Comment 1 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Naomi
Last Name: Kim
Email Address: naomik@envirorights.org
Affiliation: California Environmental Rights Alliance

Subject: LCFS - Fuel values
Comment:

See Attchement

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/1-120707cera.pdf

Original File Name: 120707cera.pdf

Date and Time Comment Was Submitted: 2008-01-16 08:31:13

No Duplicates.

Comment 2 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Philip
Last Name: Heirigs
Email Address: PHEZ@chevron.com
Affiliation: Chevron

Subject: Co-products credit and Land Use change
Comment:

See attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/2-102307chevron.pdf

Original File Name: 102307chevron.pdf

Date and Time Comment Was Submitted: 2008-01-16 16:50:28

No Duplicates.

Comment 3 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Emily
Last Name: Russel-Roy
Email Address: ERussellRoy@PacificForest.org
Affiliation: The Pacific Forest Trust

Subject: Initial Comments for the Lifecycle Analysis Workgroup
Comment:

See Attchment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/3-101707pft.pdf

Original File Name: 101707pft.pdf

Date and Time Comment Was Submitted: 2008-01-16 16:53:17

No Duplicates.

Comment 4 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Allen
Last Name: Dusault
Email Address: ADusault@suscon.org
Affiliation: Sustainable Conservation

Subject: Low Carbon Workgroup
Comment:

See Attchment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/4-101107suscon.pdf

Original File Name: 101107suscon.pdf

Date and Time Comment Was Submitted: 2008-01-16 16:56:43

No Duplicates.

Comment 5 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Shoba
Last Name: Veeraraghavan
Email Address: Shoba.Veeraraghavan@shell.com
Affiliation: Shell Global Solutions (UK)

Subject: California Low Carbon Fuel Standard: Coproducts
Comment:

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See attachment
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Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/5-111607shell.pdf

Original File Name: 111607shell.pdf

Date and Time Comment Was Submitted: 2008-01-18 09:42:54

No Duplicates.

Comment 6 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: John
Last Name: Braeutigam
Email Address: john.braeutigam@valero.com
Affiliation: Valero

Subject: Using U.S. EPA RINs for CALCFS Compliance
Comment:

See attchment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/6-121307valero.pdf

Original File Name: 121307valero.pdf

Date and Time Comment Was Submitted: 2008-01-18 09:52:55

No Duplicates.

Comment 7 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Stewart
Last Name: Bailey
Email Address: stewartbailey@sasolchevron.com
Affiliation: SASOL Chevron

Subject: Life Cycle Assessment of Transportation Fuel Technologies
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/7-122007sasolchevron.pdf

Original File Name: 122007sasolchevron.pdf

Date and Time Comment Was Submitted: 2008-01-18 10:00:24

No Duplicates.

Comment 8 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Cal
Last Name: Hodge
Email Address: a2ndopinioninc@aol.com
Affiliation: A 2nd Opinion Inc. for Neste Oil

Subject: Group 1 LCA Land Use Change Comments
Comment:

A 2nd Opinion, Inc.
Clean Fuels & Regulatory Issues

Cal Hodge, President

Dear Anil:

The articles reproduced below illustrate why I enjoy consulting with Neste oil. Please add them and this cover email to the record.

I have known various Neste people since the mid nineties. I have observed that they are straight forward practical people who like to do the right things the right way. These articles show that doing the right things the right way starts at the top. Neste Oil welcomes strict sustainability criteria for biofuels because it is the right thing to do. Neste Oil's views on palm oil are well thought out and constructively address many of the rainforest concerns that have recently been raised about biofuels.

For example Neste mentions two examples that should should eliminate or significantly change the land use change debit calculated in the UCB spreadsheet. Increasing yield on the same land should cause the land use change (LUC) debit to be zero for the incremental production. Converting idle land to oil production should have a much smaller LUC debit than the rainforest debits calculated in the UCB spreadsheet. If planting the oil crop stops the land from eroding into the sea, the rainforest LUC debit should also approach zero.

What this boils down to is that LCA is a very complex issue and that we must be careful to not paint with brushes that are too wide. The people who are doing it right deserve to be treated differently from those that do it wrong. Our workgroups have to develop a methodology that encourages best practices. That makes our job tougher. But if we want to reduce carbon emissions we have to step up and do it.

For A 2nd Opinion, Inc.

Cal Hodge

19 Serenade Pines Place - The Woodlands, TX 77382-2005
Phone: 281-844-4162 FAX: 281-966-6914
Email: A2ndOpinionInc@aol.com

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/8-013108a2ndopinion.pdf

Original File Name: 013108a2ndopinion.pdf

Date and Time Comment Was Submitted: 2008-02-01 17:46:13

No Duplicates.

Comment 9 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Steffen
Last Name: Mueller
Email Address: muellers@uic.edu
Affiliation: University of Illinois at Chicago - ERC

Subject: Sensitivity of Presented GHG Land Use Change Calculations
Comment:

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I reviewed the Memo written by Alex Farrell and Michael O'Hare
regarding greenhouse gas emissions from land use change and I
offer some observations and comments pertaining to the sensitivity
of the presented calculations.
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Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/9-erc_luc_comments.pdf

Original File Name: ERC LUC Comments.pdf

Date and Time Comment Was Submitted: 2008-02-06 07:03:29

No Duplicates.

Comment 10 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

This comment was posted then deleted because it was unrelated to the Workshop item or it was a duplicate.

Comment 11 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 2nd Workshop.

First Name: Hong
Last Name: Jin
Email Address: Hong.Jin@conocophillips.com
Affiliation: ConocoPhillips

Subject: Renewable diesel pathway in the LCFS
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/17-letter_to_lcfs_cop_format.pdf

Original File Name: Letter to LCFS_COP format.pdf

Date and Time Comment Was Submitted: 2008-03-24 14:34:54

No Duplicates.

Comment 12 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 2nd Workshop.

First Name: Adam
Last Name: Liska
Email Address: aliska2@unl.edu
Affiliation: University of Nebraska

Subject: Memo on the Life-Cycle Emissions Intensity of Corn-Ethanol
Comment:

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A memo is attached.
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Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/18-2008-3-26.carb_memo_from_kc_al.pdf

Original File Name: 2008-3-26.CARB memo from KC&AL.pdf

Date and Time Comment Was Submitted: 2008-03-26 13:50:55

No Duplicates.

Comment 13 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 3rd Workshop.

First Name: Roberto
Last Name: Amadei
Email Address: ramadei1@alice.it
Affiliation: Chemical & Energy Development srl

Subject: A lifecycle low carbon fuel
Comment:

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See the attached report, "An economic and environmental gasoline",
in its turn containing two enclosures.

