State of Oregon Department of Environmental Quality

# Written Comments

## Clean Fuels Program Expansion 2022 Rulemaking Advisory Committee Meeting 3

This document is a compilation of written comments received related to the second meeting of the advisory committee for the Clean Fuels Program Expansion 2022 Rulemaking held March 31, 2022.

## Comments

Airlines for America®
We Connect the World

April 15, 2022

Submitted via email to: CFP.2022@deq.oregon.gov

Oregon DEQ
Attn: Cory-Ann Wind
700 NE Multnomah St., Room 600
Portland, OR 97232-4100

Re: RAC #3 Public Comment

Dear Cory-Ann:

Airlines for America® (A4A), the trade association for the leading U.S. passenger and cargo airlines,[1] appreciates the opportunity to participate in the Oregon Department of Environmental Quality's (ODEQ) Clean Fuels Program (CFP) Expansion 2022 rulemaking and, through this letter, provide comments on the materials presented at the third meeting of the Rulemaking Advisory Committee (RAC), which took place on March 31, 2022. Our brief comments focus on item/proposal no. 12 in ODEQ's "Additional Proposals Under Consideration" document: "[a]dd new Energy Economy Ratio for electric ground service equipment" (eGSE).[2]

A4A fully supports ODEQ's determination that electric "baggage tractors, belt loaders, and pushbacks . . . should be eligible for crediting under the CFP."[3] We further support the proposed adoption of an Energy Economy Ratio (EER) of 3.2 and understand that this EER value would only apply to these enumerated types of eGSE. Finally, while we have previously opined that the eGSE owner, usually an airline, should generate the credits inasmuch as that would best incentivize the acquisition and deployment of the electric equipment, we are now supportive of the proposal to deem the charging station owner – usually the airport – as having "the first right to generate the credits."[4] Our support is based on the ability of the charging station owner, as the first credit generator, to share some and perhaps even a large portion of the CFP credits with the eGSE owner through a contractual arrangement (e.g., a provision in a lease between the airport and airline).

Thank you for your consideration of our comments. Please do not hesitate to contact me if you have any questions.

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[1] A4A's members are: Alaska Airlines, Inc.; American Airlines Group Inc.; Atlas Air, Inc.; Delta Air Lines, Inc.; Federal Express Corporation; Hawaiian Airlines, Inc.; JetBlue Airways Corp.; Southwest Airlines Co.; United Airlines Holdings, Inc.; and United Parcel Service Co. Air Canada, Inc. is an associate member.

[2] Available at https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m3Considerations.pdf, and described on slide 32 of the RAC Meeting #3 slide presentation posted at https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m3Pres.pdf.

[3] https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m3Considerations.pdf (item/proposal no. 12).

[4] *Id.* at proposal no. 10; RAC Meeting #3 slide presentation, slide 32 .

Sincerely yours,

Ira Dassa
Director, Environmental Affairs

Mark Bunch
Regulatory Advisor
C&P – Fuel supply & midstream: biofuel & low carbon

**bp America Inc.**
30 S. Wacker Drive
Chicago, IL 60606

April 15, 2022

Oregon Department of Environment Quality
VIA Email Transmission
CFP2022@deq.state.or.us

Re: Oregon Clean Fuels Program Expansion 2022 RAC #3 Meeting March. 31, 2022

Dear Department of Environmental Quality Staff:

On behalf of bp America Inc. ('bp"), thank you for the opportunity to participate in the Oregon Department of Environmental Quality's ("DEQ") rulemaking on the Clean Fuels Program ("CFP") as a member of the Rules Advisory Committee ("RAC").

bp's ambition is to become a net zero company by 2050 or sooner, and to help the world reach net zero, too. Consistent with bp's ambition, we are actively advocating for policies that address greenhouse gas ("GHG") emissions.

We wish to comment on the workshop topics as follows:

## Target Setting / Opportunities for Additional Credit Generation

DEQ proposes extending and increasing the Clean Fuels Standards to 20% below 2015 levels by 2030 and 37% below 2015 levels by 2035[1]. This is largely underpinned by the recommendations from the ICF's report entitled "Opportunities for Additional Credit Generation Draft Final Report, March 2022[2]" ("ICF 2022 Report"), which sets forth an option to achieve more ambitious targets by exploring a more diverse pool of credit generating options to expand on ICF's July 2021 report entitled "Long Term Illustrative Compliance Scenario."[3]

[1] https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m3Targets.pdf
[2] https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m3CreditGeneration.pdf
[3] https://www.oregon.gov/deq/ghgp/Documents/cfpIlluCompScenD.pdf

bp applauds DEQ for planning to take a more ambitious and expansive approach to target setting. In doing so, it provides an opportunity for a broader range of technologies and renewable fuels to play a role within the program. We have consistently stated both during the 3rd RAC meeting, and in our February 2, 2022, comment letter relating to the 2nd RAC meeting[4], that having robust mechanisms in place for fuels forecasting and cost containment provides assurance for program resilience if the future does not turn out as predicted. Additionally, in that same comment letter we wrote:

> "bp supports DEQ in ambitious target setting but we also urge DEQ to be ambitious in broadening the scope and diversity of credit generating opportunities that can be brought into play to deliver those targets."

Even with an expanded and diversified credit generation pool, electrification will be key to meeting reduction targets. Electric vehicles ("EVs") must be widely adopted, and investment must occur in EV charging infrastructure. The multiple policies supporting EV adoption have elements both within and outside of DEQ's influence, so it is prudent of DEQ to propose the additional assurance of a program review for the Oregon Environmental Quality Commission in 2029. "The focus of the program review will be to provide the EQC with progress made in the CFP through the 2028 calendar year and an assessment of whether the 2035 targets remain appropriate or whether modifications are needed."[5]

Before commenting specifically on the content of the ICF 2022 Report, bp urges DEQ to consider how it plans to signal to program stakeholders a timetable for when additional credit generating opportunities would be adopted. Some options being considered have long lead times and require considerable investment that can only take place with the benefit of regulatory certainty. Other options being considered may be easier to implement but may benefit from alignment with California's Low Carbon Fuel Standard ("LCFS") program to streamline pathway approval between jurisdictions. We would recommend an open and transparent process that provides a view on the different program elements that are to be adopted within the cadence of future rulemaking.

Specifically, as to the ICF 2022 Report:

Upstream Carbon Intensity ("CI") Improvement for Ethanol

With respect to agronomic practices, bp supports DEQ adopting best accepted science. We would argue that the scope of cover crops goes beyond CI carbon Intensity improvements for ethanol and likely will play a significant role in bio-distillate feedstock sourcing. As an example, the cover crop Carinata is recognized under the International Civil Aviation Organizations' Carbon Offsetting and Reduction Scheme for International Aviation ("CORSIA") program with significant Induced Land Use Change benefit for eligible fuels produced with the Hydroprocessed Esters and Fatty Acids ("HEFA") Fuel Conversion Process.[6]

[4] https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m2Com.pdf
[5] https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m3Targets.pdf
[6] https://www.icao.int/environmental-protection/CORSIA/Documents/ICAO%20document%2006%20-%20Default%20Life%20Cycle%20Emissions%20-%20November%202021.pdf

Refinery Investment Projects / Refinery Renewable Hydrogen Projects

Having all west coast U.S. jurisdictions offering this program design feature would help mitigate the sales volume pro-rating limitation from refinery production that impacts credit generation within the existing California LCFS program. This is particularly acute for west coast refineries located outside of California where the production / sales of gasoline and diesel are more likely to be distributed across multiple jurisdictions. California already offers these program design features. Washington is expected to also offer these program design features in its CFP as a statutory requirement within HB 1091.[7]

DEQ could also make a significant contribution to the price signal for project-based crediting opportunities by including these design features within the CFP. As part of a suite of project based crediting options, Refinery Renewable Hydrogen Projects offer the prospect of a relatively simpler rulemaking addition to administrate, if prioritization for inclusion is being made based on program resources.

Opportunities not assessed within the ICF 2022 Report

Further to our comment letter[8] relating to the DEQ Pathways Workshop of February 17th, 2022, we believe that there are untapped opportunities to utilize Renewable Natural Gas ("RNG") through indirect accounting methodologies for both process energy and renewable hydrogen as it relates to renewable fuel production and would encourage DEQ to explore this area in future rulemaking.

## Additional Proposals Under Consideration

bp supports DEQ's broad range of proposals and would refer to the specific comments made in our letter[9] relating to DEQ's Reporting Workshop that was held on January 20th, 2022. We welcome the fact that much of the feedback in our comments letter was reflected in the additional proposals that are now under consideration.

DEQ requested stakeholder feedback to support prioritization for current rulemaking, with the likelihood being that there would be insufficient bandwidth to implement all these proposals in one go. There will be a number of additional proposals that should be relatively easy to insert by way of language changes, but outside of those it would be bp's preference for DEQ to initial focus on the additional proposals that have credit generation implications. As such bp would like to see all of the following from the DEQ document list[10] prioritized in the current rule making; -

4. Develop calculator for biogas-to-electricity pathway (OAR 340-253-0400)
5. Define renewable hydrogen for pathways (OAR 340-253-0040)

[7] https://lawfilesext.leg.wa.gov/biennium/2021-22/Pdf/Bills/Session%20Laws/House/1091-S3.SL.pdf?q=20220405111837
[8] https://www.oregon.gov/deq/rulemaking/Documents/cfp2022pwComments.pdf
[9] https://www.oregon.gov/deq/rulemaking/Documents/cfp2022rwComments.pdf
[10] https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m3Considerations.pdf

16. Post-verification credit generation adjustment

17. Add hydrogen to the advance crediting provisions (OAR 340-253-1100)

Thank you for the opportunity to comment on these important topics and we look forward to working with DEQ and key stakeholders through this rulemaking process. In the meantime do not hesitate to reach out to me if you have any questions or need additional context.

Sincerely,

Mark Bunch

**From:** Elizabeth Lindsey
**To:** cfp2022@deq.oregon.gov; WIND Cory Ann * DEQ
**Subject:** Clean Fuel Program Rule Making
**Date:** Thursday, April 14, 2022 11:29:14 AM

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CFP Rulemaking Advisory Committee:

I am grateful for your efforts to rapidly reduce Greenhouse Gas emissions to protect our climate; however, in doing so we need to avoid unintended consequences. The best ways are conservation and electrification. Renewable diesel, especially in this time of war-induced food shortages, as well as other environmental questions is a gamble. See https://www.wired.com/story/biofuels-gasoline-russia/ below.

Elizabeth Graser-Lindsey

**"Biofuels Are Getting a Second Look—and Some Tough Questions"**

> "Since then Plevin's [Richard J. Plevin, Ph.D. *https://www.plevin.com/home* Richard J. Plevin, Ph.D. I am a consultant and retired UC Berkeley researcher whose work has focused on quantifying the climate effects of biofuels.] position has changed completely. "My conclusion at the end of all this is it's misguided," he says. The problem, Plevin argues, is that it's impossible to accurately estimate the overall emissions that result from using biofuels. The effects of biofuel mandates can ripple out in unpredictable ways. If biofuel displaces gasoline in one country, then this could suppress the price of gasoline elsewhere in the world and lead to people increasing their fuel use. Add in a war, or trade embargoes, and the whole dynamic can flip again. "You can assume 10 different scenarios about the way things are going to unfold and you'll get 10 different answers, and they might all be equivalently realistic. How do you build a policy around that?"
>
> For Plevin this leaves us with an obvious choice: reducing our dependence on liquid fuels altogether. "If I were king for a day, I would be putting all my effort into electrification right now," he says. Hill agrees. "It's no longer corn ethanol versus gasoline. They have the same interest, and they're both feeling pressure from electrification, which is their common enemy," he says.
>
> There are other impacts of bioethanol too. Global food prices jumped by a record 13 percent last month. Diverting some US corn away from bioethanol and toward food would help keep prices lower and replace lost exports from Ukraine and Russia. "There is all this competition for the land," says Annie Levasseur, a professor at L'École de Technologie Supérieure, an engineering faculty based in Montreal. "If we want to look at the impact of increasing biofuel, then we will need cropland, and there will be this displacement."
>
> Levasseur and Hill are both part of a committee put together by the National Academies of Science, Engineering, and Medicine (NASEM) to assess current methods for analyzing the impact of low-carbon transportation fuels. The committee's report, which will be published in the third quarter of 2022, "contains information that the EPA may wish to take into consideration if it decides to develop a new RFS or a low-carbon fuel standard," says Camilla Yandoc Ables, a senior program officer at NASEM.
>
> In Lavasseur's opinion, bioethanol production is already high and shouldn't be

increased. Instead, the US government should be looking at other ways to reduce transportation emissions. “We cannot keep increasing demand for energy and then transform everything to biofuel,” she says. “We really need to decrease the demand.”"

