

Oregon Clean Fuels Program Expansion 2022

Summary

Rulemaking Advisory Committee Meeting #1

Date Dec. 9, 2021, 10 a.m. - 4 p.m.

Location: Zoom Webinar

RAC Members in attendance

- Maya Kelty, 3 Degrees
- Dan Bowerson, Alliance for Automotive Innovation
- Mark Bunch, bp
- John Thornton, Clean Future
- Victoria Paykar, Climate Solutions
- Michael Graham, Columbia Willamette Clean Cities Coalition
- Mason Murphy, Confederated Tribes of the Umatilla
- DJ Builta, Ed Staub
- Jason Heuser, EWEB
- Lindsay Fitzgerald, GEVO
- Jeff Rola, Go Bio
- Floyd Vergara, National Biodiesel Board
- Alex Schay, NW Alliance for Clean Transportation
- Jana Gastellum, Oregon Environmental Council
- Mike Freese, Oregon Fuels Association
- Jana Jarvis, Oregon Trucking Association
- Greg Alderson, PGE
- David Breen, Port of Portland
- Curtis Powers, REG
- Michelle Detwiler, Renewable Hydrogen Association
- Sam Wade, RNG Coalition
- Jessica Hoffman, RPMG
- Jeremy Martin, Union of Concerned Scientists
- Sergio Lopez, Verde
- Jessica Spiegel, Western States Petroleum Association
- Matt Solak, Pacific Propane Gas Association
- Kent Hartwig, REG, Alternate
- Martina Steinkusz, Renewable Hydrogen Association, Alternate
- Tom Umenhofer, Western States Petroleum Association, Alternate

DEQ staff/facilitators in attendance

- Colin McConnaha, Office of GHG Programs Manager
- Cory-Ann Wind, Clean Fuels Program Manager
- Bill Peters, CFP Markets Analyst
- Kiara Winans, CFP Pathways Specialist
- Stephanie Summers, CFP Reporting Specialist
- Jamie Damon, Senior Facilitator
- Gillian Garber-Yonts, Facilitation Team



State of Oregon
Department of
Environmental
Quality

Oregon Clean Fuels Program

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Rulemaking Email:

CFP.2022@deq.oregon.gov

Program web page:

<https://www.oregon.gov/deq/ghgp/cfp/Pages/default.aspx>

Agency web page:

www.oregon.gov/DEQ

DEQ is a leader in restoring, maintaining, and enhancing the quality of Oregon's air, land, and water.

List of handouts and presentation notes

- Agenda
- Presentation
- Charter

Time	Topic
9:45 a.m.	Webinar Setup and Login
10 a.m.	A. Welcome and Introductions
11:15 a.m.	B. Committee Business
11:30 a.m.	C. Overview of Scope of the Rulemaking
12:15 p.m.	Lunch
1 p.m.	D. Overview of the Long-Term Illustrative Compliance Scenarios
3 p.m.	E. Scope of the Rulemaking - Detail
3:30 p.m.	F. Public Comments
3:50 p.m.	G. Next Steps
4 p.m.	Adjourn meeting

Welcome and Introductions

Jamie Damon, Lead Facilitator, welcomed the RAC members and the audience to the DEQ Clean Fuels Expansion RAC Meeting #1. She shared brief instructions on using the Zoom webinar platform, reviewed the meeting agenda, shared an overview of the meeting guidelines, and provided instructions to the public on sharing their comments and questions during the meeting.

Jamie asked the attendees to open a web browser and go to “Menti.com”, to respond to a poll asking them to share their affiliation with the group.

RAC members shared their name, affiliation, and their interest in the rulemaking process. RAC members were also asked to share the name of their alternate.

Committee Business

Jamie Damon went through the meeting ground rules and the Clean Fuels Program Expansion 2022 Rulemaking Advisory Committee Charter. She asked for any discussion or questions on the document. No RAC members shared any comments.

