that a large percentage of producers practice no tillage agriculture which correlates to significant fossil fuel savings on-farm as well as the fact that grain sorghum is not dried using fossil fuels.
- Nitrogen application rate. Nitrogen application rates have not changed. This is due to fertilizer recommendations remaining the same and a grain sorghum harvest ratio calculation error. With forage sorghum acres excluded from the NASS-published acreage figures, the nitrogen application rate is similar to that used by the ARB in the 2010 pathway.

- N2O emissions from sorghum stover. This area is especially concerning, as it has very significant CI effects and its applicable model portions are based on sorghum genotypes not used in commercial sorghum production. As a result, these genotypes have yields and harvest indices completely unlike anything that would be found in modern sorghum production, leading to a much higher score in this area. Using alternative data from actual hybrids used in commercial sorghum production results in an N2O emissions from stover value much lower and closer to the one used by the ARB for corn, which would be expected given the two crops' compositional similarities.

Thank you for the opportunity to provide feedback and make suggestions. We feel with these changes, sorghum ethanol can play an even larger role in helping California meet the greenhouse gas reduction goals set by the LCFS while at the same time promoting the use of water-sipping crops like sorghum.

Please do not hesitate to let me know if you have any questions.

Regards,

John

John Duff  
Analyst  
National Sorghum Producers  
4201 N. Interstate 27  
Lubbock, TX 79403  
Phone: (806) 749-3478

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/8-ca-greet-comments-ws-AmwAZwN2VmxWP1Q6.zip>

Original File Name: National Sorghum Producers Comments and Supporting Documents.zip

Date and Time Comment Was Submitted: 2014-10-24 09:13:04

No Duplicates.



**Comment 8 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Peter

Last Name: Murray

Email Address: peter.murray@chartindustries.com

Affiliation: Chart Inc.

Subject: CA-GREET-COMMENTS-WS

Comment:

Please accept the attached letter from Chart Inc. on this issue.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/9-ca-greet-comments-ws-AmFVO1Y2UnMAcglW.pdf>

Original File Name: Chart LCFS CA-GREET.pdf

Date and Time Comment Was Submitted: 2014-10-24 10:30:39

No Duplicates.

**Comment 9 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Tom

Last Name: Willis

Email Address: tom.willis@conestogaenergy.com

Affiliation:

Subject: comments for the Calif greet

Comment:

Mr. Ingram and Mr. Pham,

As we have stated in recent comments, Conestoga Energy Partners, LLC is a Kansas based ethanol producer currently relying on sorghum for a significant portion of our annual grain usage. Again, we hope to continue to increase both our ethanol shipments to California and our sorghum usage, as we feel sorghum has an important role to play in helping California meet the greenhouse gas reduction goals set by the LCFS and reducing water usage in irrigated agriculture.

We maintain close contact with National Sorghum Producers (NSP) and understand they are submitting comments as well. As NSP does, we strongly encourage you to consider revising the values related to sorghum yield, the sorghum N application rate and the sorghum stover N content. The sorghum stover N content figure is particularly troubling, as it is based on data not comparable to those found in modern commercial sorghum production. As an alternative, we would support NSP's data and suggested changes.

Thank you for the opportunity to comment.

Regards,

Tom Willis, CEO  
Conestoga Energy Partners, LLC  
1701 N Kansas Ave  
Liberal KS 67901  
620-624-2901

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2014-10-24 13:35:53

No Duplicates.

**Comment 10 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Tahra

Last Name: Jutt

Email Address: tjutt@westport.com

Affiliation: Westport

Subject: Comments on LCFS CA- GREET Changes

Comment:

Please find attached Westport's comments on the LCFS CA GREET changes.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/11-ca-greet-comments-ws-VyBVNgByBSJQJlQ7.pdf>

Original File Name: Westport Comments on LCFS CA-GREET Changes.pdf

Date and Time Comment Was Submitted: 2014-10-24 13:35:41

No Duplicates.

**Comment 11 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Tim

Last Name: Carmichael

Email Address: tim@cngvc.org

Affiliation: California Natural Gas Vehicle Coalition

Subject: CA-GREET and LCFS: Joint comments from CNGVC, NGVAmerica and RNGC  
Comment:

Attached (as a single Zip file) are two documents submitted jointly by the California Natural Gas Vehicle Coalition (CNGVC), NGVAmerica, and the Coalition for Renewable Natural Gas (RNGC): 1) a cover letter providing our comments and recommendations on LCFS and CA-GREET, and 2) a technical report by ICF International, which was prepared on our behalf to convey detailed technical concerns and recommendations about CARB's proposed update to the CA-GREET model.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/12-ca-greet-comments-ws-AmgFbFA4U25VJ1QL.zip>

Original File Name: Joint Letter and ICF Technical Report from CNGVC NGVAmerica and RNGC.zip

Date and Time Comment Was Submitted: 2014-10-24 13:47:05

No Duplicates.