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**From:** Emily Polanshek
**To:** MCAT; CFP2022 * DEQ
**Cc:** John Perona
**Subject:** Re: RAC #3 Public Comment
**Date:** Friday, April 15, 2022 12:14:02 PM

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Dear Transpo Teamies,
Although not able to attend meetings at present, thank you for keeping me on the list. I learn so much from this team, and this letter is amazing to me in breath and depth. Thank you so much, John and contributors.
If you need my vote, definitely add me as a "yes" to sending this letter, Emily

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**From:** MCAT <info.mcat.olcv@gmail.com>
**Sent:** Thursday, April 14, 2022 6:03 PM
**To:** CFP.2022@deq.oregon.gov <CFP.2022@deq.oregon.gov>
**Cc:** John Perona <johnjperona@gmail.com>
**Subject:** RAC #3 Public Comment

Clean Fuels Program
Department of Environmental Quality
700 NE Multnomah St., Suite 600
Portland, OR 97232

15 April 2022

**To: DEQ Clean Fuels Program Staff**
**RE: Clean Fuels Program Expansion - RAC Meeting #3 Comments**

**From: Metro Climate Action Team (MCAT) - Transportation Team**

Thank you for the opportunity to provide written comments following the Department of Environmental Quality (DEQ)'s third Clean Fuels Program Expansion Rulemaking Advisory Committee (RAC) meeting. On behalf of the Metro Climate Action Team (MCAT), a group of experienced volunteer advocates affiliated with the Oregon League of Conservation Voters, we write to voice support for DEQ's continued efforts to reduce emissions under the CFP, and to underline the importance of certain specific opportunities for enhancing credit generation in the program. We applaud DEQ's proposal to reduce CI for transportation fuels 20% and 37% by 2030 and 2035, respectively, compared to 2015 levels. However, we believe that the CFP can be strengthened by adopting the suggestions herein, and we urge DEQ to do so.

In particular, because modeling studies have shown that Oregon's ZEV mandates are expected to produce rapid deployment of electric cars and light duty trucks in the next decade, and because advance credits for electrification were already the subject of a rulemaking last year, we wish to emphasize here the importance of (i) further incentivizing the accelerated entry of low-carbon liquid and gaseous fuels into Oregon markets, especially decarbonized and renewable hydrogen, and (ii) adding a carbon capture and storage (CCS) protocol to the Oregon CFP, as has been implemented in California under their low carbon fuel standard (LCFS).

Adding these new opportunities for credit generation under CFP, in turn, should allow DEQ to adopt stronger CI reduction targets that better reflect the ambition needed to limit global warming to

under 2  C compared with pre-industrial temperatures. The importance of meeting this target was emphasized yet again by last week's appearance of the final installment of the sixth report from the United Nations Intergovernmental Panel on Climate Change. This report is the latest to clarify the importance of accelerating the timetable for greenhouse gas emissions reductions to avoid increasingly severe impacts of climate change to human health and the environment.

**Accelerating development of low carbon liquid and gaseous fuels for Oregon markets**

Climate science tells us that carbon dioxide is the most dangerous greenhouse gas for our future climate, because a sizable portion of today's emissions will remain in the atmosphere for centuries and millennia to come. It is thus imperative to reduce cumulative emissions from all sources to minimize this legacy effect. While spurring the electrification of end uses from an increasingly greening grid should remain a paramount focus of the CFP, we also recognize that industries such as pulp and paper, cement manufacture, fertilizer production and petrochemicals are not easy to fully electrify with today's technologies. Substitution of many fossil petroleum-based products with green alternatives and electrification of some transportation modes such as aviation and shipping are also challenging.

Since fossil fuels will inevitably be with us for some decades to come, we must find as many ways as possible to minimize their impact on our climate. We therefore urge you to follow California's example to maximally broaden the scope of the CFP to cover as many emissions sources as possible. Examples of valuable technologies already included in the CFP are renewable natural gas (RNG), biodiesel (BD), and renewable diesel (RD). In particular, the large new RD refinement plant under construction at Port Westward brings very substantial new capacity to replace more of Oregon's petroleum diesel use with RD. Development of in-state sources of crude RD that can be refined at Port Westward can further lower emissions by minimizing transportation costs, reducing our present reliance on imported RD from South Asia. We urge you to consider how the CFP can be best designed to spur in-state and regional development of RD from waste oils, animal fats and sustainably grown oil crops such as sunflower and rapeseed, which have high yields per acre.

We also urge you to enact advance crediting provisions for low carbon and renewable hydrogen (so-called "blue" and "green" hydrogen, respectively). Like the advance crediting adopted last year in the Clean Fuels Transportation Electrification rulemaking, these provisions offer the possibility for accelerated penetration of the fuels into Oregon markets. Green hydrogen produced by electrolysis from zero-carbon power sources has made great strides but still needs significant development to make costs competitive, and its penetration into the hydrogen market will be limited by the need to dedicate new wind and solar power to decarbonizing the electricity grid. Nonetheless, the timeframe for large scale green hydrogen production will be speeded by including advance credits for this technology in the CFP.

Blue hydrogen is ready now, since it is made from natural gas by the well-established steam methane reforming process (SMR). Similarly, CCS as applied to trap relatively concentrated carbon dioxide from industry smokestacks is also established, including from hydrogen manufacturing facilities. Presently, blue hydrogen production still entails significant climate pollution from both incomplete $CO_2$ capture and upstream methane emissions. However, we nonetheless support advance credits for blue hydrogen because its emissions are significantly lower as compared to hydrogen manufactured with no CCS at all.

Just like RNG, BD and RD, none of which have zero emissions, including advance credits for blue hydrogen in the CFP will spur technological advances to further lower its emissions, thereby allowing it to earn more credits. In particular, advance credits will incentivize investment in hydrogen plants that capture carbon dioxide from both the steam reforming furnace and the amine unit. It will also incentivize importing the distinctive and lower-emissions autothermal reforming process (ATR) to

hydrogen manufacturing facilities, where it can replace SMR. Both innovations will lower blue hydrogen emissions. The CFP will also incentivize economies of scale for construction of the large-scale hydrogen storage units needed for both these processes and the green hydrogen made by electrolysis. We note that low-cost hydrogen storage is a solution to long-term energy storage on the electricity grid, presently a major impediment to the rapid penetration of solar and wind technology essential to the CFP's electrification goals.

We recognize that the continued use of natural gas inevitably involves upstream fugitive methane emissions. Although the short half-life of atmospheric methane greatly diminishes legacy concerns, its short term impact on global heating is significant. However, this impact is far less than that of the enormous quantities of carbon dioxide presently being emitted without capture from hydrogen manufacturing plants. Like methane emissions from landfills and stagnant upstream reservoirs of hydroelectric dams, known technologies and aggressive regulations can substantially reduce upstream methane emissions from natural gas mining, refinement and transport.

**Adding a CCS protocol to the Oregon CFP**

Capture and safe sequestration of carbon dioxide is essential to restoring climate stability. It offers the only way to mitigate concentrated emissions from industry smokestacks, as in cement manufacturing, fertilizer plants and petrochemicals, where electrification or replacement with alternate products is not yet possible. CCS also forms the crucial basis for direct capture of dilute carbon dioxide from the atmosphere, an approach that is likely indispensable for limiting warming to under 1.5 C compared to pre-industrial temperatures. Importantly, incentivizing CCS development in existing manufacturing through the CFP will drive innovation and economies of scale for direct air capture, because these two CCS applications have many elements in common. These include the basic chemistry of amine capture, the development of a network of carbon dioxide pipelines, and the practical implementation and monitoring needed for safe geologic burial in underground saline formations throughout North America.

Under the California LCFS, a CCS protocol applies to projects that capture and sequester carbon dioxide and sequester it onshore in saline formations, depleted oil and gas reservoirs, and depleted oil and gas reservoirs used for enhanced oil recovery (EOR). The EOR credits, however, are problematic since burning the recovered oil offsets the climate gain from sequestration. Some analyses do suggest that burying captured carbon for EOR is a net positive for the climate, and this approach is certainly better than the use of carbon dioxide excavated from underground caverns, which increases overall emissions. Nonetheless, including EOR credits would incentivize further extraction of fossil petroleum. While we urge the addition of CCS credits into the CFP for carbon burial in saline formations and depleted oil/gas reservoirs without EOR, we also emphasize the need for a hard look at whether the EOR application is worth the risks.

The absence of a CCS protocol from Oregon's CFP is a significant omission that should be remedied without delay. We urge the development of a rulemaking process that would look at all the essential elements of the program design, including approaches to quantify emissions reductions and requirements for ensuring permanence of carbon storage. It will be important to thoroughly analyze and update the 2018 California protocol, looking at key elements such as the criteria for site selection, the requirements for well construction and operation, the interface of the CFP with EPA regulation of these wells under the Safe Drinking Water Act, and the criteria for monitoring the wells to detect any leakage or contamination of drinking water.

Oregon is in the leading group of US states with respect to its vision for limiting climate pollution. Moving forward, we think that the CFP can continue to be strengthened by the suggestions herein, and will serve increasingly as a model for other states to follow. Thank you for considering our comments, and we look forward to continuing to work together on establishing an even stronger

Clean Fuels Program.

For further questions please contact Dr. John Perona johnjperona@gmail.com

Sincerely,

Metro Climate Action Team (MCAT) – Transportation Team
Info.mcat.olcv@gmail.com

Clean Fuels Program
Department of Environmental Quality
700 NE Multnomah St., Suite 600
Portland, OR 97232

15 April 2022

**To: DEQ Clean Fuels Program Staff**
**RE: Clean Fuels Program Expansion - RAC Meeting #3 Comments**

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Adding these new opportunities for credit generation under CFP, in turn, should allow DEQ to adopt stronger CI reduction targets that better reflect the ambition needed to limit global warming to under 2°C compared with pre-industrial temperatures. The importance of meeting this target was emphasized yet again by last week's appearance of the final installment of the sixth report from the United Nations Intergovernmental Panel on Climate Change. This report is the latest to clarify the importance of accelerating the timetable for greenhouse gas emissions reductions to avoid increasingly severe impacts of climate change to human health and the environment.

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legacy effect. While spurring the electrification of end uses from an increasingly greening grid should remain a paramount focus of the CFP, we also recognize that industries such as pulp and paper, cement manufacture, fertilizer production and petrochemicals are not easy to fully electrify with today's technologies. Substitution of many fossil petroleum-based products with green alternatives and electrification of some transportation modes such as aviation and shipping are also challenging.

Since fossil fuels will inevitably be with us for some decades to come, we must find as many ways as possible to minimize their impact on our climate. We therefore urge you to follow California's example to maximally broaden the scope of the CFP to cover as many emissions sources as possible. Examples of valuable technologies already included in the CFP are renewable natural gas (RNG), biodiesel (BD), and renewable diesel (RD). In particular, the large new RD refinement plant under construction at Port Westward brings very substantial new capacity to replace more of Oregon's petroleum diesel use with RD. Development of in-state sources of crude RD that can be refined at Port Westward can further lower emissions by minimizing transportation costs, reducing our present reliance on imported RD from South Asia. We urge you to consider how the CFP can be best designed to spur in-state and regional development of RD from waste oils, animal fats and sustainably grown oil crops such as sunflower and rapeseed, which have high yields per acre.

We also urge you to enact advance crediting provisions for low carbon and renewable hydrogen (so-called "blue" and "green" hydrogen, respectively). Like the advance crediting adopted last year in the Clean Fuels Transportation Electrification rulemaking, these provisions offer the possibility for accelerated penetration of the fuels into Oregon markets. Green hydrogen produced by electrolysis from zero-carbon power sources has made great strides but still needs significant development to make costs competitive, and its penetration into the hydrogen market will be limited by the need to dedicate new wind and solar power to decarbonizing the electricity grid. Nonetheless, the timeframe for large scale green hydrogen production will be speeded by including advance credits for this technology in the CFP.