Cory-Ann Wind, Oregon Clean Fuels Program Manager, introduced herself and the Clean Fuels Program Team.

Colin McConnaha, Office of Greenhouse Gas Programs Manager, welcomed the RAC members and provided a brief opening statement.

Overview of Scope of the Rulemaking

Cory-Ann provided an overview of the scope of the rulemaking (slides #11-14 of the [presentation](#)). The following are questions and comments received on this agenda item.

Question: How will the implementation process for the Clean Fuels Program be communicated to the consumer? Access and marketing on information have lagged in the past.

Response [Cory-Ann Wind]: There are a couple of ways we do that. The membership of this RAC includes representatives that work closely with fleets and other programs that can act to share the market benefits of both the program as well as clean fuels. That is the primary way we get information out to larger fleets and users. We don't do as good of a job at marketing what the benefits of the Clean Fuels Program (CFP) are to the general public. A lot of the benefits are not necessarily reflected in retail prices and there are a lot of different factors that play in.

Comment: I really like the way Cory-Ann framed the topics, especially the need for reducing GHG emissions and the co-benefits of the program. From a human health perspective, clean fuels provide immediate impacts. Biofuels, as a class, tend to reduce harmful non-GHG emissions. As the state is aggressively pursuing electrification, it should also pursue policies to reduce immediate pollutants.

Overview of the Long-Term Illustrative Compliance Scenarios

Cory-Ann provided an introduction to the Overview of the Long-Term Illustrative Compliance Scenarios (slides #16-20 of the [presentation](#)). The following are questions and comments received on this topic.

Question: I know that Oregon's current CFP reaches a carbon intensity (CI) Score of 88.87 gCO₂e/MJ in 2025. What CI Score must Oregon's transportation fuel mix reach by 2035?

Response [Cory-Ann Wind]: That is the conversation we are having in the rulemaking process. That number hasn't been determined and is what we are asking you to provide input on.

Question: For the last bullet on slide #18, are you considering tweaking the scenarios you have?

Response [Cory-Ann Wind]: The contract with ICF is completed, but DEQ has talked about our ability to do additional internal analysis. The answer depends on the workload and the comments we receive today.

Question: With the Climate Protection Program (CPP) in Oregon, was any of that work taken into account in the CFP scenarios, or is that something we need to discuss? CPP is more of a volumetric as opposed to lifecycle.

Response [Cory-Ann Wind]: The way the scenarios were done, there were no assumptions about CPP; nothing in our analysis makes assumptions about CPP. If you want to have a conversation about the complementary nature, we can. There were assumptions about CFP in the CPP modeling. At the time they used a 25% CI reduction in 2035 in their model.

Question: One of the big challenges is that we don't live in a silo. There is a program in California and an emerging program in Washington. Fuel tends to flow where money is. Would the analysis look at how different options would level the playing field to ensure that the Oregon program is not at a disadvantage?

Response [Cory-Ann Wind]: The different jurisdictions work closely as programs are designed. The emergence of the Washington program will be a factor in how the market will evolve. There were no

economic considerations included in the modeling or adjustments for what fuels would go to which jurisdiction.

Response [Bill Peters]: DEQ's view of its policy, in conjunction with California, British Columbia and Washington, is that we are creating clear long term investment signals for alternative fuel types, as well as state demand. The combination of the standards across the West Coast show that we demand these fuels in the future, but timing will depend on the market. Part of extending DEQ targets to 2035 includes creating a clear investment signal so people are aware of the coming demand and prepare production and supply chains. We view our program as complementary to other West Coast programs.

Question: What unit is most common to use? I keep seeing mtCO_2/MWh . Is there any quick conversion factor to what you referenced?

Response [Cory-Ann]: In the transportation sector for low carbon fuel standards, we use $\text{gCO}_2/\text{megajoule}$. We have conversion factors that we can provide you with to do calculations. Please see the end of this document.