**Comment 12 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Geoff

Last Name: Cooper

Email Address: gcooper@ethanolrfa.org

Affiliation: RFA

Subject: RFA Comments on CA-GREET2.0

Comment:

Please find attached.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/13-ca-greet-comments-ws-UiACYlc3UV0CawJh.pdf>

Original File Name: RFA\_OCT 24 CARB comments CA GREET.pdf

Date and Time Comment Was Submitted: 2014-10-24 14:00:44

No Duplicates.

**Comment 13 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Erica

Last Name: Bowman

Email Address: [ebowman@anga.us](mailto:ebowman@anga.us)

Affiliation:

Subject: ANGA Comments

Comment:

Please find attached, comments of America's Natural Gas Alliance (ANGA) on the LCFS Reconsideration: CA-GREET Model Update.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/15-ca-greet-comments-ws-VTNXOFM8BDYHbQZZ.pdf>

Original File Name: Final ANGA CARB Comments 10\_24\_14.pdf

Date and Time Comment Was Submitted: 2014-10-24 14:21:03

No Duplicates.

**Comment 14 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Matthew

Last Name: Plummer

Email Address: m3pu@pge.com

Affiliation: Pacific Gas and Electric Company

Subject: PG&E Comments on ARB draft CA-GREET2.0

Comment:

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide comments on the draft version of the California Modified Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (CA-GREET2.0) model, Version 2.0.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/16-ca-greet-comments-ws-WytTMIULV2EEXVMw.pdf>

Original File Name: PG&E Comments on Draft GREET2.0.pdf

Date and Time Comment Was Submitted: 2014-10-24 14:51:39

No Duplicates.



**Comment 15 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Todd

Last Name: Campbell

Email Address: tcampbell@cleanenergyfuels.com

Affiliation:

Subject: Reauthorization of Low-Carbon Fuel Standard & Revisions to CA-GREET model  
Comment:

Please see attached letter.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/17-ca-greet-comments-ws-VjpTMFInByBXNAd1.pdf>

Original File Name: Letter dated 10.24.14 to Mary Nichols & Richard Corey.pdf

Date and Time Comment Was Submitted: 2014-10-24 14:56:28

No Duplicates.

**Comment 16 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Andy

Last Name: Foster

Email Address: andy.foster@aemetis.com

Affiliation: Aemetis Advanced Fuel Keyes

Subject: LCFS Sorghum Comments

Comment:

Mr. Ingram and Mr. Pham,

As we stated in recent comments, Aemetis Advanced Fuels Keyes is a California-based ethanol producer currently engaged in efforts to use more sorghum. Again, we feel sorghum has an important role to play in helping California meet the greenhouse gas reduction goals set by the LCFS and reducing water usage on irrigated acres in California.

We maintain close contact with National Sorghum Producers (NSP) and understand they are submitting comments as well. As NSP does, we strongly encourage you to consider revising the values related to sorghum yield, the sorghum N application rate and the sorghum stover N content. The sorghum stover N content figure is particularly troubling, as it is based on data not comparable to those found in modern commercial sorghum production. As an alternative, we would support NSP's data and suggested changes.

Thank you for the opportunity to comment.

Regards,

Andy Foster  
EVP and President  
Aemetis, Inc.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2014-10-24 15:32:24

No Duplicates.

**Comment 17 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Tom

Last Name: Koehler

Email Address: tomk@pacificethanol.net

Affiliation:

Subject: CA GREET 2.0

Comment:

Please accept these comments on behalf of Pacific Ethanol.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/19-ca-greet-comments-ws-UDMGYVcxACFQM1cy.docx>

Original File Name: CAGREET2.O.docx

Date and Time Comment Was Submitted: 2014-10-24 16:33:09

No Duplicates.

**Comment 18 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Stefan

Last Name: Unnasch

Email Address: unnasch@lifecycleassociates.com

Affiliation: Life Cycle Associates, LLC

Subject: Comments on the Treatment of Nitrogen Fixation in Soybeans

Comment:

See attached letter

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/20-ca-greet-comments-ws-BnNWPIQ7BDYHclQ3.pdf>

Original File Name: Unnasch\_-\_LCFS \_Nitrogen\_Comments.pdf

Date and Time Comment Was Submitted: 2014-10-27 16:41:06

No Duplicates.

**Comment 19 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Chuck

Last Name: White

Email Address: cwhite1@wm.com

Affiliation: Waste Management

Subject: LCFS Program - Comments on Proposed Changes to California GREET Model  
Comment:

See attached letter

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/21-ca-greet-comments-ws-VyBWPVwCWGdVMANl.docx>

Original File Name: WM LCFS CARB CI letter 141023.docx

Date and Time Comment Was Submitted: 2014-10-27 16:44:09

No Duplicates.