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Just like RNG, BD and RD, none of which have zero emissions, including advance credits for blue hydrogen in the CFP will spur technological advances to further lower its emissions, thereby allowing it to earn more credits. In particular, advance credits will incentivize investment in hydrogen plants that capture carbon dioxide from both the steam reforming furnace and the amine unit. It will also incentivize importing the distinctive and lower-emissions autothermal reforming process (ATR) to hydrogen manufacturing facilities, where it can replace SMR. Both innovations will lower blue hydrogen emissions. The CFP will also incentivize economies of scale for construction of the large-scale hydrogen

storage units needed for both these processes and the green hydrogen made by electrolysis. We note that low-cost hydrogen storage is a solution to long-term energy storage on the electricity grid, presently a major impediment to the rapid penetration of solar and wind technology essential to the CFP's electrification goals.

We recognize that the continued use of natural gas inevitably involves upstream fugitive methane emissions. Although the short half-life of atmospheric methane greatly diminishes legacy concerns, its short-term impact on global heating is significant. However, this impact is far less than that of the enormous quantities of carbon dioxide presently being emitted without capture from hydrogen manufacturing plants. Like methane emissions from landfills and stagnant upstream reservoirs of hydroelectric dams, known technologies and aggressive regulations can substantially reduce upstream methane emissions from natural gas mining, refinement and transport.

**Adding a CCS protocol to the Oregon CFP**

Capture and safe sequestration of carbon dioxide is essential to restoring climate stability. It offers the only way to mitigate concentrated emissions from industry smokestacks, as in cement manufacturing, fertilizer plants and petrochemicals, where electrification or replacement with alternate products is not yet possible. CCS also forms the crucial basis for direct capture of dilute carbon dioxide from the atmosphere, an approach that is likely indispensable for limiting warming to under 1.5°C compared to pre-industrial temperatures. Importantly, incentivizing CCS development in existing manufacturing through the CFP will drive innovation and economies of scale for direct air capture, because these two CCS applications have many elements in common. These include the basic chemistry of amine capture, the development of a network of carbon dioxide pipelines, and the practical implementation and monitoring needed for safe geologic burial in underground saline formations throughout North America.

Under the California LCFS, a CCS protocol applies to projects that capture and sequester carbon dioxide and sequester it onshore in saline formations, depleted oil and gas reservoirs, and depleted oil and gas reservoirs used for enhanced oil recovery (EOR). The EOR credits, however, are problematic since burning the recovered oil offsets the climate gain from sequestration. Some analyses do suggest that burying captured carbon for EOR is a net positive for the climate, and this approach is certainly better than the use of carbon dioxide excavated from underground caverns, which increases overall emissions. Nonetheless, including EOR credits would incentivize further extraction of fossil petroleum. While we urge the addition of CCS credits into the CFP for carbon burial in saline formations and depleted oil/gas reservoirs without EOR, we also emphasize the need for a hard look at whether the EOR application is worth the risks.

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requirements for well construction and operation, the interface of the CFP with EPA regulation of these wells under the Safe Drinking Water Act, and the criteria for monitoring the wells to detect any leakage or contamination of drinking water.

Oregon is in the leading group of US states with respect to its vision for limiting climate pollution. Moving forward, we think that the CFP can continue to be strengthened by the suggestions herein, and will serve increasingly as a model for other states to follow. Thank you for considering our comments, and we look forward to continuing to work together on establishing an even stronger Clean Fuels Program.

For further questions please contact Dr. John Perona

Sincerely,

Metro Climate Action Team (MCAT) – Transportation Team

April 14, 2022

VIA ELECTRONIC FILING

Cory Ann Wind
Oregon Department of Environmental Quality (DEQ)
700 NE Multnomah Street, Suite 600
Portland, OR 97232

**Re: Neste Comments on the Oregon CFP Expansion 2022 RAC #3 Meeting on March 31, 2022**

Dear Ms. Wind:

Neste appreciates the opportunity to provide these comments on the Clean Fuels Program (CFP) Expansion 2022 Rulemaking presented by DEQ at the Rulemaking Advisory Committee (RAC) Meeting #3 on March 31, 2022. Neste is the world's largest producer of renewable diesel and renewable jet fuel refined from waste and residues. Over the past ten years, Neste's transformation journey has taken the company from a local oil refining company to becoming a global leader in renewable and circular solutions. Our goal is to reach carbon neutral production by 2035 and we intend to supply Oregon with these products so the state can reach the climate goals outlined in Executive Order 20-04.

The comments below respond to materials provided by DEQ at the March 31, 2022 RAC #3 Meeting. We look forward to continuing to work with DEQ on this rulemaking.

**Proposed Targets Through 2035:**

Neste strongly supports extending and increasing the Clean Fuel Program (CFP) standards to 20% below 2015 levels by 2030 and 37% below 2015 levels by 2035. The proposed standards will not only make significant strides in helping Oregon reach its ambitious carbon reduction goals, but it also sends a strong signal of support for renewable fuels and low carbon fuel programs. The ability to comply with the proposed standards is bolstered by the projected significant growth in renewable fuels production (most notably renewable diesel) over the next few years, as reflected in the most recent 2022 Clean Fuels Forecast[1]. By aligning its CFP program standards with California and British Columbia's, Oregon is creating consistency and parity across the West Coast low carbon fuel standards. This will further incentivize the development of lower carbon fuels, and ensures Oregon will be an attractive market for these fuels. To make these standards attainable and efficient, Neste requests that Oregon continue to pursue a technology neutral approach so that Oregon consumers can obtain renewable fuels faster and at the lowest cost possible.

**Opportunities for Additional Credit Generation:**

Neste reviewed the document "Opportunities for Additional Credit Generation" prepared by ICF in March 2022. Neste suggests that DEQ consider these additional opt-in sources of credit generation that are "drop-in" fuels that will not require significant infrastructure or investments to implement.

- Rail Opt-in: The rail sector indicated to Neste an interest in using lower carbon fuels if incentivized under the CFP. As a direct drop-in replacement of fossil diesel, renewable diesel could play an important role in decarbonizing the rail sector in Oregon if allowed as an opt-in fuel and incentivized by the CFP. Should the rail industry use renewable diesel, nearby communities would see added co-benefits of lower criteria and toxic air pollutant emissions. These added benefits are

[1] https://www.oregon.gov/deq/ghgp/Documents/CleanFuelsForecast2022.pdf

unique to renewable diesel use as noted in CARB's Alternative Diesel Fuels Regulation[2] and thus the need to make it an opt-in fuel use.

- Stationary Generators Opt-in: The past several years has seen significant growth in the installation of stationary backup generators in several states, including Oregon. Operators of stationary generators have expressed to DEQ and Neste a strong interest in creating incentives to replace fossil diesel with renewable diesel. DEQ should consider adding stationary generators as an opt-in use of renewable diesel to help decarbonize this growing source of reliable power. Similar to rail applications, nearby communities would see reduced air emissions if renewable diesel was used in these generators.

**Additional Proposals under Consideration:**

Neste offers the following comments on the proposed changes contained in "Additional Proposals Under Consideration" that was presented at the March 31, 2022 RAC Meeting:

- Simple Updates for Reporting:
  - B99/R99 Reporting of Fossil Content: Neste supports the ability to separately report 1 percent fossil content, as proposed by DEQ.
  - Addition of "Position holder sale without obligation": Neste requests clarity on the addition of this transaction type in the form of written guidance to ensure all reporters properly incorporate this reporting change.

- Require Electronic Tracking System for Renewable Natural Gas: Neste supports this new electronic tracking for renewable natural gas claims starting in 2023.

- Simplified Calculator Correction: Neste supports fixing the error in the Tier 1 Simplified CI Calculator for Biodiesel and Renewable Diesel.

- Definition of Renewable Hydrogen: Renewable hydrogen is a promising low carbon fuel, and DEQ should establish a definition that will further incentivize renewable hydrogen projects. Neste requests that DEQ add hydrogen produced from electricity derived from geothermal, tidal, wave and hydropower to part (1) of the proposed renewable hydrogen definition. These additional sources of renewable electricity have a carbon lifecycle similar to solar and wind per the National Renewable Energy Laboratory (NREL)[3], and should therefore be added as shown below.
  - "Renewable Hydrogen" definition in OAR 340-253-0040- hydrogen derived from (1) electrolysis of water or aqueous solutions using solar, geothermal, tidal, wave, hydropower and wind; (2) catalytic cracking or steam methane reforming of biomethane; or (3) thermochemical conversion of biomass, including the organic portion of municipal solid waste (MSW)."

- Require Additional Documentation for Credit Transactions: Neste understands that DEQ requires the ability to monitor the credit market more closely by requesting additional documentation for credit transactions. To avoid creating an unnecessary administrative burden on obligated parties, Neste suggests DEQ limit the need for additional documentation to only those credit transactions requiring additional oversight and not all credit transactions. To reduce administrative burden, the additional documentation should mirror that requested by CARB.

- Establish Process to Add New Transaction Types in OFRS: Neste supports creating new transaction types in OFRS if they are adequately communicated to stakeholders. We recommend DEQ include

[2] https://ww2.arb.ca.gov/our-work/programs/alternative-diesel-fuels
[3] https://www.nrel.gov/docs/fy21osti/80580.pdf, September 2021

a requirement to hold a public workshop to review the change and grant a grace period to allow obligated parties sufficient time to comply. This will ensure that DEQ is able to work with affected reporters without having to resort to enforcement actions.

- Post-Verification Credit Generation Adjustment: Neste vigorously supports the ability to adjust the fuel pathway carbon intensity (CI) post-verification and that fuel producers receive the additional credits. This provision incentivizes efforts to further reduce a fuel's CI year to year, and it brings higher value to lower CI fuel producers. We look forward to the implementation of this provision.

Please feel free to contact me if you want additional information or have questions regarding our submission.

We appreciate your consideration.

Oscar Garcia

West Coast Regulatory Affairs Manager
Neste US, Inc.

April 14, 2022

Cory Ann Wind
Clean Fuels Program Manager
Department of Environmental Quality
Portland, Oregon
***Submitted Via Email***: CFP.2022@deq.oregon.gov

**RE: Oregon Fuels Association Comments to CFP Expansion RAC #3**

Dear Ms Wind:

Thank you for the opportunity to provide comment following the Clean Fuels Program Expansion Rules Advisory Committee (RAC) meeting #3.

Without question, the Oregon Fuels Association (OFA) has been critical to the success of Oregon's Clean Fuels Program (CFP). That success has been instrumental in attracting significant capital investment and provided an opportunity for nearly every Oregonian participate in greenhouse gas reduction. Moreover, adoption of this program by locally-owned businesses has helped the program achieve new levels of political and community support. However, that support will quickly dissipate if DEQ continues to pursue overly aggressive and unnecessary regulations that will hurt small businesses and communities throughout the state.

OFA remains concerned with the direction and process of this rulemaking, particularly around creating new, expensive, and unnecessary carbon intensity reduction targets by 2035. Again, we believe the state needs to proceed pragmatically and avoid unnecessarily attaching this successful program to untested assumptions and unrealistic targets. Executive Order 20-04 calls for the Department of Environmental Quality to increase the Clean Fuels Program targets from a 10% reduction in carbon intensity in 2025 to a 25% reduction in 2035. This would more than double the current program targets and increase the regulatory burden on Oregon's fuel distributors and increase the cost to Oregon drivers. Moreover, this proposed change would happen in less than 10-years after the adoption of the program.

In RAC meeting #3, DEQ recommended new reduction targets of 37% below 2015 levels by 2035. Below explains why OFA disagrees with that approach and the important evaluation and

analysis DEQ should present to the RAC before it makes any recommendations to the Environmental Quality Commission (EQC).