Cory-Ann provided an overview of key questions for consideration (slide #20 of the [presentation](#)). She asked the RAC members to keep these questions in mind as information is presented throughout the meeting. The key questions are listed below.

1. Does setting targets through 2035 provide sufficient long-term certainty for investment decisions?
2. What are the risks of setting the targets too low or too high?
3. Are there any community needs and health impacts that we need to take into consideration?
4. What are the supply chain considerations that we need to account for? Production capacities of different fuel types?
5. What are the time horizons for the potential commercialization of new technologies?

Philip Sheehy, Director of Transportation and Energy at ICF, presented the Illustrative Compliance Scenarios for the Oregon Clean Fuels Expansion (slides #21-51 of the [presentation](#)). The following are questions and comments received during his presentation.

Question: Is electricity/power production part of your pie chart on GHG emissions? (slide #23)

Response [Philip Sheehy]: This is a consumption-based graph. The data is categorized by sector as opposed to by fuel type. The chart includes emissions by all fuel sources.

Question: Is the carbon in biofuel not counted in calculating compliance with the standard?

Response [Philip]: The CI of biofuel is reflective of the GHG emissions attributable to the entire lifecycle of that fuel. The cultivation, harvesting, transport, and delivery of the bio-refined product to the consumer are all included. Oregon has fixed values dependent on the feedstock. Each biofuel pathway has its own CI unique to the production for that fuel.

Question: On the extraction side, is there an opportunity for other fuels to see improvements recognized in the program?

Response [Philip Sheehy]: No, because of the disparate sources of natural gas in the market. One would have to trace back to a particular well or shale. As it stands, there is an average number for natural gas. That is less relevant because most natural gas is renewable in the transportation sector. The computation effort

would be non-trivial for the low likelihood of a pathway. There are no provisions in the current Oregon CFP for regulated parties that are regulated for gas and diesel to reduce CI upstream.

Post-meeting clarification [Cory-Ann Wind]: The CI of petroleum fuels is done using the OPGEE model which contains information about energy inputs from various crude sources. There is nothing comparable on natural gas sources so we use default values for fossil natural gas.

Comment: On LCFS credits and opportunities, although there are no refineries in Oregon, volume comes from the Pacific Northwest. It is something that would be good to bear in mind and return to. Looking at modeling going forward, 85% of gasoline is fossil fuel and the majority of diesel is fossil fuel. If there is low hanging fruit, that is an opportunity that should be looked at.

Question: In slide #24, did you use a linear approach to CI reduction? Is that what you used in the scenarios?

Response [Philip Sheehy]: Yes

Response [Cory-Ann Wind]: Yes, we told ICF to do so.

Question: The carbon intensity of post-consumer feedstock, used cooking oil, is usually not counted as its carbon is already measured as part of the agriculture and commercial sector (food production). It would be counted twice if its life cycle carbon was considered for fuel.

Response [Philip Sheehy]: Not all biodiesel is created equal. The CI of biodiesel and renewable diesel, a byproduct vs. a virgin oil, vary considerably (30 g/MJ spread).

Comment: I appreciate slide #25. We want to make sure we are not double counting emissions reductions as we look across states.

Question: How are we accounting for carbon-based electricity supply used for Electric vehicles?

Response [Philip Sheehy]: The carbon intensities are determined using an Oregon modified version of the GREET model. The model is modified to reflect transportation fuel markets in Oregon. The same thing holds true for electricity as a transportation fuel. Oregon has a couple of different ways to report electricity. There is grid average which is calculated by DEQ as well as a utility specific CI for the publicly owned utilities. If you are operating an EV in a municipal territory, you can generate credits.

Response [Bill Peters]: For the electricity sector, here's the most recent [document](#) for the calculation of the statewide mix and various utility-specific carbon intensities.

Post-meeting clarification [Cory-Ann Wind]: Oregon has both statewide grid mix electricity and utility-specific electricity carbon intensities. Utilities report to DEQ's Greenhouse Gas Reporting Program on the mix of sources of their electricity and CFP uses those values to calculate carbon intensity values. This is outlined in the document referenced by Bill Peters.