Thank you for soliciting public comments.
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Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/22-lcfs.rar

Original File Name: LCFS.rar

Date and Time Comment Was Submitted: 2008-06-19 09:36:00

No Duplicates.

Comment 14 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 3rd Workshop.

First Name: Walter
Last Name: Donaldson
Email Address: bud32252@yahoo.com
Affiliation: Benicia Unified School District

Subject: Reduction of Greenhouse Gases & Gasoline Consumption
Comment:

Sunday, June 22nd, 2008
To WHOM it may concern,

I have 3 suggestions that are interrelated and provide a relatively rapid solution to the dependence this nation faces regarding petroleum consumption and the air pollution crisis (greenhouse gases) particularly in CA. For over a decade, the U.S. automobile manufactures have had the technology to produce completely electric vehicles (General Motors, 1990's / EV-1) and have chosen instead to produce gas guzzling SUV's. These decisions have resulted in increasing the US dependence on foreign oil, especially from the Middle-East (OPEC).

1. If General Motors were provided US Government Tax Incentives to begin production, within 2 years, of Electric Vehicles (EV-1), with advanced battery technologies, for commute vehicles with a range of 100 miles/day, would immediately lower oil consumption demands by 30-40%. If GM were to begin production, this would also provide a boost to the sluggish economy as well. Personally, if a domestic manufacturer were to produce and sell, not lease, these electric vehicles, I would finance & purchase one tomorrow.

2. Provide a Business Tax Incentives to stagger work schedules for employees, in order to lessen the number of vehicles on the road during commute hours (6-9 AM) & (4-7 PM). Fewer traffic jams, less gasoline & electricity used. Simply have people arrive to work in 2 hour blocks. For example, some arriving at 8 AM & work til 4 PM, 10AM-6PM and Noon to 8. Retailers have staggered employee hours for years, why not other businesses?

3. Provide Tax Incentives to Consumers to purchase and install solar panels on all US homes in order to generate enough electricity to recharge the electric vehicles for commute purposes. Adapting this approach would be similar to that of Germany and would pay for itself in a matter of years.

These are certainly NOT new ideas, but the time has come to implement some reasonable approach to solving our problems. Time for TALK has ended, it's now time to ACT. With the right type of legislation and generous tax incentives for individuals and businesses, the CA State & US Government can begin to enact laws & guidelines as remedies for our "addiction to oil" (Pres. Bush). I and the American people wait for your response. Pls. respond to my thoughts with an acknowledgment that you received it, thank you. E-mail: bud32252@yahoo.com

Sincerely,
Walter A. Donaldson (Bud)
H.S. Teacher/Counselor (30 years)
Benicia, California
PS. If you haven't viewed the DOCUMENTARY, "WHO KILLED THE ELECTRIC CAR?" It is a must see to fully understand the problems that we all now face, particularly in the state of California.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2008-06-22 10:40:57

No Duplicates.

Comment 15 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 3rd Workshop.

First Name: Tom
Last Name: Frantz
Email Address: ini@lightspeed.net
Affiliation: Association of Irritated Residents

Subject: low carbon fuel standard
Comment:

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These attached comments concern the life-cycle analysis and the
economic issues of using corn ethanol as part of the Low Carbon
Fuel Standard.
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Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/25-tom_frantz_lcfs_june_24_2008.doc

Original File Name: Tom Frantz LCFS June 24 2008.doc

Date and Time Comment Was Submitted: 2008-06-24 13:48:01

No Duplicates.

Comment 16 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 3rd Workshop.

First Name: Kenneth
Last Name: Cassman
Email Address: kcassman1@unl.edu
Affiliation: University of Nebraska

Subject: Comments on “Detailed CA-Modified GREET Pathway for Denatured Corn Ethanol--4/21/08"
Comment:

Note: The text of our comment follows below. I also append a pdf file that contains the comments below with the original formatting of the document because the formatting gets lost when inserted into this message box.

Comments on “Detailed California-Modified GREET Pathway for Denatured Corn Ethanol” (released April 21, 2008, version 1.0)
Draft—For Review

Kenneth G. Cassman1, Adam J. Liska1, and Virgil Bremer2
University of Nebraska-Lincoln,
Department of Agronomy and Horticulture1, and Department of Animal Science2
June 27, 2007

General

Life-cycle metrics are dependent upon numerous estimated parameters that underpin the calculation. Appropriate references must support all of the data used. The parameters and assumptions used in the CA-GREET model and referenced in the Draft report lack many necessary references and are not transparent. Although it is difficult to tell because of the lack of transparency and adequate citation, we believe the values for inputs and GHG performance of corn-ethanol presented in the Draft are obsolete and are not representative of current farming and ethanol industry practices. Appropriate references are necessary to evaluate the assumptions employed. For example, energy use on farm is from the 1990’s, and a more recent value is available and should be employed. Also, the source of the values for energy use at the ethanol plant is not given, but we believe it is from a survey of ethanol plants taken in 2001. Here again there more recent, and more representative values for this parameter and they should be used. The methods used to calculate the co-product credit is also outdated and inaccurate. By employing older, outdated data that so not represent current farming practices, ethanol plant operation, or co-product use, the proposed CA-GREET model does not accurately represent the GHG emissions from the current corn-ethanol industry.

Corn Farming
1. Energy use for farming is indicated in Btu per bushel, or unit

yield (Btu/bu) (Table 1.01). This is not an appropriate parameter because this efficiency value changes overtime and is dependent on grain yield and a number of known input rates. Changes in farming practices, such as switching from conventional tillage to no-tillage, may reduce energy inputs while having a minimal impact on crop yield. We strongly believe that the underlying parameters that determine the calculated Btu/bu, such as nitrogen and other fertilizer application rates (e.g. lb N / ac), are given as explicit input parameters. This will facilitate evaluation and updating of the model by those interested in such activities. The generic national averages also do not capture regional variability, which are large.

2. The references provided for farm input rates are from 1995-1999 (p. 18, footnotes), and cropping practices have become more efficient since that time (Cassman et al., 2002). Changes in practices have reduced petroleum use in corn production. This increase in efficiency should not be estimated based on a general estimate (e.g. +10%), but changes in cropping practices should be calculated based on actual input rates and crop yields using the most recent available data. For example, input rates for fertilizer and pesticides are available for more recent years, and energy inputs are available from 2001. A brief by Life Cycle Associates indicates that the 2001 data reduces energy inputs by 33% compared to the estimates used by GREET.