## I. DEQ has failed to provide the RAC sufficient information to determine the cost-effectiveness of this rulemaking.

In order to compare the cost-effectiveness of a program, it is critical to first understand and agree on baseline assumptions, including: emissions reductions achieved through existing regulatory programs, anticipated costs of the CFP as it exists today, and any benefits associated with this specific program (excluding benefits achieved through emissions reductions captured by other programs). In slide 15 of the RAC #3 presentation, DEQ identifies a few of the regulatory changes that have occurred; each of which is critical to including for purposes of understanding the baseline:

- *The Oregon Department of Agriculture adopted rules that will allow up to 15% ethanol to be blended with gasoline (E15) in the state beginning in 2022.*
- *The EQC adopted the Advanced Clean Trucks rule which will require an increasing percentage of trucks sold to be ZEV beginning in 2024.*
- *The 2021 Legislature passed HB 2021 which requires retail electricity providers to reduce greenhouse gas emissions associated with electricity sold to Oregon consumers to 80 percent below baseline emissions levels by 2030, 90 percent by 2035 and 100 percent (i.e., zero emissions) by 2040.*
- *The EQC adopted the Climate Protection Program that sets statewide enforceable limits on greenhouse gas emissions from fossil fuels, including gasoline, diesel, and natural gas.*

Each of the laws and regulations identified in the bullets above have received significant analysis. We expect, as does the public, that regulated entities under these programs will comply with the regulations and thereby meet the individual and independent reduction targets of the individual programs (which again have been analyzed and identified by DEQ). In order to establish a baseline for greenhouse gas emissions, DEQ must first review the reduction targets of those programs and include those assumptions in a "business as usual" forecast to determine the "baseline". Or put another way, if DEQ decided to do nothing with this rulemaking, what would the expected emissions reductions and the costs to businesses/consumers be? That would identify a good starting point or baseline to compare against this new, expanded regulation for the CFP.

Frustratingly, however, DEQ has not included those emission reduction expectations in the business-as-usual assumption. Instead, it appears that the agency is trying to include the reduction targets expected in these other programs as part of the reductions expected under the CFP expansion rulemaking. In other words, DEQ wants to use the greenhouse gas emissions reductions identified in support of other programs to also support significantly increasing the targets in this rulemaking. This is wrong! Greenhouse gas emissions reductions should only be counted once – regardless of the overlapping nature of these programs.

If DEQ wants to use the emission reductions already acknowledged and accounted for by other programs, then DEQ must also include the anticipated costs to Oregonians, including consumers and small businesses, of those same programs. Otherwise, the RAC (and then Environmental Quality Commission) will be asked to compare apples (costs of reductions in this program) with oranges (benefits of all program emissions reductions).

OFA supports DEQ allocating specific emissions reductions that will result specifically from expanding the CFP and not associated with the CPP, ZEV, or other new fuel blending regulations. Once an accurate "business-as-usual" baseline is established, we then recommend an additional RAC meeting to consider the costs-effectiveness of this program, the costs associated with those additional emissions reductions, and the specific emission reduction benefits from those same emissions.

## II. Cost estimates need to be transparent and understandable by the general public.

Once DEQ develops the scope of emissions reductions beyond the baseline, the agency should then calculate the anticipated cost of credits to achieve the target reductions. Then, using that credit price, DEQ should also inform the RAC participants (as well as the public) of the average increased cost of diesel and gasoline from the program. Some estimate that the price per gallon to meet the existing standard is over 10 cents per gallon. Since the proposed program will nearly triple from today's standard, what should drivers expect in terms of increased cost per gallon? This should become part of the rulemaking record.

Additionally, DEQ should analyze and inform the RAC where money generated from regulated parties will go. More specifically, based on the modeling exercise, how much money will go from regulated fuel suppliers and their customers to out-of-state credit generators? We understand that Oregon neither produces nor refines most of our transportation fuels. This means that Oregonians already send money out-of-state to purchase fuel that gets them to work, school, or as discussed below, respond to emergencies. However, this proposal is asking Oregonians to pay even more for fuel and its important to know who will benefit from that increased cost and where those entities (credit generators) are located under the 37% carbon intensity target. The modeling exercise identified where the credits will likely come from. Based on DEQ's expertise, it should also know whether those credit generating activities are likely or even possible in Oregon.

## III. A CI of 37% below 2015 levels is unsafe.

Accessible and affordable transportation systems are critical to public health and safety. Whether it's a local government putting police, ambulance, and fire vehicles on the road or it's a rural homeowner needing to escape wildfire or to operate a generator for drinking water when the power goes out, affordable and available fuels are critical to public safety.

DEQ's proposed reduction target fails to analyze, consider or even acknowledge whether public safety and non-urban populations will continue to have access to available **and** affordable technologies and fuel. In fact, OFA believes that by pushing regulatory standards to areas beyond what is available and affordable (all year round) in the transportation sector could or will

create unsafe environments for Oregonians. For instance, renewable and bio-diesel are known to gel in cold climates and can be unusable alternatives for diesel engines. In Oregon, those are very large geographic regions that rely on diesel fuel for heat, school transportation, emergency response, and day-to-day driving needs. Meaning, diesel fuel is still necessary and needs to be affordable and available. Emissions reductions can and should balance our collective goals in addressing climate change, but in a way that recognizes the time frame needed to safely and equitably transition our energy economy.

According to DEQ, the reason to expand the CFP beyond a 25% reduction as called for in Governor Brown's Executive Order was to ensure that credits would be available to incentivize non-electric vehicle and non-renewable/biofuels. In other words, initial modelling demonstrates that Oregon could meet a 25% reduction target using existing technologies. But by increasing the targets to provide increased incentives to new technologies, DEQ is proposing driving compliance scenarios that cannot be equitably shared regionally, geographically, or socioeconomically. DEQ needs to do more to better understand the full implications of moving to more aggressive reduction targets as it relates to economic and geographic safety and well-being of Oregonians to ensure that the costs and benefits are shared.

## IV. 37% below 2015 is not cost-effective.

Because DEQ has both admitted that Oregonians could meet a 25% reduction target with existing programs and incentives, and also failed to produce the necessary information needed to understand and analyze what the additional costs will be for a program moving from 25% to 37% above an accurate business-as-usual baseline, OFA does not believe that the new target is cost-effective and could be proposing to regulate the same greenhouse gas emissions with a multiple (and expensive) regulations.

## V. CI reductions of 37% below 2015 goes well beyond what other state's have adopted.

No other state has set such aggressive reduction targets. As a result, DEQ has failed to provide the technical and economic studies of comparable economic reduction measures implemented in other states that demonstrate that the new aggressive targets are either economically viable or technologically feasible.

## VI. Improve diesel exemption reporting rather than focus on additional reporting obligations.

The draft rule provisions are largely designed to benefit credit generators without doing anything for regulated fuel suppliers and their customers. One request OFA has made for years is to ease the reporting requirements for exempt fuel under ORS 468A.277. More specifically, we believe it makes more sense to create a rebuttable presumption that all dyed diesel is exempt unless reported as a covered fuel. Afterall, for many fuel distributors most of the transactions associated with the exempt uses are exempt-use dyed diesel.

Dyed diesel represents a small fraction of covered fuels sold in Oregon. Yet, the regulatory burden for dyed diesel is overly-burdensome. If the agency is truly looking for opportunities to

assist Oregon's fuel suppliers as they navigate these new regulations (and the newly created CPP), DEQ needs to change the reporting and oversight for exempt fuel transactions. The most meaningful change is to allow a reporting entity to only report on non-exempt dyed diesel sales/transactions.

Again, thank you for the opportunity to provide comment. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Mike Freese
RAC Member
Oregon Fuels Association

PACIFIC PROPANE GAS ASSOCIATION

April 15, 2022

Sent via e-mail to: CFP.2022@deq.state.or.us

Ms. Cory-Ann Wind
Oregon Clean Fuels Program Manager
Oregon Department of Environmental Quality
700 NE Multnomah Street
Portland, OR 97232-4100

Re: PPGA Comments regarding DEQ Clean Fuels Program RAC Meeting #3

Dear Cory-Ann:

Thank you for the opportunity to provide feedback on the Oregon Department of Environmental Quality's (DEQ) third Clean Fuels Program (CFP) Rules Advisory Committee (RAC) meeting held on March 31, 2022.

The Pacific Propane Gas Association (PPGA) is the state trade association representing Oregon's propane industry. Our membership includes small multi-generational family businesses and large companies engaged in the retail marketing of propane gas to Oregonians. PPGA members provide propane to the residential, commercial, agricultural, transportation and industrial markets throughout Oregon. Currently, users of propane have found value in propane's environmental benefits, versatility, and affordability.

The PPGA makes the following suggestions regarding the proposed hierarchy for credit generation that was discussed at the recent RAC meeting outlined in the document titled: Additional Proposals under Consideration: Item #10.

<u>Fossil LPG/Propane used in Forklifts</u>

The PPGA strongly supports the owner of the forklift fueling equipment having the first right to generate the credits in the CFP for fossil LPG/propane. The PPGA supports this change in the CFP for the following reasons.

1. **Provides consistency with treatment of fossil LPG/propane that is dispensed for use in a motor fuel.** The current rule outlines when fossil LPG/propane is dispensed for use in a motor vehicle the person that is eligible to generate credits is the owner of the fueling equipment at the facility. The PPGA believes there are advantages for the CFP to having one regulatory structure and the clarity that brings, thus the PPGA supports that idea that for forklifts the owner of the fueling equipment have the first right to generate credits—as is proposed for hydrogen.

2. **The owner of the fueling equipment provides the best visibility for the use of LPG/propane as a forklift fuel.** To better encourage the use of cleaner fuels like LPG/propane in the forklift market we believe it is imperative the owner of the fueling

equipment have first rights to the credits. While we understand the thought that providing the credit to the owner of the forklift will incentivize the adoption of LPG/propane forklifts our experience is that owners of the forklift are not primarily concerned with the CFP or credit generation. Successful transition to cleaner LPG/propane forklifts is typically driven by the propane company. Ensuring that the propane company maintains the incentive is critical for CFP success.

3. **More Efficient Reporting.** The PPGA believes the DEQ will receive more accurate and streamlined reporting information if the owner of the forklift fueling equipment has the first right to generate the credits in the CFP. Under this scenario there are fewer entities that are also more accustomed to reporting to administrative agencies like the DEQ. Additionally, having the forklift operator be eligible for first rights of credit generation increases the risk of double counting in the program. For example, an importer may be blending fossil LPG/propane (90%) and renewable LPG/propane (10%) and selling the (90/10) blended LPG/propane to a forklift operator. The importer may then claim 10% renewable LPG/propane credit, but the forklift operator may mistakenly account it as 100% fossil LPG/propane resulting in a double count of 10% of the gallons. Having the owner of the equipment having the first right to credit generation will avoid this situation.

<u>Renewable LPG</u>

The DEQ suggests providing additional clarity that for renewable LPG/propane, the producer or importer of the renewable LPG/propane shall have the first right to generate credits in the CFP. The PPGA has no concerns regarding this structure but has some concern to the additional statement provided in the document which states ***"as long as they are able to document that the renewable LPG goes into a vehicle."*** Currently, in the CFP, LPG/propane is reported using a material/mass balance accounting approach. For propane to be successful in the program it is imperative to maintain the material/mass balance accounting principle in the current program. Material/mass balance is key for our industry's ability to inject more renewable LPG/propane in the fuel steam without seeing a massive increase in cost to our current infrastructure. We are concerned the above statement may be contradictory to the principles of material/mass balance accounting and look forward to working with the DEQ to ensure our industry can successfully inject more renewable LPG/propane into the marketplace to support the goals of the CFP.

Thank you for allowing us to share our feedback. We look forward to continuing to work on this important rule making process and providing additional comments in the future.

Sincerely,

Matthew Solak
Executive Director
Pacific Propane Gas Association

POET

HEADQUARTERS
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4/15/2022

Cory Ann Wind
Oregon Department of Environmental Quality
700 NE Multnomah Street
Portland, Oregon, 97232

*Submitted via email to CFP.2022@deq.state.or.us*

**RE: Rulemaking Advisory Committee Meeting**

Dear Ms. Wind:

POET, LLC, the world's largest producer of biofuels, applauds the Oregon Department of Environmental Quality ("DEQ") for taking steps to expand the Oregon Clean Fuels Program ("CFP"). In March 2020, Governor Kate Brown directed the Department of Environmental Quality through Executive Order (EO) 20-04 to amend the CFP to achieve a 20% reduction in Oregon's transportation fuels' average carbon intensity ("CI") from 2015 levels by 2030 and a 25% reduction by 2035.[1] In response to this EO, DEQ is planning to propose extending and increasing the Clean Fuel Standards to 20% below 2015 levels by 2030 and 37% below 2015 levels by 2035.[2] On March 31, 2022, DEQ held a Rulemaking Advisory Committee ("RAC") meeting to discuss the CFP expansion. These comments are in response to documents shared during the meeting. POET supports the expansion of the CFP and looks forward to working with DEQ to meet its CI reduction goals.