Comment: One of the Confederated Tribes of the Umatilla Indian Reservation's concerns is that electrification of vehicles will drive further demand on the hydroelectric system. We would like to see hydroelectric energy excluded from the clean fuels crediting.

Question: Can fuel not currently regulated by the program (marine, locomotive, etc.) opt in to generate credits for biofuels?

Response [Bill Peters]: There are limited provisions around some fuel uses and those being opted in or not excluded. For marine, DEQ decided to allow shorepower for crediting during the last rulemaking. The rule allows for vessels plugged into the grid to qualify.

Post-meeting clarification [Cory-Ann Wind]: There are some places in the regulation that allow for this but not universally. In addition to the shorepower example that Bill references, provisions allow for credit generation from sustainable aviation fuel without also counting the deficits from petroleum-based aviation fuel. More thought needs to be put into what the impact of extending this to other situations.

Comment: It looked like renewable propane was missing on slide #30.

Response [Bill Peters]: Renewable propane is accounted for in the model. It is a relatively small amount of fuel consumed and does not show up in the graphs.

Question: Is the fleet data used in the modeling available to the public? I would like to see the share of VMT and emissions attributable to vehicle type such as school and transit buses.

Response [Bill Peters]: On the question about fleet data and what data is available -- VISION (<https://www.anl.gov/es/vision-model>) groups vehicles by type and weight class, but it doesn't have the granularity of more specific categories like buses or garbage trucks. I believe we also have some limitations on the underlying truck data that don't as clearly identify the type.

Post-meeting clarification [Cory-Ann Wind]: The local fleet data was used primarily to calibrate the national models. They are not available to the public.

Question: Does the model include any CCS pathway assumptions for ethanol?

Response [Bill Peters]: A little bit.

Question: On slide #32, under renewable diesel, you are talking about blend rates. To my understanding renewable diesel is not blended.

Response [Phillip Sheehy]: That depends on the marketer.

Post-meeting clarification [Cory-Ann Wind]: These are blend rates. Renewable diesel can be blended at any percentage with fossil diesel. Most of the time, the terminal can blend renewable diesel at a specified rate for their customer.

Comment: On slide #33 if you are going to take “scenario A” or “scenario C” you will need to move to 60,000 heavy duty and medium duty electric trucks by 2035. Electric trucks don’t have the range that we need in Oregon.

Response [Philip Sheehy]: Those are the number of vehicles projected for compliance. The advanced clean truck rule requires a certain number of medium and heavy-duty vehicles sold to be zero emission. That is the anticipated compliance schedule that is in place in Oregon and is the expected compliance outlook.

Comment: We need to keep talking about that. That is more than the market would call for.

Question: On slide #32 you show a 10% biodiesel blend rate in all three scenarios. Can you help me understand where the 10% comes from?

Response [Philip Sheehy]: The market is around 7-9% blended right now.

Response [Bill Peters]: DEQ has data on statewide diesel and biodiesel consumption. Biodiesel has made up roughly 10 percent of consumption during the last four quarters.

Comment: Renewable Energy Group is a concerned with the 10% blend level. We have seen a consistent 10% statewide blending average for biodiesel. We think we can push higher. States are regularly doing 20% blends. As you look at higher blends and technology like Optimus, which allows for 100% biodiesel, there is room to go higher.

Question: At one time there was an effort to distribute conversion kits to adapt regular gas engines to run as flex fuel. I believe that EPA killed that pathway. Is it possible to revisit this effort?

Response [Philip Sheehy]: CFP is a “fuels regulation” not an “engine regulation” so that would probably be left to the market. Nothing about this regulation is related to engines or engine conversions.

Response [Cory-Ann Wind]: If you do have information and could pass that along we can check into it.

Question: In the ethanol scenarios, what was the date by which the CI value would decrease to 50 g/MJ?