3. Fertilizer inputs are not generally directly proportional to grain yield (e.g. g/bu) (Table F), and such parameters are also not commonly used by crop producers. Fertilizer (e.g. nitrogen) input is known on an area basis (e.g. lb/ac), it is associated with regionally variable input rates and uptake efficiencies, and is not accurately accounted for by the parameters employed as a variable in calculations related to yield (e.g. g K2O/bu). Such parameters should be given in units that are consistent with how they are used—in this case in lb/ac.

4. References for the energy intensity of fertilizer inputs sued in the model are omitted in Table 2.01. The text indicates that these intensities are relatively constant, but a report by G. Kongshaug (Energy Consumption and Greenhouse Gas Emissions in Fertilizer Production, 1998) documents substantial variability in fertilizer production efficiency. Recent estimates based on current practices, with appropriate references, are needed here. Estimates in Table 2.02 lack appropriate references. The ethanol yields in Table 2.03 are not referenced.

5. Nitrous oxide (N2O) emissions from N fertilizer are assumed to be 2.0% of applied (Table 2.06). It lacks an appropriate reference, and is inconsistent with current estimates. While considering 9 parameters from the 2006 Guidelines for National Greenhouse Gas Inventories (IPCC), the BESS model (www.bess.unl.edu) estimates that direct and indirect N2O emissions from fertilizer are approximately 1.8%--direct N2O emissions from fertilizer are 1% of applied N is converted to N2O (IPCC 2006).

Ethanol Production

1. Appropriate references are not provided to support the values associated with the energy use in the ethanol plant (Table 4.01). The numbers used are likely to be obsolete and not representative of the current ethanol industry. These numbers have a large impact on the GHG emissions totals from corn-ethanol systems and therefore the source of these data must be fully documented with acceptable citations. Without citations, our best guess is that these values come from an EPA estimate obtained from consulting engineering firms. More recent industry surveys using data from state

regulatory agencies and other industry surveys suggest that the values cited in the Draft are too high and that the current ethanol industry is considerably more energy efficient. The efficiencies from these surveys were presented in a recent memo to CARB (March 26, 2008) from Ken Cassman and Adam Liska, and are also used in the BESS model (www.bess.unl.edu).

Co-product credits

1. The co-product credits are inaccurate as designated in Table 6.05 for a dry mill biorefinery. Our group has recently recalculated co-product credits based on Klopfenstein et al. (2008). The method for calculating these credits is based on current feeding practices and is described in the User's Guide of the BESS model (www.bess.unl.edu). One manuscript is submitted and another is in progress to describe the GHG credit due to distillers grains based on current feeding practices. Distillers grains plus solubles (DGS) do not replace soybean meal in the majority of cattle diets. The replacement materials for DGS are primarily corn and urea, not corn, oil, and soybean meal (see point 4 below). The displacement method used by GREET model ignores the most accurate and current biological data (e.g. the BESS co-product crediting system based off of extensive biological data and environmental factors) for cattle performance and DGS inclusion level being fed by the feedlot industry.
2. GREET 1.8b, like the other GREET versions, discounts the total co-product credit by 15% since it was originally believed that there would be an oversupply of DGS and therefore the beef industry would have to grow to use up all the DGS. The thought was that this "new beef industry growth" caused by DGS could not be credited. The number they calculated was that a 15% growth was needed to use all the DGS (Table 6.02). This assumption is incorrect because the beef industry has not grown with the DGS boom. DGS is being used to replace corn that has been diverted to the ethanol industry from the cattle feeding industry. This means that the 15% discount should be eliminated from the GREET model calculations.
3. Some of the GREET 1.8b calculations for soybean transportation are based on the wrong weight of soybeans per bushel. The cells in columns I and J of sheet BD use a 56 lb bushel weight of soybeans. This number should be 60 lb per bushel. The 56 lb/bu number is correct for corn but not for soybeans. This number is an important part of converting energy values per ton of soybeans to per bushel of soybeans to be compatible with the rest of the model. These calculations are not used directly for co-product calculations, but appear to have been the basis for some of the co-product calculation inputs.
4. The co-product feeding substitution scheme provided by the Draft is underdeveloped and unrepresentative of current feeding practices. The references for Table 6.02 are for brief, non-peer reviewed, largely undocumented conference presentations (http://www.mncpoe.org/Previous_events/mar13_energy%20forum/Cellulosic%20Ethanol-Tiffany.Mar.13.07.print.pdf, http://www.ddgs.umn.edu/ppt-swine/2005-Shurson-%20High%20quality%20corn%20ddgs.pdf).
The EPA document (ref. 11, p.65) does not appear to contain any text on co-product substitution rates (the Draft suggests that 1 ton of DGS substitutes 0.5 ton of corn and 0.5 ton of soybean meal in cattle diets—this could not be found in the document: http://www.epa.gov/EPA-AIR/2007/May/Day-01/a7140a.htm). This substitution assumption is also not supported by a recent USDA survey of use of DGS and related animal feeding studies, as described below.

The Renewable Fuels Association calculated that 82% of biorefineries were dry-mills in 2006 (RFA 2006; this percentage has increased due to recent industry expansion). Dry-mills produce distillers grains co-products instead of corn gluten feed from wet-mills. The National Agricultural Statistics Service (NASS) has released a 2006 survey of beef, dairy, and swine operations on ethanol co-product use for livestock feed (USDA-NASS 2007). The survey was conducted in the Corn Belt for a region that contains 50%, 33%, and 70% of the United States 2006 beef, dairy, and pork production, respectively (USDA-NASS, 2008). In 2006, this area represented 3.2 million head of dairy cattle, 11.3 million head of cattle in 1,000+ head feedlots, and 64.1 million pigs, and a large portion of these animals are fed co-product. Moreover, the larger scale, more innovative producers are the ones adopting co-product feeding (USDA-NASS, 2007; Waterbury et al., 2009). An example of co-product use comes from the Nebraska beef industry. A Nebraska state survey found that 59% of feedlot operations were feeding co-products in 2007 (Waterbury et al., 2009). However, on an animal basis, 91% of cattle on feed were fed co-products. A Texas, Midwest, and Western states feedlot nutritionist survey conducted by Vasconcelos and Galyean (2007) agrees with the Nebraska study by showing 83% of the feedlots used co-products. The respondents in both the consultant study and Nebraska study indicated that distillers grains was the most common co-product used. The nutritionist survey indicated 69% of the 29 nutritionists (consulting for about 69% of cattle on feed in the United States) were feeding distillers grains as the primary co-product in the diet.