**About POET**

POET's vision is to create a world in sync with nature. As the world's largest producer of biofuel and a global leader in sustainable bioproducts, POET creates plant-based alternatives to fossil fuels that utilize the regenerative power of agriculture and cultivate opportunities for America's farm families. Founded in 1987 and headquartered in Sioux Falls, POET operates 33 bioprocessing facilities across eight states and employs more than 2,200 team members. With a suite of bioproducts that includes Dakota Gold and NexPro feed, Voilà corn oil, purified alcohol, renewable $CO_2$ and JIVE asphalt rejuvenator, POET is committed to innovation and advancing powerful, practical solutions to some of the world's most pressing challenges. Today, POET holds more than 80 patents worldwide and continues to break new ground in biotechnology,

[1] Executive Order Number 20-40, Office of the Governor, State of Oregon (March 9, 2020) https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf.
[2] Oregon Department of Environmental Quality, *Proposed Targets*, 2 (March 31, 2022), https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m3Targets.pdf.

yielding ever-cleaner and more efficient renewable energy. In 2021, POET released its inaugural Sustainability Report pledging carbon neutrality by 2050.

In its discussion of expanding the CFP, DEQ states that "the proposed targets should allow for a wide range of low-carbon fuels to compete as a replacement for gasoline and diesel," and DEQ identifies biofuels among the replacements that can help the state meet its CI reduction goals.[3] POET strongly agrees with that view. POET supports the Oregon CFP's goal of reducing greenhouse gas ("GHG") emissions from the Oregon transportation sector and the effort to expand the CFP. Increasing renewable alternatives aligns with POET's mission and is essential to mitigating climate change and protecting human health and the environment.

Conventional bioethanol has the capacity to generate substantial CI reductions (and corresponding credits) under the CFP while reducing other harmful air pollutants such as BTEX compounds (benzene, toluene, ethylbenzene, and xylene) and $PM_{2.5}$.[4] POET recommends that DEQ address the below issues in its CFP to maximize, incentivize, and accurately account for biofuel lifecycle CI reductions.

**Opportunities for Credit Generation**

During the March 31 meeting, the RAC explored opportunities for additional credit generation as DEQ expands the CFP and discussed an ICF report entitled *Opportunities for Additional Credit Generation*. Th report, drafted at DEQ's request, reviews recent technologies and identifies possible sources for CFP credit generation.

**a. Upstream CI Improvements for Biofuels**

ICF identified upstream CI improvements for ethanol as an avenue for increased credit generation. The report discusses domestic farm inputs and fertilizer use as well as the adoption of clean energy for use in fuel production.[5] POET agrees with ICF that farm-level CI reductions and use of clean energy in fuel production present opportunities to reduce biofuels' CI and generate credits.

**i. Farm-Level**

POET strongly agrees with DEQ that farm-level CI reductions present an effective opportunity to reduce biofuel lifecycle emissions. Incentivizing sustainable low-CI farming practices under Oregon's CFP would encourage agricultural GHG emissions reductions through currently employed strategies, such as better tillage practices, as well as practices that are not profitable in the absence of environmental credits, including nitrogen and biodiversity management. Additionally, incentivizing low-CI farming practices would support a new wave of innovations in sustainable farming.

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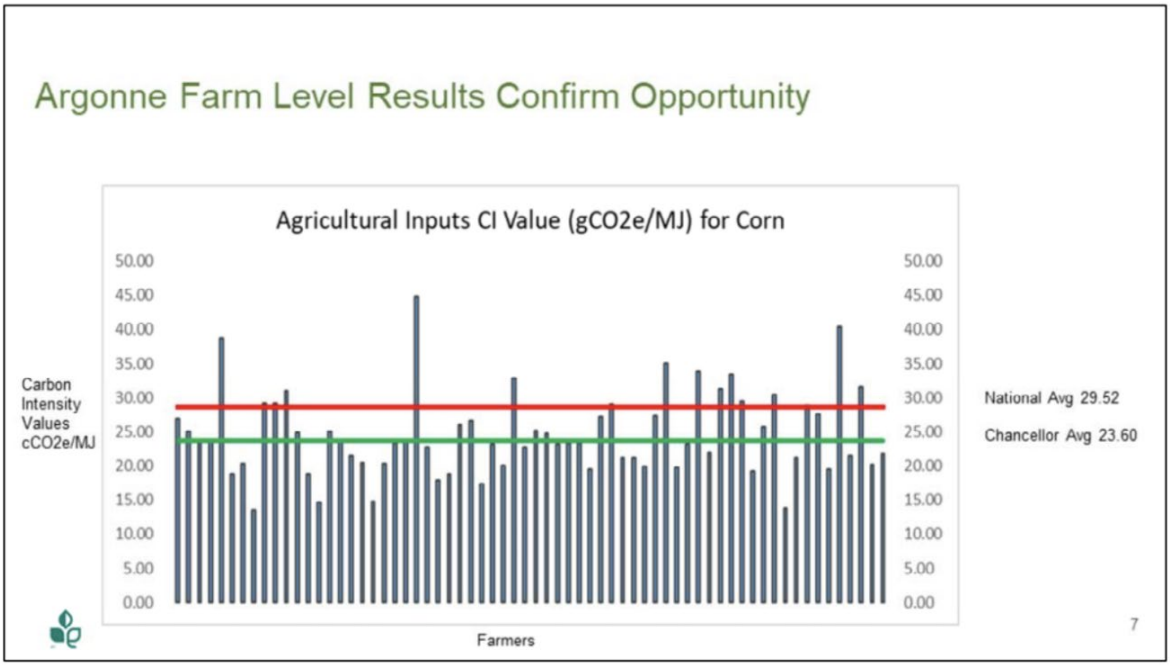
[3] *Id*. at 5.
[4] *See* Kazemiparkouhi, Fatemeh et. al, *Comprehensive US database and model for ethanol blend effects on regulated tailpipe emissions*, 2022 SCIENCE OF THE TOTAL ENVIRONMENT, Vol. 812 151426, https://www.sciencedirect.com/science/article/pii/S0048969721065049.
[5] ICF, *Opportunities for Additional Credit Generation*, 4 (March 2022), https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m3CreditGeneration.pdf.

Since 1990, corn bioethanol's CI has been trending downward, in part reflecting developments in farming practices.[6] The Gradable program illustrates the potential GHG emissions reductions achievable through sustainable farming. POET worked with the Farmers Business Network and Argonne National Labs to create Gradable, a pilot program to encourage sustainable farming, validate data inputs, and calculate CI scores for agricultural inputs. Gradable's trial involving 64 area farms supplying corn to POET's Chancellor plant resulted in a 25 percent reduction in GHG emissions from corn cultivation and farm energy usage compared to the assumptions embedded in CA-GREET. The graphic below shows that Chancellor's average farm-level CI value is significantly lower than the national average:




The results from Gradable show a wide disparity in CI (with a delta of about 31 g/MJ) among farms in the same region providing corn to the same bioethanol plant, with lower CI scores resulting from the use of low-CI farming practices at participating farms in the region. This disparity suggests that widespread adoption of low-CI farming practices could readily result in CI reductions if farmers had the incentive to engage in such practices. The prospect of extrapolating these lessons to the entire industry is worthy of DEQ's focus in this rulemaking process.

As part of this effort, POET encourages DEQ to include a pathway for "identity-preserved" feedstocks in its CFP expansion. Identity-preserved feedstocks can incentivize low-CI farming practices by allowing renewable fuel producers to demonstrate verifiably lower CI characteristics for their biofuel lifecycle.

[6] Sully, Melissa *et al*, *Carbon intensity of corn ethanol in the United States: state of the science*, 2021 Environ. Res. Lett 16 043001, 4 (2021), https://iopscience.iop.org/article/10.1088/1748-9326/abde08.

### ii. Off-Site Renewable Energy Usage

In the CFP expansion, DEQ should encourage the use of off-site renewable energy sources in the production of lower CI fuels. To drive growth in renewable energy generation and facilitate lower-CI fuel production, POET recommends that the CFP allow producers to demonstrate use of low-CI process energy through means such as power purchase agreements and book-and-claim accounting. Recognition of off-site renewable energy production to reduce GHG emissions is common in other carbon and renewable energy markets. DEQ should use its authority to encourage more renewable energy use in the transportation supply chain. This would incentivize the generation of low-CI energy through large-scale renewables projects, thereby reducing the Oregon transportation sector's lifecycle GHG emissions.

## b. Carbon Capture and Sequestration

Another area that ICF identified for increased biofuel credit generation is carbon capture and sequestration ("CCS"). As the ICF report explains, CCS has the potential to "deliver GHG reductions for processes that produce reliable streams of $CO_2$."[7] "Ethanol production is the most likely near-term application for CCS because of the purity of the carbon emitted at the facility."[8] POET encourages DEQ to allow for credit generation from CCS and suggests DEQ consider the following issues regarding CCS.

For guidance on how to award credits to fuel producers who contract with CCS capture facilities for sequestration, DEQ should look to the federal 45Q tax credit. Under 45Q, a taxpayer is eligible for a tax credit if the person "captures and physically or contractually ensures…the disposal" of the $CO_2$. 45Q also lists requirements for contracts between fuel providers and CCS capture facilities that provide for the sequestration of $CO_2$.

Given the nascency of this industry, a variety of business arrangements may exist between fuel producers, those generating $CO_2$ emissions to be sequestered, and entities sequestering $CO_2$. POET encourages DEQ to apportion liability for CCS to the entity in control of the sequestration activities. For example, renewable fuel producers generating LCFS credits for CCS may partner with a CCS company to ensure permanent sequestration of emissions. It would be helpful for DEQ to clarify that where separate entities control (1) the CCS capture facility and (2) the sequestration facility and activities, the party responsible for the geologic sequestration site and all related activities is liable for leakage.

If DEQ decides to instead apportion liability to the $CO_2$ producer, POET encourages DEQ to adopt a liability scheme similar to that under 45Q, such that the liability should be limited to a few years. 45Q establishes a "recapture period" during which the taxpayer is required to repay the tax credit if a leak occurs. The recapture period begins on the date of the first injection $CO_2$ for disposal in secure geological storage for which the credit was claimed and ends either (1) three years after this taxable year in which the taxpayer claimed the credit or was eligible to claim the credit or (2) on the date the monitoring requirements under 45Q end.

[7] *Supra* note 5 at 5.
[8] *Id*. at 6.

* * *

POET applauds DEQ's efforts to expand the Oregon CFP. We appreciate DEQ's consideration of these comments and look forward to engaging in a productive dialogue with the Agency on the CFP and the role biofuels play in helping Oregon achieve its GHG reduction goals. If you have any questions, please contact me.

Sincerely,

Matthew Haynie
Senior Regulatory Counsel
POET, LLC

April 15, 2022

Ms. Cory-Ann Wind
Oregon Clean Fuels Program Manager
Oregon Department of Environmental Quality
700 NE Multnomah St #600
Portland, OR 97232
2022cfp@deq.state.or.us

via cfp comments

**Subject: Oregon DEQ Clean Fuels Program Proposals - Port of Portland Comments and Recommendations**

Dear Ms. Wind;

The Port of Portland (Port) appreciates Oregon DEQ's thoughtful approach in developing the 2020 Clean Fuels Program (CFP) extension proposals. We offer the following comments and recommendations.

*Comment #1: eGSE*. We agree with the proposal to use a straight average energy economy ratio of 3.2 for baggage tractors, belt loaders, and pushbacks. We believe this is defensible based on the extensive analysis of energy economy ratios for this type of equipment that was conducted by C&S Companies on behalf of the Port. It also makes implementation practical, which will encourage the transition to electric aircraft ground support equipment, helping Oregon meet its carbon reduction goals. The Port agrees that the charger owner should be the credit generator, consistent with other types of electric equipment covered under the CFP. The owner of the charging infrastructure (airline or airport) carries the burden and risks associated with the infrastructure investment, operation and maintenance, data collection system function and data quality assurance, and reporting. The charger owner and mobile equipment owner can separately work out an amicable revenue sharing model, outside of the CFP.

*Recommendations*

- Use a straight average of 3.2 for baggage tugs, belt loaders, and pushbacks
- Credit generator is the charger owner.