Response [Philip Sheehy]: It is 2025.

Question: Scenario C included hydrogen correct? I didn't see any H2 in the modeling.

Response [Philip Sheehy]: Correct, it is used as a part of the compliance pathway for the medium and heavy-duty trucks. You can see the breakdown on the results slides.

Comment: We'll have to work on that timing assumption, it's way too conservative. Philip said we weren't really seeing hydrogen use as a fuel until 2033. In Washington, there will likely be upwards of three hydrogen refueling stations in the next few years. Truck manufactures will have trucks on the market by 2024. I made similar comments on ODOT's study noting that time horizons are not as far out as some assumptions have been suggesting.

Question/Comment: Can you speak to how TriMet and the various railroad companies operating within Portland will transition? Can you point me in the correct direction to find out where they purchase their fuel and which agency monitors that? I am aware that at this time DEQ is not addressing TriMet and train fuel use.

Post-meeting response [Cory-Ann Wind]: There is no central state agency that tracks this information at a fleet level. We have worked closely with [TriMet](#) on fuels-related issues and they participate in CFP for their electric buses. TriMet recently switched to R99. They have committed to stop purchasing new diesel buses. They are testing several electric buses. They are purchasing clean electricity for their buses and light rail. Fuels used in railroads are not regulated under CFP so we have very little interaction with them.

Question: In the charts you have shown, is the assumption that post 2035 we will still have a 25% CI reduction unless there are other changes? If you have a bank depleted in 2035, that is not good for later years. Is there a technology that is currently not in these scenarios that will bring in equilibrium to the back end of the program?

Response [Cory-Ann]: DEQ didn't ask ICF to model beyond 2035. In several of the scenarios, the data shows that credits would exceed deficits in the year 2035 and beyond so there is less risk that the bank will be an important part of compliance.

Question: Are there any reports we can review that look at how much additional electrical demand EVs will place on the grid to reach the 2035 scenario under Scenarios A, B, and C?

Response [Philip Sheehy]: Yes, we report kilowatt hour (kWh) and diesel gallon equivalent (DGE) values, but that information is not distributed. It would be a course consideration. That type of analysis requires us to know when charging is occurring. The report includes the demand.

Response [Bill Peters]: It was relatively small compared to what we currently consume.

Response [Cory-Ann Wind]: Slide #46 has that information. Also, see the end of this document.

Post-meeting response [Cory-Ann Wind]: The factors used to convert kWh to dge are located in Table 6 (energy densities of fuels) under [OAR 340-253-8010](#). Please let us know if you would like us to help with this.

Question: Why is there no CI reduction line on charts for scenarios A & B?

Response [Cory-Ann]: That is because in Scenarios A and B, we assumed a 25% CI reduction in 2035.

Question: There are a lot of moving parts and dependencies related to future capacity constraints. One scenario is a massive shift to electrification and the necessary upgrades to meet that are challenging. Jana brought up a good point that long haul trucks are not currently a good fit for electrification. With another major user coming online, we are having trouble finding supplies. Is there one more scenario that is favored based on the ability to ramp up to meet demand?

Response [Cory-Ann Wind]: That is what we want you to provide input on. We have some reports, but the Oregon market has different trends than country wide estimates. We think it is favorable for lines to appear. It is an issue of timing, not just a matter of 2035, but timing between 2025 and 2035. That is the type of feedback we want.

Comment: The grid capacity needed to charge class A trucks is largely unknown today. The electric trucks you are hearing about have 1/10 the range of a diesel truck. It will not be an easy conversion for Oregon carriers. The Oregon market and demand is different than California. I am concerned about grid capacity for those operations that are able to move to battery and electric. It is interesting to talk about hydrogen, but there are no available hydrogen trucks on the market today. The transition takes a while and 2035 seems inconceivable.