Feeding studies have demonstrated that up to 50% of diet dry matter can be replaced with DGS in feedlot diets and improve cattle performance (Klopfenstein et al., 2008). NASS survey data suggests that Corn Belt feedlots feeding DGS have average dietary inclusion of distillers grains at 22% to 31% of the diet (as-is, wet basis). Waterbury et al. (2009) has shown that feedlots are feeding 37% of the diet (as-is) as co-product in Nebraska. Vasconcelos and Galyean (2007) suggest the average co-product inclusion rate on a dry matter basis is 20% with a range of 5 to 50% of diet dry matter.

Research has shown that 20% of dairy diet dry matter can be provided as DGS without hurting performance (Anderson et al., 2006). NASS survey data suggests that the average inclusion of DGS in dairy diets is 10 to 22 percent of the diet (as-is). When the water in the as-is weight is discounted, this amount is about 10% of diet dry matter. The dairy industry has been using DGS as a protein supplement to replace corn and soybean meal in the diet (Anderson et al., 2006). As the inclusion level increases, the corn energy will be replaced with distillers grains for milk production energy.

The swine industry can efficiently use up to 20% of diet dry matter as dry DGS without hurting pig performance (Stein, 2007). NASS data suggest that few swine operations have been feeding DGS, and the average as-is inclusion is about 10 to 11% of the diet for those operations that do feed DGS.

Cumulatively these data suggest that the beef and dairy industries have been the major consumers of DGS produced by dry mills. The beef industry feeds greater inclusions of DGS to more cattle than the dairy industry, even accounting for two steer finishing periods per dairy cow year. However, dairy cattle eat roughly two times the amount of dry matter each day that feedlot cattle eat. This suggests that the dairy industry may be utilizing about the same amount of distillers grains as the feedlot industry. The feedlot industry may have more potential for future increased use

of
DGS than the dairy industry (Klopfenstein et al., 2008), because the dairy industry does not have as much potential without decreasing animal performance. Although the swine industry has the potential to utilize DGS, the industry has been feeding low inclusion levels and has not been a major consumer of the co-product.

These findings indicate that the beef and dairy industries are the primary systems to model co-product use. While the initial use of DGS was for protein replacement in both beef and dairy diets when the amount of corn used for ethanol was small, with large amounts of corn used for ethanol as is now the case, DGS are used primarily as an energy source in cattle and dairy diets (Klopfenstein et al., 2008; Anderson et al., 2006). Therefore, the DGS can not be completely credited as a protein source as they are in the GREET model. Distillers grains use has been studied more extensively in feedlot cattle than in dairy production (Klopfenstein et al., 2008). Therefore, we can accurately evaluate the feedlot industry, but the dairy industry needs further analysis.

Historical developments in the cattle feeding industry show that part of the DGS co-product credit is the replacement of urea (nitrogen) in feedlot diets and does not include the replacement of soybean meal. By the mid 1960's the ruminant feeding industry recognized that urea was as effective as soybean meal for feedlot cattle protein supplements (Perry et al., 1967; White et al., 1975). Urea supplied dietary protein (nitrogen) less expensively than did plant protein supplements such as soybean meal and therefore became the main nitrogen supplement for feedlot cattle, but co-products can replace urea and a 2007 subsequent survey found wide spread use of ethanol co-products as protein sources (Vasconcelos and Galyean, 2007). Therefore, the BESS model assumes that co-products are used to replace corn and urea in cattle diets and are given a GHG credit for the emissions saved by making this replacement. Details are provided in the BESS model User's Guide (www.bess.unl.edu).

Citations

Anderson J. L., D. J. Schingoethe, K. F. Kalscheur, and A. R. Hippen. 2006. Evaluation of Dried and Wet Distillers Grains Included at Two Concentrations in the Diets of Lactating Dairy Cows. J Dairy Sci. 89: 3133-3142.

Cassman, K.G., Dobermann, A.D., and Walters, D.T. 2002. Agroecosystems, N-Use Efficiency, and N Management. AMBIO 31:132-140.

Culbertson C. C., John M. Evvard, W. E. Hammond, and Q. W. Wallace. 1924. Protein Supplements with Different Roughages for Fattening Cattle. J Anim Sci 1924 1924: 13-24.

Galyean, M. L., and J. F. Gleghorn. 2001. Summary of the 2000 Texas Tech University Consulting Nutritionist Survey. Texas Tech University, Dept. of Anim. and Food Sci., Burnett Center Internet Progress Report No. 12. http://www.asft.ttu.edu/burnett_center/progress_reports/bc12.pdf. Accessed June 26, 2008.

Klopfenstein T.J., G. E. Erickson, and V. R. Bremer BOARD-INVITED REVIEW: Use of distillers by-products in the beef cattle feeding industry, J Anim Sci 2008 86: 1223-1231.

Perry T. W, W. M. Beeson, and M. T. Mohler. 1967. A Comparison of High-Urea Supplements with Natural Protein Supplements for Growing and Fattening Beef Cattle. J Anim Sci 1967 26: 1434-1437.

RFA (Renewable Fuels Association). 2008. Changing the Climate: Ethanol Industry Outlook 2008. Washington, DC.

Stein, HH. 2007. Distillers dried grains with solubles (DDGS) in diets fed to swine. Department of Animal Sciences University of Illinois at Urbana-Champaign HHS-SwineFocus-001.
USDA-NASS (National Agricultural Statistics Service). 2007. Ethanol Co-Products Used for Livestock Feed. Washington, DC.
USDA-NASS (National Agricultural Statistics Service). 2008. www.nass.usda.gov. Accessed June 26, 2008.
Vasconcelos J. T. and M. L. Gallean. 2007. Nutritional recommendations of feedlot consulting nutritionists: The 2007 Texas Tech University survey. J Anim Sci. 85: 2772-2781.
Waterbury, JA, DR Mark, RK Perrin, SM Thoms, GE Erickson, and TK Klopfenstein. 2009. Results of the Ethanol Co-Product Survey: An Economic Overview of Ethanol Co-Product Utilization in Nebraska. Nebraska Beef Cattle Report 2009. (Submitted).
White T. W., W. L. Reynolds, and F. G. Hembry. 1975. Comparison of Supplements Containing Soybean Meal and Urea Fed with Whole or Ground Shelled Corn to Beef Cattle. J Anim Sci. 40: 1-5

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/27-8-6-27_comments_on_carb_draft-greet.pdf

Original File Name: 8-6-27 Comments on CARB draft-GREET.pdf

Date and Time Comment Was Submitted: 2008-06-29 10:35:33

No Duplicates.