*Comment #2: Sustainable Aviation Fuel;*

While credit generation from sustainable aviation fuel (SAF), as an opt-in fuel, was not considered in the proposed targets, it is one of the most impactful strategies to reduce greenhouse gas emissions in transportation. The cost difference between SAF and conventional jet fuel is one of the biggest challenges to commercial scale development and use of SAF. The CFP can be impactful in narrowing that gap and helping to bring SAF to PDX. SAF must compete with the demand for other clean fuels within and outside of Oregon. It is important to ensure that SAF is on a level playing field.

*Recommendation*

As SAF pathways are created in the future, ensure that the carbon intensities used for SAF are no greater than neighboring jurisdictions, to ensure SAF is incented for use locally where it can benefit Oregon's marginalized communities.

Thank you for your consideration of these recommendations. Please feel free to contact me if you need further information.

Sincerely,
***Port of Portland***

David J Breen

David Breen
Manager, Env. Air Quality, Energy, & Aviation Noise

# Comments submitted to DEQ regarding expansion of the Oregon Clean Fuel Program

April 14, 2022

## Introduction

This comment addresses the overall efficacy of the OR Clean Fuels Program (CFP), which is obviously relevant to consideration of its expansion.

The truth is that the efficacy of the program is unknown. To my knowledge there has been no serious analysis of the greenhouse gas (GHG) reductions from the CFP nor from California's Low-Carbon Fuel Standard (LCFS). The approach taken by DEQ (and by and the California Air Resources Board, CARB) to estimate the GHG reductions from the program doesn't involve any real analysis; both agencies merely assume that the reduction in average fuel carbon intensity (CI) determined through modeling individual fuel pathways actually represents the real world GHG reduction. This approach is tautological, merely a restatement of the deemed CI values and the policy structure. Unfortunately, CI values are neither measurable nor unobservable; they must be estimated via modeling. Yet, there is no agreement even on the proper method for modeling CI, much less on the actual CI values.

Consider, for example, that DEQ decided to part ways with CARB in its choice of the carbon accounting model used to estimate emissions from biofuel-induced land use change for corn ethanol. DEQ uses an alternative model *only* for corn ethanol, while following CARB's choice for all other fuel pathways[1]. The alternative model was promoted by the corn ethanol lobby because it produces lower CI values, which are more favorable for that industry. In their simplistic estimates of GHG reduction, both CARB and DEQ treat these divergent model results as the true value of land-use change emissions from corn ethanol. They can't both be right. In all likelihood, for reasons explained below, neither represents actual environmental outcomes.

## What is Carbon Intensity?

In the context of clean fuel standards, a fuel's carbon intensity (CI) is intended to represent the effect of a given fuel on climate, commonly measured in units of grams of $CO_2$-equivalent per megajoule of fuel, or $CO_2e$/MJ. These values are intended to include all the emissions throughout the life-cycle of producing and using fuel produced by each independently-rated fuel production system or "pathway".

[1] My comments explaining details of these models, submitted to DEQ in 2015, are available at https://drive.google.com/file/d/1cMDft6iVnWukFlz0n_T760yoSznKCj6C/view

The performance-based fuel standards implemented in California, Oregon, British Columbia, and the EU all rely on life cycle assessment (LCA) to determine each fuel system's CI. However, the standard approach to LCA (known as *attributional* LCA, or ALCA) has long been shown to produce contradictory results for the same nominal analysis [1, 2]. This is because the quantity of interest – the total GHG emissions along a product's supply / use chain – is not directly observable and must therefore be modeled, and even the ISO 14040 LCA standard [3] fails to characterize a single, concrete approach, but rather, confers equal legitimacy on a range of subjective modeling choices that ultimately determine the outcome of analyses [4-6]. These include choices of functional unit, system boundaries, timeframe, and handling of co-products from a multi-product system, e.g., corn ethanol and dried distillers grains, or biodiesel and protein meal. Required data is frequently unavailable and replaced with assumptions and proxy data, which differ from one analysis to the next.

A more subtle issue is that ALCA examines only the supply chain, ignoring market-mediated effects such as changes in supply and demand induced by price changes, and the effects of these changes on emissions . This is not an oversight exactly: the exclusion is based on the assumption that when analyzing a small quantity, market effects are too small to matter [7]. This assumption is clearly violated when LCA results are used in a statewide or national fuel policy, which are intended by design to affect fuel markets. As a result, the CI values in use in fuel policies ignore critical factors that cause actual policy outcomes to diverge, perhaps substantially, from those asserted by the CI values.

In 2008, a seminal paper by Searchinger et al. [8] showed that the knock-on effects of biofuel policies could include "indirect" land-use changes (ILUC) far from the policy region that result in large emissions of $CO_2$. Based on this and subsequent analyses, California included an estimate of ILUC emissions for biofuels in its Low-Carbon Fuel Standard, as did the US EPA for the federal Renewable Fuel Standard. Estimates of ILUC emissions have been controversial because they are uncertain and estimates from different modelers have varied widely.

Other jurisdictions implementing LCA-based fuel standards (e.g., the E.U. and British Columbia) have excluded ILUC emissions from regulatory values of CI, ensuring an even greater divergence between CI rating and actual climate effects. This exclusion is sometimes justified by arguing that ILUC emissions are too uncertain to include – but ignoring uncertain factors treats their value as a certain zero, which is almost surely incorrect and results in a systematic overstatement of climate mitigation benefits. The further the chosen modeling method strays from representing the effects we care about, i.e., reducing net global GHG emissions, the greater the opportunity for a fuel policy based on these CI values to backfire. Ignoring known but uncertain effects does not increase the accuracy of CI values, it merely creates false precision and hides the actual limits of our knowledge about the effects of the policy.

The jurisdictions that have included ILUC emissions do so in a variety of manners. Since the emissions from ILUC result largely from near-term land conversion, and result result from increasing biofuel production capacity and demand for feedstock. These up-front emissions have generally been amortized over decades – 20 years in the E.U. and 30 years in the US –

during which time the ongoing use of biofuels replaces some quantity of petroleum-based fuel, "paying down" this initial carbon debt. We note that the use of 20 or 30 years is arbitrary, yet it has a substantial effect on estimated CI, and the extra warming caused by the up-front release of $CO_2$ is not accounted for in simple sums of emissions over time [9].

## Some Issues with models of Carbon Intensity

I have published peer-reviewed papers documenting limitations of the GTAP-BIO model [10, 11], which is used in CA and OR to estimate changes in land use, and a report submitted in 2015 to DEQ regarding its decision to use the CCLUB carbon-accounting model for corn ethanol, noted above. Here I summarize some of the key points detailed in those documents.

### GTAP-BIO

GTAP is the model produced by the Global Trade Analysis Program at Purdue University. As the name indicates, it was originally designed to analyze global trade. When used for that purpose, there is little reason to represent non-commercial land, as it produces nothing and has no impact on trade. However, for a model purporting to estimate biofuel-induced changes in land use, the potential conversion of non-commercial land into productive use is one of the key dynamics of interest.

The GTAP-BIO model in use by the California LCFS, and by extension, the OR CFP, does not represent non-commercial land [12]. Therefore, the model cannot predict conversion of non-commercial land for commercial uses as a result of increase biofuel production. In a recent paper I co-authored with folks at EPA's Office of Transportation and Air Quality and Pacific Northwest National Lab (PNNL), we found that removing non-commercial land from another model (PNNL's GCAM model) significantly reduced estimates of land-use change emissions [10]. This result was anticipated based on first principles; we merely quantified it through modeling.

GTAP-BIO suffers several other limitations, including being a static-comparative model, which has no time dimension. The model is solved once to re-equilibrate around an increase in biofuel production, and the result treated as a proxy for the actual, ongoing policy that persists for decades, during which time there are changes in population, GDP, food demand, technological progress and so on. The model allows for improvements in yield as a result of price increases, but excludes any increases in food demand that occur over time. Nor does it account for potential losses in yield owing to extreme weather events, a source of increasing concern as climate change progresses.

Finally, several recent changes to the GTAP-BIO model have resulted in decreases in ILUC and resulting emissions, making the model popular with biofuel producers, yet on closer inspection, the evidentiary basis for these changes is quite weak [11]. For a critique of many aspects of GTAP-BIO by other Purdue University economists (including GTAP originator Tom Hertel), see [12].

### CCLUB

Here I summarize my findings presented to DEQ in 2015 (see footnote 1).

The main innovation of the CCLUB model is the use of a complex soil-modeling frame to estimate carbon losses from land conversion in the U.S. This added detail and complexity, however, does not make CCLUB's results more accurate for several reasons:

1. GTAP provides no information about which specific land is converted; it provides the final area in each commercial land use after re-equilibration. The geographic specificity of the soil model is thus limited by the geographic vagueness of GTAP.

2. The assumed land-use history used to "spin up" the soil model assumes that all cropland-pasture has been in crops for the past 25 years. This assumption results in a projected *sequestration* of carbon as a result of conversion to biofuel feedstocks such as corn and soybean. Given the predominance of cropland-pasture conversion in the GTAP results, this assumption of land-use history biases carbon intensity estimates sharply downward. The accuracy of the soil model depends on the accuracy of the assumed land-use history. The benefits of using this model are lost if an unrealistic land-use history is assumed. (Garbage in, garbage out.)

3. CCLUB estimates carbon changes only for transitions to feedstock cropland, yet GTAP projects changes in all crops, not just those converted to biofuel feedstocks.

4. CCLUB uses simple (i.e., not area-weighted) averages of carbon stocks, which distorts the results, but the direction of bias can be determined only by comparing this with an area-weighted result. The use of simple averaging eliminates the value of using county-level data in CENTURY.

5. CCLUB introduces a new lower-carbon land cover, young shrub/forest, that doesn't exist in GTAP and therefore creates a disconnect between the economic logic (based on profitability of timber production) and a land class not in GTAP. That is, land that is treated as timber-producing in the model is treated as non-timber-producing and lower carbon density in the carbon accounting model.

See the full report (see URL at footnote 1) for more details.

## Summing results from fuel pathway and ILUC emissions is incoherent

In both the CA LCFS and OR CFP, the results from modified versions of the GREET model are simply summed with estimates of ILUC emissions from GTAP and either the AEZ-EF or CCLUB carbon accounting models. This combines results based on very different assumptions and modeling approaches:

- GREET is an attributional LCA model, i.e., it assumes the appropriate focus of analysis is the supply chain and analyzes a tiny quantity of fuel, assuming no changes in the greater economy from the use of biofuel. It uses average data and its use implies that effects are linear, i.e., independent of scale.
- GTAP is global computable general equilibrium model. It assumes the appropriate focus of analysis is the entire economy. It analyzes a large quantity (billions of gallons) and

estimates the economy-wide effects of this increase. It uses marginal data and its effects are non-linear.

- Once we allow that the attributional LCA approach is missing important economic effects, we must consider that ILUC is not the only market mediated effect of importance. The simple combination of GREET + ILUC emissions excludes changes in $N_2O$ emissions resulting from crop fertilization, on-farm energy use, and rice & livestock methane, all of which were incorporated in EPA's analysis for RFS2.
- One cannot simply add these effects from GTAP (which are global, marginal changes) because they are already included from the supply chain, assuming no changes outside the supply chain. In short, marginal global emissions and average emissions from a supply chain are not additive; they are based on different underlying assumptions.
- This modeling approach excludes rebound effects in the global fuel markets resulting from expansion of biofuels and increase in global liquid fuel availability [13].

In addition, both the LCFS and CFP count all methods of reducing CI as equivalent, when they differ considerably in actual climate effects:

- CI reductions resulting from process improvements in farming or biofuel refining have measurable climate benefits.
- CI reductions achieved by reshuffling existing fuel supplies into OR are non-additional; they have no climate benefit.
- CI reductions based on changes to agricultural management (e.g., no-till) are impermanent (plowing releases sequestered soil carbon [14]) so the carbon sequestration assumed for no-till should be discounted to account for the risk of early release [15]. Moreover, estimates of soil carbon sequestration from no-till may be overstated in many cases and result largely from insufficiently deep soil sampling [16].

A rigorous analysis of the actual climate benefits of the CFP would need to consider each of these types of reductions separately.