Comment: I want to put this in perspective. We want to look at these three scenarios which are bracketing what may happen under a variety of situations. When we look at the scenarios, we are asking is there something that you think might not be reasonable to include, or is there something you could add? These scenarios are not intended to reflect what is going to happen, but rather bracket what will happen. Our job is to look at the scenarios to see if there is something in there that could get us closer to reality for that particular scenario.

Response [Cory-Ann]: Absolutely, you all have expertise and that is valuable. We are trying to establish what the targets are going to be, these scenarios give you ideas of what they could be. We don't have a predetermined number we are shooting for. DEQ wants you to think about your vision for what 2035 could be.

Comment: We have seen how technology innovation and policy can create conditions for change. I think we should be as forward looking as possible. The status quo is very energy intensive. Internal combustion

engines are still more energy intensive than zero emission vehicles. When we look systemically, we are seeing lower demand for energy overall. There are advantages to thinking about transitions from a systemic perspective. It is not easy to maintain the current status quo. I think we should be looking as ambitiously as possible.

Comment: EWEB just finished doing an electrification study. We ran base case electrification that was 85% penetration for light duty vehicles. We did an aggressive scenario at 95% electrification for light duty vehicles. If it is managed, our study shows a 17% increase in load between now and 2040. That is manageable, we just need to make sure charging is happening at the right time. There are tools coming online to manage charging. I don't see that being a concern based on the electrification study at EWEB. I think you would hear others in the utility sector say the same.

Comment: The important thing to remember is that it is a transition that happens over time, and it is load growth that utilities know how to plan for. Light duty vehicles are not likely to trigger upgrades. It is in the management of charging where we see big opportunities. Those are valid questions, and I don't want to leave them unanswered. There is a lot happening, but I think it is appropriate for the program to move forward knowing significant electrification is forthcoming in Oregon.

Comment: Currently there are no hydrogen trucks on the road in Oregon, but that doesn't mean it will be 10 more years until they are available. Some of our members have announced that they are planning to have trucks in Oregon by 2024. We have shared this info with ODOT as they are finishing their hydrogen pathways study. There are other hydrogen truck manufacturers in the US and many companies received funds from DOE in November. I have created an overview map of Oregon and WA where they have announced hydrogen public projects and there are about 20.

Cory-Ann provided a brief look at the potential for the Clean Fuels Program to achieve greater reductions (slides #48-51 of the [presentation](#)).

Detailed Scope of the Rulemaking

Cory-Ann provided an in depth look at the scope of the rulemaking and described proposed topics including reporting, pathways, electricity, hydrogen, propane, market monitoring, and enforcement (slides #52-60). Cory-Ann shared potential topics for the proposed workshops (slides #61-64) including electricity, GREET updates, Biogas and Renewable Natural Gas (RNG). Cory-Ann closed by describing topics that are out of the scope for the rulemaking (slides #65-66). The following are questions and comments received during her presentation.

Comment: I am beginning to think that light-duty trucks, delivery vehicles, and passenger cars can go battery-electric, while a combination of renewable diesel, renewable natural gas, and hydrogen fuel cell propulsion technologies can meet GHG-reduction targets in the medium and heavy-duty transportation sectors. Could this be a reasonable approach? At the end of the day, Oregon's Clean Fuels Program isn't about picking technologies; the program rewards fuels and technologies to the extent that those fuels and technologies can be proven to reduce GHG emissions.

Question: Is there a date when the EER needs to be introduced into this rulemaking session?

Response [Cory-Ann Wind]: DEQ has not discussed a deadline. We will include that in the meeting summary.

Post-meeting response [Cory-Ann Wind]: Stakeholders are asked to contact Kiara Winans (kiara.winans@deq.oregon.gov) as soon as possible to discuss possible new EERs so we can get an idea of how many and what stage of development these proposals are out there.

Comment: I would like to dig into the GREET model around electricity, specifically hydroelectric.

Post-meeting response [Kiara Winans]: Sounds good. We can discuss these during the GREET workshop.