Comment 17 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Blake
Last Name: Simmons
Email Address: basimmons@lbl.gov
Affiliation: Sandia National Laboratories

Subject: Land use change letter from Sandia, Joint BioEnergy Institute, et al
Comment:

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Letter submitted to Mary Nichols regarding land use change of
biofuel.
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Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/30-luc_change_letter_from_livermore_et_al.pdf

Original File Name: LUC Change Letter from Livermore et al.pdf

Date and Time Comment Was Submitted: 2008-07-10 08:42:11

No Duplicates.

Comment 18 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Mike
Last Name: O'Hare
Email Address: ohare@berkeley.edu
Affiliation: University of California, Berkeley

Subject: Response to land use change letter from UC, Purdue, et al
Comment:

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Letter in response to the June 24th Sandia letter on land use
change.
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/31-luc-biofuels-nichols_6-28-08-v2.pdf

Original File Name: LUC-biofuels-Nichols_6-28-08-v2.pdf

Date and Time Comment Was Submitted: 2008-07-10 08:46:33

No Duplicates.

Comment 19 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Geoff
Last Name: Cooper
Email Address: GCooper@ethanolrfa.org
Affiliation: Renewable Fuels Association

Subject: RFA Comments on "Detailed California-Modified GREET Pathway for Denatured Corn Ethanol"
Comment:

```
Mr. Courtis,

Please find attached the Renewable Fuels Association's comments on
CARB's April 12, 2008 report, "Detailed California-Modified GREET
Pathway for Denatured Corn Ethanol." Please let me know if you
have any questions and thank you again for the opportunity to
provide comment.

Regards,

Geoff Cooper
Research Director
Renewable Fuels Association
16024 Manchester Rd., Suite 222
Ellisville, MO 63011
Office: (636) 594-2284
Cell: (636) 399-4928
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/32-rfa_comments_to_carb_corn_ethanol_pathway_627.pdf

Original File Name: RFA_Comments to CARB_Corn Ethanol Pathway_627.pdf

Date and Time Comment Was Submitted: 2008-07-10 08:48:56

No Duplicates.

Comment 20 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

This comment was posted then deleted because it was unrelated to the Workshop item or it was a duplicate.

Comment 21 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Jeremy
Last Name: Martin
Email Address: jmartin@ucsusa.org
Affiliation: Union of Concerned Scientists

Subject: Comments by the Union of Concerned Scientists (UCS) on CARB's on Land Use Change
Comment:

```
John, Dean and Anil,

Attached are our comments on indirect land use (also posted on the
CARB site).  We really enjoyed the presentations at the June 30th
meeting.

Thanks and regards,

Jeremy and Patty

Patricia Monahan
Deputy Director for Clean Vehicles
Union of Concerned Scientists
work: (510) 809-1568
cell: (510) 809-7957
fax: (510) 843-3785


Jeremy I. Martin, Ph.D.
Senior Analyst
Clean Vehicles Group
Union of Concerned Scientists
1825 K Street NW, Suite 800
Washington, DC   20006-1232
202-331-6946
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/34-072008ucs_land_use.pdf

Original File Name: 072008UCS_land_use.pdf

Date and Time Comment Was Submitted: 2008-07-21 09:52:44

No Duplicates.

Comment 22 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Michael
Last Name: Wang
Email Address: mqwang@anl.gov
Affiliation: Argonne National Laboratory

Subject: Response to Tim Searchinger et al.'s article in Science related to emissions from Land Use
Comment:

```
Please see the attached response to Tim Searchinger et al.'s
article in Science (regarding emissions from Land Use)
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/35-lettertoscience_anldoe_re-searchinger_fromwang_03_14_08.pdf

Original File Name: LetterToScience_ANLDOE_Re-Searchinger_FromWang_03_14_08.pdf

Date and Time Comment Was Submitted: 2008-07-25 10:51:00

No Duplicates.

Comment 23 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Catherine
Last Name: Reheis-Boyd
Email Address: cathy@wspa.com
Affiliation: Western States Petroleum Association

Subject: Comments from WSPA on June 30 LCFS LCA WG Meeting
Comment:

See attachment.

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/36-wspa_comments_on_lca_wg_mtg.pdf

Original File Name: WSPA comments on LCA WG mtg.pdf

Date and Time Comment Was Submitted: 2008-08-01 09:11:35

No Duplicates.

Comment 24 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Geoff
Last Name: Cooper
Email Address: GCooper@ethanolrfa.org
Affiliation: Renewable Fuels Association

Subject: Comments from RFA on CARB Land Use Change workshop on June 30
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/39-rfa_comments_to_0630_carb_workshop.pdf

Original File Name: RFA Comments to 0630 CARB workshop.pdf

Date and Time Comment Was Submitted: 2008-08-04 10:52:03

No Duplicates.

Comment 25 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Brian
Last Name: Bonner
Email Address: bonnerbb@airproducts.com
Affiliation: Air Products and Chemicals, Inc.

Subject: California Low Carbon Fuel Standard - Lifecycle analysis
Comment:

```
Comment in regards to CA LCFS Lifecycle analysis contained in
attached document.
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/42-063008carb.pdf

Original File Name: 063008CARB.pdf

Date and Time Comment Was Submitted: 2008-08-27 12:56:42

No Duplicates.

Comment 26 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Brian
Last Name: Bonner
Email Address: bonnerbb@airproducts.com
Affiliation: Air Products and Chemicals, Inc.

Subject: California Low Carbon Fuel Standard - Lifecycle analysis
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/43-air-products_comments_on_lca.pdf

Original File Name: Air-products_comments on LCA.pdf

Date and Time Comment Was Submitted: 2008-08-27 14:25:12

No Duplicates.

Comment 27 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 4th Workshop.

First Name: Robert
Last Name: Russell
Email Address: robert.rrussell7@gmail.com
Affiliation: Concerned Individual

Subject: Ethanol Requirements
Comment:

```
I noted where Tesoro has filed suit against the CARB regarding the
amount of ethanol required in gasoline. I think they are more
green-conscious than CARB - legitimate facts:

1.) I note when using ethanol my vehicle mpg decreased by some
20-23%, which means I have to fill up more and make more trips
(emissions) to the filling station - bet that fact isn't included
in the life-cycle environmental analysis of ethanol,

2.) Ethanol gives a lower power curve and is a cooler burn
resulting in a slightly incomplete burn of the fuel mix resulting
in more unfavorable emissions - bet that fact isn't included in
the emissions and life-cycle analysis of ethanol,

3.) I really am a "green" conscious citizen and it pains me to
note the amount of emissions into the environment from the above
two items, along with those considering in harvesting the
bioproduct used in making ethanol coupled with ethanol
manufacturing emissions, render ethanol something less than green
friendly ...

...the only benefit I see are the folks making it and the
corporate corn farmers who reap windfall profits at the expense of
the third world's food chain ... I was in Managua, Nicaragua this
past May to help feed the poor and work on a microcredit program
and I can tell you first hand the 2,000 people in the Managua dump
are hopeless with the new round of price increases they now face.

Respectfully,
Robert M. Russell
```

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2008-10-01 11:00:59

No Duplicates.