## What are the actual effects of the Clean Fuel Program?

To estimate the effects of the CFP requires modeling global GHG emissions in a counterfactual world without the policy, and comparing these to global GHG emissions in a world with the policy. The difference in emissions between these scenarios can be attributed to the policy. In other words, the question we want to answer is "how much did the policy reduce global GHG emissions relative to the business-as-usual (BAU) scenario without the policy?"

The approach taken by DEQ – treating average CI reduction as truth – answers a different question, i.e., "what are the GHG reductions *attributable to Oregon*, based on modeled CI values?" Attribution, however, is a bookkeeping function that does not describe the actual effects of the policy. If the ultimate goal is to mitigate climate change, attribution is irrelevant: we must achieve real, quantifiable, permanent reductions. And we must be bold enough to subject existing policies to serious analysis to ensure that we're achieving those reductions.

To be scientifically and intellectually honest, we must recognize the methodological issues and substantial uncertainty underlying CI values and their relationship to actual environmental outcomes. We must reject the common tendency to ignore uncertain elements of an analysis, pretending that these inconvenient elements don't existent. This recalls the joke about a drunk who loses his keys in a dark corner of a parking lot but searches instead under the lamp post where the light is better. We will not mitigate climate change by implementing policies based on convenient but fictional CI values whose uncertainties have been swept under the rug.

Unfortunately, serious consideration of uncertainty creates problems for a policy like the CFP, whose fundamental premise is the existence of meaningful and precise CI values. Unfortunately, CI is an unobservable and uncertain quantity that cannot, even in principle, be estimated "accurately" since we don't have a known correct value to compare our estimates against. We must therefore acknowledge the existence of a trade-off between scientific integrity and the certainty required by the structure of the policy.

## Conclusion

LCA-based fuel policies are based on the misconception that every fuel production system has a unique carbon intensity that can be reliably estimated. The wide range of results from modeling efforts and the disparate methods employed (and the exclusion of important factors) in the estimation of CI prove this assumption to be false. Without reliable estimates of carbon intensity, CI-based fuel performance standards cannot be expected to produce beneficial outcomes.

Fifteen years of biofuels modeling has not resolved the question of the climate benefits of many biofuel systems. This unrelenting uncertainty demonstrates that using biofuels to mitigate climate change poses risks of policy backfire, i.e., making the problem worse rather than better. This understanding – and the very short timeframe left to avoid the worst effects of climate change – suggest that we should instead rely on more certain mitigation measures, namely electrification of transportation.

Reliance on biofuels prolongs use on liquid fuels and internal combustion engines and risks reversion to petroleum fuels if extreme weather [17] or war causes supply shocks in the food or biofuel markets[2]. Meaningful incentivizes for electrification require funding for vehicles and charging infrastructure, for which the CFP is neither necessary nor sufficient.

I recognize that Oregon looks to its larger neighbors to the north and south for many of its environmental policies and that it's unlikely that Oregon would take a position contrary to California's regarding its CFP. At the very least, Oregon can and should make a more serious and

[2] Many sources are predicting a global food crisis resulting from the war in Ukraine, which is affecting crop and fertilizer production and exports. See, e.g., https://www.cnn.com/2022/03/12/business/food-crisis-ukraine-russia/index.html and https://www.fas.usda.gov/data/ukraine-conflict-and-other-factors-contributing-high-commodity-prices-and-food-insecurity.

intellectually honest effort to understand the actual climate effects of the CFP, rather than relying on assumptions masquerading as analytical results.

Much of common wisdom surrounding LCA-based fuel standards is based on shallow understanding of the models used to estimate fuel carbon intensity. The devil really is in the details here. If we truly want to mitigate climate change, these details must be understood.

## My background

I am a consultant and retired UC Berkeley researcher whose work has focused on the life cycle assessment of biofuels for more than 15 years. I co-authored both parts the 2007 UC study of the California Low-Carbon Fuel Standard (LCFS) [18, 19], consulted to CARB for many years on implementation of the LCFS, and was the primary author of the AEZ-EF carbon accounting model [20, 21] used in setting biofuel CI values in both the California LCFS and Oregon CFP. I have consulted for EPA's Office of Transportation and Air Quality on their biofuel and land-use change modeling efforts for the past seven years. I have authored or co-authored numerous peer-reviewed articles and book chapters on life cycle assessment of biofuels and bioenergy [9-11, 22-33] and related policy [34-38], including my doctoral dissertation [39].

*Richard Plevin, Ph.D.*
*Portland, OR*

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April 12th, 2022

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Submitted electronically via CFP.2022@deq.state.or.us

**RE: Smart Charging Technologies LLC Comments on DEQ March 31st 2022 Rulemaking Advisory Committee Meeting #3**

Dear Ms. Cory Ann Wind,

Smart Charging Technologies LLC ("SCT") appreciates Department of Environmental Quality (DEQ) Staff's commitment to well-organized stakeholder meetings with ample opportunities for public input. The following comments are in response to the Rulemaking Advisory Committee (RAC) Meeting #3 held on March 31st, 2022.

We look forward to further discussion during upcoming workshops and the next RAC meeting.

**Our comment is related to proposed item "10. Create hierarchy for credit generation (OAR 340-253-0300 series)"**

> **Description:** For several of the fuels, the entity that is eligible to generate the credit is unclear, including entities that can be the charger or fueling dispenser owner or operator or the fleet owner or operator. This has become an issue when two entities attempt to register the same FSE.
>
> **Proposal:** DEQ is proposing that the following entities have the first right to generate the credits for the following categories:
>
> **Electricity**
> For non-residential electric charging, other than specified below, the owner of the electric-charging equipment
> For Public Transit including electricity used to power fixed guideway vehicles such as light rail systems, streetcars, and aerial trams, or transit buses, the transit agency
> For Forklifts, the forklift owner
> For Transportation Refrigeration Units, the owner of the electric transportation refrigeration unit
> For Electric Cargo Handling Equipment, the owner of the electric-charging equipment

- **"For Electric Forklifts, the forklift owner"**

  We are of the opinion that favors having the Fleet Operator have the first right to generate credits. We see obvious drawbacks to giving the first right to generate credits to the forklift owner:

- Prone to potential conflicts due to multiple claims for the same charging. In case of eForklifts operating at a certain facility, these forklifts may have different owners, where they may be owned by a fleet owner; rented or leased by the fleet operator. In case where the rental fleet owner has already registered some of his forklifts at the facility, the fleet operator (or owner of the electric-charging equipment) will have difficulty registering trucks at the facility, and it requires verification to ensure the rentals are not reported twice. While this could be resolved in the lease contract, these leases, commonly, do not reference credit generation and they run for several forward years. In such case, it would be difficult to manage how to report the electricity used by each eForklift; having the fleet operator (or electric-charging equipment owner) report the electricity consumed by all forklifts will simplify the issue and will insure smooth and no duplicated reporting.

- It is common to register the FSE in the electricity (none forklift) and other tracks as the fuel dispensing equipment; in the case of Forklift Trucks that would be the charging equipment. We also favor having the owner of the charging equipment to have the first right to generate credit based on the above discussion.

- **For Transportation Refrigeration Units, the owner of the electric transportation refrigeration unit**

  - We are of the opinion that favors having the Fleet Operator or the owner of the metering equipment to have the first right to generate credits for the same reasons mentioned in case of eForklifts hereabove.

  - Additionally, we are having additional complexities due to requiring registering eTRUs by owners and at every location they stop at. For example, an eTRU owner has 150 eTRUs visiting 12 locations. This means we must have 1800 registration records. This is prone to errors and hard to manage. We propose to drop the location requirement or find another way, where we do not have to deal with this huge number of registration records, as done with eForklifts.

Thank you for this opportunity to submit comments. We look forward to continued participation and discussion in upcoming workshops.

Sincerely,

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April 15, 2022

**RE: Clean Fuels Program Expansion - RAC Meeting #3 Comments**

DEQ Clean Fuels Program Staff,

Thank you for the opportunity to provide written comments following the Department of Environmental Quality (DEQ)'s third Clean Fuels Program Expansion Rulemaking Advisory Committee (RAC) meeting. On behalf of the undersigned organizations, we write to express our strong support for expanding the Clean Fuels Program (CFP)'s carbon intensity reduction targets to help achieve our state's science-based climate pollution reduction goals.

**Carbon Intensity Reduction Targets:**
**We urge DEQ to consider adopting stronger carbon intensity reduction targets that more adequately reflects the level of ambition that science demands.**

The latest U.N. Intergovernmental Panel on Climate Change (IPCC) report stated that current policies to limit climate emissions will not be sufficient to avoid catastrophic and irreversible climate impacts. While we applaud DEQ's proposal to extend and increase the CFP's carbon intensity reduction targets to 20% below 2015 levels by 2030 and 37% below 2015 levels by 2035, we see this as the minimum level of ambition that DEQ should strive for.

While DEQ's proposed targets are the most ambitious of the scenarios modeled in ICF's illustrative compliance scenarios, ICF's modeling assumptions were based in conservative estimates. For instance, Scenario C of ICF's modeling assumed merely compliance with existing SB 1044 and existing medium-duty and heavy-duty electric vehicle policies and only up to 35% renewable fuels, which likely will be exceeded by 2030 and 2035. With these or other assumptions, a higher carbon intensity reduction beyond 37% below 2015 levels by 2035 could be easily achievable– and would maximize other benefits achieved under the program, including economic investment, job growth, and improved public health outcomes.

DEQ's Clean Fuels Program Expansion provides a crucial opportunity to achieve significant emissions reductions from Oregon's top polluting sector: transportation. By establishing a strong carbon intensity target for the program, DEQ will help create jobs in the clean fuels economy, improve public health by reducing harmful co-pollutants from tailpipe emissions, and invest in local communities and economies. Strong carbon intensity reduction targets are essential to the Clean Fuels Program and for moving the needle on climate emissions and co-pollutant reductions in the transportation sector.

**Fuel Pathway Considerations:**

**To maximize climate emissions reductions, health benefits, and cost-effectiveness, carbon intensity reduction targets can and should be achieved through electrification as much as possible**.

While an ambitious carbon intensity reduction target serves as the backbone of the Clean Fuels Standard, we also urge DEQ to be thoughtful about the potential fuel pathways that could achieve these targets. Specifically, it is important to note that increased carbon intensity targets do not guarantee any given fuel pathway.

Likewise, in order to maximize emissions reductions and co-benefits under this program, it is critical to ensure that–as the Clean Fuels Standard gets stronger–early investments in the program do not result in perverse long-term consequences. We therefore urge DEQ to be cautious not to reward early emissions reductions that may not achieve meaningful carbon intensity reductions in the future. There may be a lot of competition for RNG throughout the economy, and transportation may not be the highest and best use for these limited molecules.

**Advance Crediting Provisions for Hydrogen:**

**Hydrogen fuel cell vehicles should not be added to the advanced crediting provisions since most hydrogen is produced using fossil fuels.**

The advanced crediting provision that DEQ adopted in its 2021 Clean Fuels Transportation Electrification rulemaking is meant to incentivize zero emission vehicles that have a path to a carbon intensity of zero. As DEQ noted in its RAC meeting #2 memo, producing hydrogen has a wide range of carbon intensities associated with it. While hydrogen has no tailpipe emissions, if produced using natural gas (as is currently the case for 95% of hydrogen production), **it is not** a source of low-emission fuel (even when accounting for carbon capture).

While our organizations supported advanced crediting for battery electric charging in DEQ's 2021 transportation electrification rulemaking, this was with the understanding that Oregon's electricity grid would soon be on its way to transitioning to 100% clean, zero-emitting energy sources (as mandated by the legislature in HB 2021). Hydrogen production is still in its infancy and the Clean Fuels Program should not incentivize hydrogen production that is not 100% renewably-sourced, as this may lead to unintended consequences of creating fossil fuel-derived hydrogen infrastructure that will not help us meet our greenhouse gas emission goals. In general, we would discourage allowing advanced crediting for fuels that do not come from a 100% clean energy source.

**The Price of Clean Fuels Program for Oregonians:**

During the initial development of Oregon's Clean Fuels Program, the oil industry threatened that this policy would result in a $1 per gallon increase in gas prices. Instead, the reality has been mere pennies on the gallon to achieve the benefits of cleaner air, more energy independence, fewer greenhouse gas emissions, and more economic development in Oregon. Specifically, the

Clean Fuels Program increased gas prices by a mere 3.7 cents per gallon in 2020, while reducing over 5 million metric tons of greenhouse gas emissions over the life of the program.