**Comment 20 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Gina

Last Name: Grey

Email Address: ombcomm@arb.ca.gov

Affiliation: WSPA

Subject: Comments for CA-GREET model

Comment:

See attached

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/22-ca-greet-comments-ws-ViEFcFUKAzELUgVm.pdf>

Original File Name: WSPA Comments on ARB LCFS CA GREET OPGEE 1014 2.pdf

Date and Time Comment Was Submitted: 2014-11-06 14:11:53

No Duplicates.

**Comment 21 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Stefan

Last Name: Unnasch

Email Address: ombcomm@arb.ca.gov

Affiliation: Life Cycle Associates

Subject: Comments for CA-GREET model

Comment:

See attached

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/23-ca-greet-comments-ws-BzVSeQN3Aj8Dawdm.pdf>

Original File Name: 2-Unnasch\_-\_GREET Petroleum Comments.pdf

Date and Time Comment Was Submitted: 2014-11-06 14:11:53

No Duplicates.

**Comment 22 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Linda

Last Name: Swift

Email Address: dismoreswift@att.net

Affiliation: Chevron-Retired

Subject: Oil Recovery Efficiency Used is too High

Comment:

By "Oil recovery efficiency" listed in cell E-32 of the spreadsheet, I assume you mean oil recovery factor, i.e. the actual proportion of in-place oil that can be economically extracted from a reservoir. If that is indeed the case, the value you use of 98% is much too high. An average is about 20-25% (see for example <http://www.ogj.com/articles/print/volume-105/issue-41/exploration-development/global-oil-reserves-1-recovery-factors-leave-vast-target-for-eor-technologies.html>)

Although the recovery factor can vary significantly depending on the field, it never in my experience is as high as 98%, even with exceptional EOR. A good recovery factor is more like 35-45%. Secondary and tertiary recovery might add another 10% each.

There is a huge amount of data on this to get a robust average number.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2014-12-04 10:57:14

No Duplicates.



**Comment 23 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Tim

Last Name: Carmichael

Email Address: tim@cngvc.org

Affiliation: California Natural Gas Vehicle Coalition

Subject: CA-GREET and LCFS: Joint comments from CNGVC, NGVAmerica and RNGC  
Comment:

Attached (as a single Zip file) are two documents submitted jointly by the California Natural Gas Vehicle Coalition (CNGVC), NGVAmerica, and the Coalition for Renewable Natural Gas (RNGC): 1) a cover letter providing our most-recent comments and recommendations on LCFS and CA-GREET, and 2) a revised technical report by ICF International, which was prepared on our behalf to convey detailed technical concerns and recommendations about CARB's proposed update to the CA-GREET model. This letter and report have been updated from the October 24, 2014 versions, to incorporate CARB's most-recent changes to the draft CA-GREET 2.0 model.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/25-ca-greet-comments-ws-BWZTOwBmV3JQNQIW.zip>

Original File Name: CNGVC NGVAmerica and RNGC - December 15 LCFS Comments.zip

Date and Time Comment Was Submitted: 2014-12-15 13:22:01

No Duplicates.

**Comment 24 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Tahra

Last Name: Jutt

Email Address: tjutt@westport.com

Affiliation:

Subject: Comments:Reauthorization of the LCFS and CA-GREET Update

Comment:

Please accept comments from Westport Innovations with regards to the CA-GREET update.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/26-ca-greet-comments-ws-BnFVNIIgACdWIFI9.pdf>

Original File Name: Westport-LCFS and GREET Update Comments 12-15-14 Final.pdf

Date and Time Comment Was Submitted: 2014-12-15 14:08:52

No Duplicates.

## **Comment 25 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Todd  
Last Name: Campbell  
Email Address: tcampbell@cleanenergyfuels.com  
Affiliation:

Subject: CE Comments on ARB LCFS ReAuth and GREET 2.0 Update 12.15.14  
Comment:

December 15, 2014

Ms. Mary D. Nichols  
Chairman, California Air Resources Board  
P.O. Box 2815  
Sacramento, CA 95812

Subject: LCFS Re-authorization and CA-GREET 2.0 Model.

Dear Chairman Nichols:

Clean Energy would like to thank the California Air Resources Board (ARB) staff for allowing us the opportunity to comment on staff's most recent updates to the proposed CA-GREET 2.0 Model. Clean Energy - an original supporter of the Low Carbon Fuel Standard (LCFS) - respectfully requests that the ARB Governing Board at their February 2015 meeting:

1. Re-authorize the Low Carbon Fuel Standard (LCFS);
2. Continue with CA-GREET 1.8b until CA-GREET 2.0 can be further reviewed and vetted in a public process.