Comment 28 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 5th Workshop.

First Name: Brooke
Last Name: Coleman
Email Address: bcoleman@newfuelsalliance.org
Affiliation: New Fuels Alliance

Subject: Indirect Effects/Indirect Land Use Change
Comment:

```
Please accept the attached comment letter from the New Fuels
Alliance a 30 signatories. Thank you.
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/46-arb_luc_final.pdf

Original File Name: ARB_LUC_Final.pdf

Date and Time Comment Was Submitted: 2008-11-05 12:36:33

No Duplicates.

Comment 29 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 5th Workshop.

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

Subject: Comments to CARB's NG v. Diesel comparison document
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/48-clne_additional_comments_10_22_08__3_.pdf

Original File Name: CLNE Additional Comments 10 22 08 (3).pdf

Date and Time Comment Was Submitted: 2008-11-18 09:15:17

No Duplicates.

Comment 30 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 5th Workshop.

First Name: Bernie
Last Name: Orozco
Email Address: borozco@sempra.com
Affiliation: Sempra Energy

Subject: Comments to the ARB documents regarding GHG comparison of CNG-LNG and Diesel Vehicles
Comment:

See attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/49-comments_to_cng-lng_paths.pdf

Original File Name: comments to CNG-LNG paths.pdf

Date and Time Comment Was Submitted: 2008-11-19 15:11:11

No Duplicates.

Comment 31 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 5th Workshop.

First Name: George
Last Name: Cooper
Email Address: GCooper@ethanolrfa.org
Affiliation: Renewable Fuels Association

Subject: Comments of RFA for the LCFS workshop on Oct 16, 2008
Comment:

See Attachement

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/51-rfa_rfa_comments_to_carb_on_oct__16_workshop.pdf

Original File Name: RFA RFA Comments to CARB on Oct 16 Workshop.pdf

Date and Time Comment Was Submitted: 2008-11-21 15:10:30

No Duplicates.

Comment 32 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 5th Workshop.

First Name: Catherine
Last Name: Reheis-Boyd
Email Address: cathy@wspa.org
Affiliation:

Subject: WSPA Comments on CARB Draft Document Concerning GHGs from Natural Gas and Diesel Vehicles
Comment:

```
See Attachment
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/53-wspa_cng_diesel_pathway_110508.pdf

Original File Name: WSPA_cng diesel pathway 110508.pdf

Date and Time Comment Was Submitted: 2008-12-01 14:05:58

No Duplicates.

Comment 33 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 6th Workshop.

First Name: Gina
Last Name: Grey
Email Address: gina@wspa.org
Affiliation: Western States Petroleum Association

Subject: Comments on the Biodiesel (esterified soyoil) from WSPA
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/54-wspa_comments_on_soyoil_pathway_doc_12808.pdf

Original File Name: WSPA comments on Soyoil Pathway Doc 12808.pdf

Date and Time Comment Was Submitted: 2008-12-09 16:01:44

No Duplicates.

Comment 34 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

This comment was posted then deleted because it was unrelated to the Workshop item or it was a duplicate.

Comment 35 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 6th Workshop.

First Name: Shannon
Last Name: Gustafson
Email Address: SGustafson@ethanol.org
Affiliation:

Subject: The role of biofuels in reducing greenhouse gases in future low carbon legislation
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/56-lcfs_study_final_report__2_.pdf

Original File Name: LCFS Study Final Report (2).pdf

Date and Time Comment Was Submitted: 2008-12-12 13:11:09

No Duplicates.

Comment 36 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 6th Workshop.

First Name: Stewart
Last Name: Bailey
Email Address: stewartbailey@sasolchevron.com
Affiliation: Sasol Chevron

Subject: Gas to Liquids: importance of full co-product accounting for Life Cycle Analysis
Comment:

```
The attached report highlights the importance of fair and
comprehensive accounting for Gas to Liquid (GTL)co-products re:
the GTL pathway for the Low Carbon Fuel Standard.

If the full GHG benefits of all GTL co-products are considered
from an industry perspective, GHG emissions from GTL are lower
than conventional diesel fuel. In particular, there is new
important and impactful data in the attached report that highlights
the benefits of GTL base oils.

Our latest report is scientifically defensible and was developed
in order to ensure that GTL is correctly and comprehensively
evaluated as the LCFS process unfolds. To this end, we
respectfully request that CARB accepts our submission and our
proposal.

Thank you for your consideration.

Stewart Bailey and Grant Forman

Sasol Chevron
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/57-full_carb_the_greenhouse_gas_impact_of_gtl_dec_08.pdf

Original File Name: FULL_CARB_The Greenhouse_Gas_Impact_of_GTL_Dec_08.pdf

Date and Time Comment Was Submitted: 2008-12-15 09:07:54

No Duplicates.

Comment 37 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 6th Workshop.

First Name: Craig
Last Name: Lang
Email Address: clang@ifbf.org
Affiliation:

Subject: Iowa Farm Bureau repsonse to California Low Carbon Fuel Standard
Comment:

```
Comments submitted by the Iowa Farm Bureau Federation for the
California Low Carbon Fuel Standard.
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/58-california_low_carbon_fuel_standard-ifbf.pdf

Original File Name: California Low Carbon Fuel Standard-IFBF.pdf

Date and Time Comment Was Submitted: 2008-12-23 14:10:21

No Duplicates.

Comment 38 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 6th Workshop.