As oil and gas industry proponents once again attempt to capitalize and shift blame on high oil and gas prices today to try to slow-roll DEQ's CFP expansion, we urge you to remember that price fluctuations do not happen in a vacuum, but rather on a global scale. International events, including climate disasters, drive prices at the pump--not environmental protections in Oregon.

Stronger carbon intensity targets under the Clean Fuels Program will help protect Oregonians from current gas price volatility and future price fluctuations. The more we can move toward electric vehicles, the less we have to worry about the price of oil and gas being determined half a world away. Electrification and cleaner ways of making those fuels exist right here in Oregon. The Clean Fuels Program will help us deploy those technologies at scale, providing cost-savings, job creation, and healthier living environments for people and families across Oregon.

While arguments that the Clean Fuels Program is hurting Oregonians at the pump, this pennies increase is miniscule compared to the over two dollar increase per gallon that gas has incurred in the last year alone. If we want to ensure that Oregonians have stable fuel prices that do not limit their ability to access their transportation mode, we should be focused on how to transition Oregonians off volatile priced fossil fuels and into active and electric modes of transportation.

In addition to reducing greenhouse gas emissions in the transportation sector, the Clean Fuels Program has been accelerating the pace of the transition to electric vehicles by directing utility generated credits towards projects that support electric school bus purchases, public charging infrastructure, electric bike rebates and more. We urge the Clean Fuels Program to continue supporting transportation electrification by encouraging utilities to fund affordable (cost parity to at-home charging) and accessible public charging infrastructure in underserved areas such as low-income, BIPOC and rural communities. Many lower-income Oregonians without access to at-home charging continue to pay for higher electric vehicle charging even though they should be paying the least.

Thank you for your work and for the consideration of our comments. We look forward to continuing to work with you to ensure a healthy future and a stable climate for all Oregonians through the establishment of a strong Clean Fuels Program.

Sincerely,

Victoria Paykar
Climate Solutions

Stuart Liebowitz
Douglas County Global Warming Coalition

Annabel Drayton
NW Energy Coalition

Nora Apter
Oregon Environmental Council

Julia DeGraw
Oregon League of Conservation Voters

Jeremy Martin
Union of Concerned Scientists

Sergio Lopez
Verde

Philip H Carver, Ph.D.
350 Salem Oregon

April 15, 2022

Oregon Department of Environmental Quality (DEQ)
Oregon Clean Fuels Program (CFP)

Re: Comments on Clean Fuels Program March 31, 2022 Proposed Amendments Advisory Committee Meeting

Dear CFP Team:

Thank you for this opportunity to comment on the materials and discussion related to the Clean Fuels Program expansion. Please find several comments below. For clarifications or questions, please contact Julie Witcover.

Sincerely,

Julie Witcover, Ph.D.
Assistant Project Scientist, Policy Institute for Energy, Environment, and the Economy
University of California, Davis, California, USA

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- *Proposed targets.* The CFP affords DEQ considerable latitude – in the form of "off-ramps," safety valve provisions, and fuel supply forecasts – to respond to new circumstances that might impact program compliance or its cost, a factor worth being cognizant of while setting targets. That said, it is also worth noting that the market has little experience to date in their application, and the impacts of their use on the market signal for innovation investment is not known. Over-reliance on them in setting targets could inadvertently introduce an element of policy uncertainty. Moreover, while the illustrative compliance scenarios highlight a number of fuel mixes for compliance, the approach does not consider uncertainty in future demand scenarios for transport fuels, which could have a substantial impact on volumes of alternative fuels required to meet the targets. As suggested in DEQ's memo, target-setting decisions are closely tied with those on additional credit generation (addressed below). To the extent possible, outlining a process for DEQ to monitor the impact of the new targets to adjust is helpful; the 2029 review is a good milestone for this.

- *Review.* While not part of the rulemaking, the recent DEQ CFP program review was summarized in the recent meeting. Emission reductions credited in the program are based on CI scores – estimates of lifecycle emissions. The scores sometimes favor incentives for action rather than real-world impacts, such as in the case of opt-in utility electricity credits, that may not completely reflect the electricity mix used for charging. CI

scores do not fully account for all emissions as a result of the program, for instance, and rebound effects or consumer behaviors could impact how much of the reference fuel actually is displaced by an energy equivalent amount (if, e.g., someone shifted from public transit to use of an electric vehicle). Full analysis of emissions impacts of the program would need to acknowledge and attempt to address these issues.

- *Ideas for additional credit generation.* Several of the ideas presented follow existing crediting schemes in the California LCFS. For CCS pathways, a robust protocol that addresses permanence and provides insurance against leaked emissions would help safeguard environmental integrity. For crediting refinery or oil production projects, not that this would introduce a new offset element in the CFP, since credits are awarded for emissions reductions vis-a-vis a facility baseline, rather than the annual CI benchmark (standard), as is the case for other alternative fuel activities, making the credit/deficit balance less indicative of average rated CI for the fuel pool. An implication is that the same activity would generate the same number of credits over time, even as the CI benchmark drops. This is different from the situation with maintaining a status quo for alternative fuels, where credits generated would decline with the more stringent CI benchmarks over time. Crediting farm-level management practices is a new approach. Having a default CI score for this aspect that individual farms may diverge from raises potential for self-selection to lower-than-default scores, while farms above that level choose the default, introducing a downward bias into the program's emissions accounting, that program design should address. Activities related to land management and ensuing changes in soil carbon stocks are likely more difficult to measure and face challenges of sequestration permanence. In short, this is a promising area; the approach to measuring, verifying, and crediting in the program deserves more development and public discussion. There are also methodological issues: although CFP and LCFS currently account for farm management practices as part of their direct LCA, the EPA LCA methodology for the RFS addresses all land and farm management emissions using a consequential approach, so that knock-on changes beyond farms where feedstock is grown are considered. Finally, if additional crediting opportunities are opened up, accurate carbon accounting would also argue for revisiting the potential for evaluating reference fuel CI scores more regularly, and if they increase, assessing deficits (the "incremental deficit" approach used in California's LCFS).

- *Additional proposals under consideration.* Advanced Credits for Hydrogen - consider limiting to hydrogen with a CI score below a certain threshold (as occurs in California).

WSPA
**Jim Verburg**
Senior Manager, Fuels

April 15, 2022

Sent via e-mail to: CFP.2022@deq.state.or.us

Ms. Cory-Ann Wind
Oregon Clean Fuels Program Manager
Oregon Department of Environmental Quality
700 NE Multnomah Street
Portland, OR 97232-4100

Re: WSPA Comments regarding DEQ Clean Fuels RAC Meeting #3

Dear Cory Ann:

Western States Petroleum Association (WSPA) appreciates the opportunity to provide the Oregon Department of Environmental Quality (DEQ) with our feedback from the Clean Fuels Program (CFP) Rulemaking Advisory Committee (RAC) Meeting #3, held on March 31, 2022. WSPA is a non-profit trade association that represents companies that explore for, produce, refine, transport and market petroleum, petroleum products,natural gas, and other energy supplies in Oregon and four other western states.

**Proposed Targets (Slide 22)**

DEQ proposed a CI target reduction of 37% by 2035. This is 12% more stringent than the Governor's Executive Order of 25% reduction by 2035 and would represent an extremely severe CI reduction of 17% over 5 years (i.e., concerns regarding projected EV sales and availability of biofuels). WSPA believes that a 37% target reduction by 2035 is unrealistic and could potentially result in volatility in the LCFS program and transportation energy sector. This volatility could be exacerbated if DEQ is forced to invoke frequent or drastic cost containment provisions because of target setting that is overly optimistic. We strongly encourage DEQ to set the 2035 CI reduction target to be no more stringent than the Governor's Executive Order (EO) 20-04 target of 25% reduction. On its own, the EO 20-04 25% by 2035 reduction target which is currently the most stringent CI target on the West Coast will be a challenge to achieve.

**Proposal #1.a – PTD Language (Slide 28)**

With regard to the Product Transfer Document (PTD) language, WSPA does not support a requirement of a specific location for the destination. Rather we recommend that the PTD destination documentation be generic in nature, such as "Oregon Destination", "Export out of Oregon" or "Destination Unknown" as there are instances where the transferor does not know the final destination of the fuel.

**Proposal #2.5 – Renewable Hydrogen Definition (Slide 29)**

WSPA suggests that the definition of "Renewable Hydrogen" be expanded to allow renewable fuel gases. In doing so, the CFP would then recognize in the regulatory language a variety of options for renewable feeds to a hydrogen unit. Beyond simply a narrow definition of biomethane, renewable hydrocarbons such as biogenic ethane, biogenic propane, biogenic butane, biogenic pentanes, or a mixture of thereof processed by a steam methane reformer will generate renewable hydrogen.

An example of such an application would be the processing of the light hydrocarbons (offgas) from a renewable diesel plant through a steam methane reformer to produce renewable hydrogen. Such light hydrocarbons could contain biogenic propane and other biogenic hydrocarbons.

**Proposal #14 – Documentation for Credit Transactions (Slide 34)**

WSPA is not supportive of the proposed language requiring contracts be uploaded for transfer of credits that occur 10 days after the contract was signed. This approach is overly expansive when DEQ is trying to obtain very specific and limited information. Instead, WSPA recommends that Oregon follow California's lead.

In California, a reporting party must choose whether the credit transfer is for a sale or transfer of Low Carbon Fuel Standards (LCFS) credits for which the delivery will take place either more than or less than 10 days from the date that the parties entered into the transaction agreement. If the sale or transfer of LCFS credits takes place more than 10 days from the date the parties entered the agreement, then reporting entities must provide the following information:

- Transfer agreement date.
- Number of credits.
- Price per credit or terms of pricing.
- Whether it is a single credit delivery or multiple credit delivery.
- Agreement termination date.

This approach enables CARB to get the information that they need to understand current credit pricing without requiring the reporting of confidential business information (CBI).

**Proposal #15 – New Transaction Types (Slide 35)**

WSPA believes that it is optimal to add new transaction types during a rulemaking process as the CFP is not expected to need to create new transaction types frequently. Further, new transaction types impact contracts between regulated entities. Thus, new contracts would need to be established and agree upon regulated entities as a result of the new transaction types. In addition, the Oregon Fuels Reporting System (OFRS) and regulated entities need to be upgraded and thoroughly tested before a new transaction type can be fully implemented.

WSPA would also like to request that any changes to the CFP allow 3-6 months for implementation after the close of the 30-day comment period proposed by DEQ. The CFP reporting is a quarter behind and as a result any changes that are made to the program need to consider that participants will need to update contracts and ways of working to allow for the program changes.

If DEQ moves forward with the process to add new transaction types in OFRS as outlined in Proposal #15, WSPA recommends that DEQ limit the reporting utilizing the new transaction types for future transactions. DEQ should not require re-reporting for transactions completed prior to the CFP change.

**Proposal #16 – Post Verification Credit Adjustment (Slide 36)**

WSPA generally supports the post-verification credit generation adjustment to the carbon intensity and true-up the CFP credit generation for fuel pathway verified with a CI lower than 1 gCO2e/MJ the certified CI value. If the third party verification shows that the verified CI is lower than the certified CI, then the fuel pathway code (FPC) should be updated to reflect the verified CI and any fuel

reported against that FPC in the future should be able to generate credits in accordance with the lower CI. This will accomplish two things: publicly announce that additional credits have been generated and allow entities other than the fuel producer to generate credits against the actual CI going forward.

In addition, WSPA recommends that DEQ consider regulatory language that in the event a verified CI is higher than the certified CI (and subject to Post Verification Credit Adjustment), the fuel pathway holder would not be considered out of compliance and subject to investigation.

Finally, the proposed language appears to limit the new credits to be issued to the fuel producer itself or fuel pathway holder and allows them to determine whether they wish to distribute the credits to other parties. If additional credits are generated against a FPC, then contractual language between the parties may require that the credit generator be allocated some, if not all, of those credits. WSPA believes that the CFP should ensure that all parties who may be entitled to credits under a contract are aware of the additional credits generated.

WSPA appreciates the opportunity to provided comments on this important proposed regulation. If you have any questions regarding this submittal, please contact me.

Sincerely,

James Verburg
Sr. Manager, Fuels
WSPA