We understand staff is experiencing a significant amount of pressure to prepare and deliver an LCFS re-authorization package and a CA-GREET 2.0 update in time for the February Board meeting. This daunting task on staff with limited resources is not lost on us, and we are appreciative of their agreements to participate in meetings, accept phone calls and respond to e-mails in a timely manner. We appreciate their interest in our concerns and comments.

That being said, the condensed timeline for stakeholders to comment by December 15 after the CA-GREET 2.0 model was released on December 2 has been extremely challenging and pose a serious risk of key information being omitted or ignored. We are concerned by both the speed and limited public process. As you know, we learned of the potential and significant increases in carbon intensity values for compressed natural gas (CNG), liquefied natural gas (LNG) and renewable natural gas (RNG) with little detail behind those numbers in late August. It was only in October that we were able to look at a draft of the proposed CA-GREET 2.0 model and were given approximately 10 business days to review staff's work.

Unfortunately, but perhaps not surprisingly given limited staff bandwidth, substantial model and input errors were identified that still need to be addressed. Through subsequent discussions with staff, we were able to make some collaborative progress to improve the model, but more needs to be done.

On December 2, ARB staff released its second and latest version of the proposed CA-GREET 2.0 model, providing even less time for public input, and without time for discussions with staff prior to the 45-day period which starts on Tuesday, December 16 when the package will be submitted to the Office of Administrative Law.

One of our primary concerns is the public release in CA-GREET 2.0 of carbon intensity numbers for CNG, LNG, and RNG that are questionable at best. The data source is just one study, from Sweden, that compares landfill to anaerobic digestion and of which is not comparable to systems used in the United States. Staff has explained the numbers are "illustrative" only, are buried on the last page of Appendix B, and are not posted anywhere else including in a proposed regulation or web page.

While the posting of these numbers are located in only one place, we are concerned about the characterization of our industry between now and the proposed implementation date of January 1, 2016. With such a long timeframe, we are puzzled as to why it is even necessary for ARB staff to submit a draft model for ARB Board approval which will continue to be subject to further modification via public process. And any documents released by the ARB will be carefully scrutinized by the industry and subsequent decisions will be made that could wreak needless havoc. The ARB documents are often perceived to be what decisions might be likely in the near future. Carbon intensity numbers without scientific validity - even considered illustrative at best - and could very well be changed with the introduction of new studies over the next six months, could significantly cause alarm and needlessly impact the marketplace. Therefore, to avoid the problems associated with using premature or inaccurate carbon intensity numbers, request the Board:

- Continue to use the baseline carbon intensity numbers from CA-GREET 1.8b as a prudent, responsible, and scientifically valid method forward until these numbers are deemed inadequate;
- That the Board adopt a resolution that ARB will continue working to determine and utilize scientifically valid carbon intensity numbers;
- That ARB provide ample opportunity for the public to review and comment on existing and proposed scientific studies - this could include being done via working groups and workshops.

It is also important to summarize the key problems of the CA-GREET 2.0 Model as outlined in a report issued by ICF International . This is further evidence much more work needs to be done before it can be adopted. Please consider several of the key problems:

- Use of an arbitrary application rate of RNG leakage at landfills;
- Application of outdated emission factors from MOBILE6;
- Fugitive methane emissions do not represent California pipelines;
- Distance needs to be accounted when discussing transmission versus distribution fugitive emissions;
- In updates to electricity and hydrogen pathways, there is a

coding error in the spreadsheet model resulting in the mismatching of NERC and eGRID regions; and,

- Electricity values need to be adjusted appropriately to reduce the carbon intensity number when considering multiple pathways compression.

Thank you for considering our views. We look forward to working with you as the process continues

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/27-ca-greet-comments-ws-WjZcP1ciVnEBYlAi.doc>

Original File Name: letter dated 12.15.14 re LCFS Re-authorization and CA-GREET 2.0 Model.doc

Date and Time Comment Was Submitted: 2014-12-15 15:28:27

No Duplicates.

**Comment 26 for Comments for the California GREET model in LCFS (ca-greet-comments-ws) - 1st Workshop.**

First Name: Matthew

Last Name: Plummer

Email Address: m3pu@pge.com

Affiliation: Pacific Gas and Electric Company

Subject: Pacific Gas and Electric Company's Comments on the Air Resources Board's Revised Draft Cal

Comment:

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide comments on the revised draft version of the California Modified Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (CA-GREET2.0) model, Version 2.0.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach/28-ca-greet-comments-ws-VCRdPFcJUGZXDghr.pdf>

Original File Name: PG&E Comments on Revised CA-GREET.pdf

Date and Time Comment Was Submitted: 2014-12-15 16:18:04

No Duplicates.

**There are no comments posted to Comments for the California GREET model in LCFS (ca-greet-comments-ws) that were presented during the Workshop at this time.**