First Name: Mohamed
Last Name: Kassim
Email Address: kassim@americanpalmoil.com
Affiliation: 1-202-5729768

Subject: Pam Oil pathway
Comment:

```
This is a report from the Malaysian Palm Oil Board introducing
sustainable Malaysian palm oil, an overview of palm biodiesel and
the biodiesel production pathway for your kind information and
attention. This report would hopefully assist CARB to streamline
and move towards establishing the palm pathway under LCFS. We
appreciate feedback from your group.
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/59-palm_biodiesel_pathway_letterhead.pdf

Original File Name: Palm Biodiesel Pathway_letterhead.pdf

Date and Time Comment Was Submitted: 2009-01-16 15:45:52

No Duplicates.

Comment 39 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 6th Workshop.

First Name: Alex
Last Name: Bealer
Email Address: alex@reesechambers.com
Affiliation: Reese-Chambers Systems Consultants, Inc.

Subject: BlueFire Ethanol Comments on CA GREET Model
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/61-ca_greet_model_comments_bluefire.pdf

Original File Name: CA GREET Model Comments_BlueFire.pdf

Date and Time Comment Was Submitted: 2009-01-27 08:25:24

No Duplicates.

Comment 40 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Charles
Last Name: Schleyer
Email Address: charles.h.schleyer@exxonmobil.com
Affiliation: ExxonMobil

Subject: Comments on LCFS Pathways
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/62-exxonmobil_comments_on_01-20-09_fuel_pathways.doc

Original File Name: ExxonMobil Comments on 01-20-09 fuel pathways.doc

Date and Time Comment Was Submitted: 2009-02-03 10:22:06

No Duplicates.

Comment 41 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

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

Subject: Comments of Clean Energy on CARB's draft work on NG vs. diesel GHG analysis
Comment:

```
See attachment
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/64-comments_from_clean_energy_regarding_ng_vs._diesel.pdf

Original File Name: Comments from Clean Energy regarding NG vs. Diesel.pdf

Date and Time Comment Was Submitted: 2009-02-03 11:03:27

No Duplicates.

Comment 42 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Joel
Last Name: Velasco
Email Address: joel@unica.com.br
Affiliation: North America UNICA - Brazilian Sugarcan

Subject: UNICA Comments on Sugarcane Ethanol CA-GREET
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/65-unica_comments_on_greet-ca_for_sugarcane.pdf

Original File Name: UNICA Comments on GREET-CA for Sugarcane.pdf

Date and Time Comment Was Submitted: 2009-02-10 16:52:50

No Duplicates.

Comment 43 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 5th Workshop.

First Name: Chuck
Last Name: White
Email Address: cwhite1@wm.com
Affiliation: Waste Management

Subject: Comment of WM on California-Modified GREET Pathway for CNG from LFG
Comment:

This comment was received on October 24, 2008.

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/66-waste_management_comments_of_lfg_pathway_document.pdf

Original File Name: Waste Management Comments of LFG pathway document.pdf

Date and Time Comment Was Submitted: 2009-02-11 14:18:29

No Duplicates.

Comment 44 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Geoff
Last Name: Cooper
Email Address: GCooper@ethanolrfa.org
Affiliation: Renewable Fuels Association

Subject: Comment of RFA for CA-GREET Corn Ethanol Pathway
Comment:

```
From: Geoff Cooper [mailto:GCooper@ethanolrfa.org]
Sent: Friday, February 13, 2009 9:13 AM
To: Courtis, John@ARB
Cc: Simeroth, Dean@ARB; Prabhu, Anil@ARB; Littaua, Renee@ARB;
EthanolRFA; Tom Darlington
Subject: Preliminary Comments on Jan. 30 ARB Fuel Pathways Update

John,

The Renewable Fuels Association (RFA) is submitting these
preliminary comments in regard to two critical assumptions made my
CARB in its most recent CA-GREET analysis of corn-based ethanol.
RFA will be submitting more substantive comments, including
responses to ARB's most recent indirect land use change analysis,
within the next week. Please let me know if you have any questions
regarding this material.

Regards,

Geoff Cooper
Vice President, Research
Renewable Fuels Association
16024 Manchester Rd., Suite 222
Ellisville, MO 63011
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/68-comments_from_rfa__to_ca-greet_corn_ethanol_pathway.pdf

Original File Name: Comments from RFA to CA-GREET Corn Ethanol Pathway.pdf

Date and Time Comment Was Submitted: 2009-02-13 13:16:28

No Duplicates.

Comment 45 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Mark
Last Name: Albers
Email Address: Mark.J.Albers@gmail.com
Affiliation:

Subject: Please Avoid Fuel Biases
Comment:

I am writing to comment on the Low Carbon Fuel Standard (LCFS) program. The State of California's LCFS will be a model for the rest of the United States, so it is especially important that the LCFS accurately and fairly assess all of the emissions associated with each fuel and its use.

Each of the following elements is essential to ensure that the LCFS is not biased toward or against a particular fuel, and to make sure that you consider all of the associated emissions. I request that these be included in the final drafting of the Standard:

1 Upstream emissions: Emissions from the production of fuels are a critical component of evaluating carbon emission standards to ensure a comprehensive "well to wheels" assessment.

2 Drive train efficiency: Calculation of the carbon metric must include the drive train efficiency for each fuel type to fully estimate carbon emissions.

I support the concept of a LCFS. However, I urge you to provide an impartial analysis of, and impartial standards for, energy and fuel alternatives by incorporating the elements described above.

Sincerely,
Mark J. Albers

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2009-02-13 18:53:41

No Duplicates.

Comment 46 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Brooke
Last Name: Coleman
Email Address: bcoleman@newfuelsalliance.org
Affiliation: New Fuels Alliance

Subject: Comments Jan 30 Workshop
Comment:

```
Please accept the following comments for your review.
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/71-arb_comments_2.12.09.pdf

Original File Name: ARB Comments_2.12.09.pdf

Date and Time Comment Was Submitted: 2009-02-19 15:16:54

No Duplicates.

Comment 47 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Shelby
Last Name: Neal
Email Address: SNeal@biodiesel.org
Affiliation: National Biodiesel Board

Subject: Comments from National Biodiesel Board on CA-GREET, version 2 for Biodiesel
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/72-ca-greet_version_ii_2-18-09.pdf

Original File Name: CA-GREET version II 2-18-09.pdf

Date and Time Comment Was Submitted: 2009-02-19 15:59:51

No Duplicates.

Comment 48 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Geoff
Last Name: Cooper
Email Address: GCooper@ethanolrfa.org
Affiliation: Renewable Fuels Association

Subject: RFA Comments in Response to Jan. 30 LCFS Workshop
Comment:

See attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/73-comments_from_rfa__to_lcfs_workshop_on_013009.pdf

Original File Name: Comments from RFA to LCFS workshop on 013009.pdf

Date and Time Comment Was Submitted: 2009-02-24 10:53:27

No Duplicates.

Comment 49 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Blake
Last Name: Simmons
Email Address: basimmo@sandia.gov
Affiliation: Sandia National Laboratories

Subject: Indirect land use letter to Gov. Schwarzenegger
Comment:

```
Good morning Chairwoman Nichols-

Hope you are doing well. For your reference, I have attached a
letter that we, 110 scientists representing a wide spectrum of
biofuel activities worldwide, will submit to Governor
Schwarzenegger in the near future that addresses concerns we have
around the imminent policy rulings by the ARB on the selective
inclusion of indirect land use impacts for biofuels.

Best regards,

Blake
```

_____
Blake A. Simmons, Ph.D.
Manager, Biomass Science and Conversion Technology Department
7011 East Avenue, MS 9291
Sandia National Laboratories
Livermore, CA 94551

Vice-President, Deconstruction Division
Joint BioEnergy Institute (www.jbei.org)
5885 Hollis Street - 4th Floor
Emeryville, CA 94608

email: basimmo@sandia.gov
phone: 925-337-6154

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/74-phd_lcfs_final_feb_2009.pdf

Original File Name: PhD_LCFS_Final Feb 2009.pdf

Date and Time Comment Was Submitted: 2009-02-26 13:48:08

No Duplicates.

Comment 50 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Tom
Last Name: Koehler
Email Address: tomk@pacificethanol.net
Affiliation: Pacific Ethanol

Subject: Pacific Ethanol's comments regarding the LCFS
Comment:

```
Bob and Dean,

I offer this power point presentation I found off the web as
Pacific Ethanol's comments regarding the LCFS.   I respectfully
request that the authors of this presentation present at our next
workshop. The issues they raise are profound and consequential to
the regulation. Please let me know thanks !!


Tom
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/75-luc_issues_in_econ_models_ornl_kline_oladosu_26jan09v2.pdf

Original File Name: LUC Issues in Econ Models_ORNL Kline Oladosu 26Jan09v2.pdf

Date and Time Comment Was Submitted: 2009-02-26 13:53:08

No Duplicates.

Comment 51 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Tadeusz
Last Name: Patzek
Email Address: patzek@mail.utexas.edu
Affiliation: UT Austin

Subject: Indirect Land Use Costs
Comment:

```
Dear Ms. Nichols,

The pillagers of taxpayer's money and of our poor planet have
published their views and names in the March 2 letter, "Opposed to
Selective Enforcement of Indirect Effects in CA LCFS."

Please make the only sensible decision: ignore them. History,
science, and human hearts are all against them.

I regret that I could not be of more help when I was still at UC
Berkeley. It was not meant to be...

Good luck, Tad Patzek
```

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2009-03-03 18:26:48

No Duplicates.

Comment 52 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 7th Workshop.

First Name: Shelly
Last Name: Sullivan
Email Address: ssullivan@onemain.com
Affiliation: AB 32 Implementation Group

Subject: LCFS Comments -Life Cycle Analyses and Economic Analysis
Comment:

```
Attached please find a letter from the AB 32 Implementation Group
regarding LCFS life cycle analyses and economic analysis.

If you have any questions or need anything further, please feel
free to contact Shelly Sullivan at 916 858-8686.
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/77-timing_letter_to_carb.pdf

Original File Name: Timing Letter to CARB.pdf

Date and Time Comment Was Submitted: 2009-03-04 11:21:59

No Duplicates.

Comment 53 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Randy
Last Name: Armstrong
Email Address: randy.armstrong@shell.com
Affiliation: Shell

Subject: Comments on the Preliminary Draft of Procedures and Guidelines for Regulated Parties
Comment:

```
Comments on the Preliminary Draft of Procedures and Guidelines for
Regulated Parties for Establishing New Fuel Pathways Under The
California LCFS
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/78-shell.pdf

Original File Name: Shell.pdf

Date and Time Comment Was Submitted: 2009-09-01 09:49:10

No Duplicates.

Comment 54 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Robert
Last Name: Richards
Email Address: rrichards@kernoil.com
Affiliation: Kern Oil and Refining Company

Subject: LCFS Regulation - Renewable Diesel from Tallow pathway
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/79-kern_oil__refining_co_-_comments_on_lcfs_rd_tallow_pathway_081809.pdf

Original File Name: Kern Oil Refining Co - Comments on LCFS RD Tallow Pathway 081809.pdf

Date and Time Comment Was Submitted: 2009-09-01 10:11:21

No Duplicates.

Comment 55 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Catherine
Last Name: Reheis-Boyd
Email Address: cathy@wspa.org
Affiliation: WSPA

Subject: WSPA Comments on the CARB's request for Additional Comments at Aug 5 workshop
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/80-lcfscomments_82809.pdf

Original File Name: LCFScomments 82809.pdf

Date and Time Comment Was Submitted: 2009-09-01 10:17:38

No Duplicates.

Comment 56 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Lindsay
Last Name: Mitchell
Email Address: lmitchell@ilcorn.org
Affiliation: Illinois Corn Growers Association

Subject: Re: Request for Comments on Establishing New Fuel Pathways and Proposal for an Expert Work
Comment:

See Attachment.

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/83-carb_final_letter_8_28_09.pdf

Original File Name: CARB Final Letter 8 28 09.pdf

Date and Time Comment Was Submitted: 2009-09-15 15:51:17

No Duplicates.

Comment 57 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Geoff
Last Name: Cooper
Email Address: GCooper@ethanolrfa.org
Affiliation: Renewable Fuels Association

Subject: Comments on Proposal for an Expert Workgroup
Comment:

See Attachment.

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/84-work_group_comments_rfa.pdf

Original File Name: Work Group Comments_RFA.PDF

Date and Time Comment Was Submitted: 2009-09-15 15:54:34

No Duplicates.

Comment 58 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Brooke
Last Name: Coleman
Email Address: bcoleman@newfuelsalliance.org
Affiliation: New Fuels Alliance

Subject: RE: Comments Regarding LCFS Expert Working Group (submitted via email)
Comment:

```
See Atachment.
```

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/85-ca_lcfs_expert_workgroup_comments.pdf

Original File Name: CA_LCFS_expert workgroup comments.pdf

Date and Time Comment Was Submitted: 2009-09-15 15:57:33

No Duplicates.

Comment 59 for Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) - 1st Workshop.

First Name: Ralph
Last Name: Moran
Email Address: moranrj1@bp.com
Affiliation: BP America

Subject: BP ILUC WG Comments
Comment:

See Attachment

Attachment: www.arb.ca.gov/lists/lcfs-lifecycle-ws/86-bp_comments_to_carb_on_iluc_wg_9_09.pdf

Original File Name: BP comments to CARB on ILUC WG 9 09.pdf

Date and Time Comment Was Submitted: 2009-09-15 15:58:48

No Duplicates.

There are no comments posted to Low Carbon Fuel Standard - Lifecycle Analysis (lcfs-lifecycle-ws) that were presented during the Workshop at this time.