Questions: There were two parts to the presentation, for the second part, what kind of feedback are you looking for?

Response [Cory-Ann Wind]: Many of you participated in the listening sessions where we identified areas we are considering. We incorporated those ideas with DEQ's and prioritized the list that we proposed today. Let us know if there are additional topics that we haven't considered yet, especially those that are more connected to the target setting.

Public Comments

Question: Fuel volumes should be reported. How do these volumes compare with the expected supply? What happens to demand vs supply if many other states with aggregate demand 10x or 15x greater than Oregon adopt a similar program?

Response [Bill Peters]: We have fuel volumes for all the scenarios. We believe that the fuel volumes that are in our scenarios could be met by the current and expected buildout. There is concern that other states may come in, but we will continue to monitor as things change in the future.

Question: I would like to follow up on the potential future considerations slide. What information would be helpful for DEQ to evaluate the potential to include field-based agricultural practices in the CFP such as no till, cover crops, and enhanced efficiency fertilizers?

Response [Cory-Ann]: Argonne National Laboratory is starting to look more to these farming applications in their annual updates of GREET. This is something that is evolving. As third-party verification comes on to the stage in terms of pathways, one of the questions is how those agriculture programs will be documented. We will continue to monitor.

Response [Kiara Winans]: Thank you for your question. If you have specific recommendations, please provide them in written comments. We will take your written comments into consideration.

Comment: Thanks for the opportunity for public comment.

Please consider advance credits for RNG fueling infrastructure as well, hopefully not book and claim. Just for 100% hydrogen pipelines, injection into natural gas pipelines should be considered, as this will happen first (blending). Will you consider capacity credits for hydrogen and RNG fueling? As mentioned earlier, there might be some efficiencies through allowing cross-sector decarbonization (e.g., decarbonizing transportation through RNG, create credits to apply towards CPP obligations). Do you have thoughts on including a resiliency metric for more reliable/made in-Oregon fuels to support essential services, natural disasters, etc.?

Response [Cory-Ann]: Thank you, we hope you submit comments and we have heard those questions before.

Comment: Transportation is our biggest source of climate pollution due to burning gasoline and diesel for our cars, trucks, and vehicles. The Clean Fuels Program is the cleanest and most cost-effective ways to achieve emission reductions.

Comment: Thank you DEQ for including both advanced crediting for H2 fueling infrastructure and H2 book and claim for consideration in this upcoming rulemaking. We look forward to working collaboratively with DEQ on these concepts in the rulemaking.

Next Steps

Cory-Ann requested that any further public comments be submitted by December 23, 2021. She shared that the DEQ Clean Fuels RAC #2 meeting will take place on Wednesday, January 26 and that topics will include a deeper dive on the December 9 RAC meeting topics, a discussion of any additional topics from the December 9 RAC meeting, and a presentation by UC Davis on impacts of the Clean Fuels Program.

Cory-Ann thanked the RAC members and the audience for joining in the conversation. The meeting was adjourned.

Alternative formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.

Appendix: Meeting Chat

Many of these questions and responses were included in the meeting summary but are also included here for transparency of what took place in the chat.

Gillian Garber-Yonts: RAC Documents posted here:

<https://www.oregon.gov/deq/rulemaking/Pages/cfp2022.aspx>

Gillian Garber-Yonts: Menti Code: 3553 9199

Kathy Moyd: Are the presentations going to be posted?

Marc Ventura: Production means what?

Bill Peters, OR DEQ: Fuel Production

Marc Ventura: You should probably have a fuel importer category

Kathy Moyd: I'm not asked for the code.

Kiara Winans: Do we need to read the categories for those who cannot read them?

Keith Malone: Not sure where we fit, so I selected other. -Keith, California Fuel Cell Partnership

Kathy Moyd: I'm NGO

Jessica Zahnow: may be helpful in the future to have a category for utilities

Jeff Rola: Lindsay, what is GEVO?

Michael Graham: A renewable gasoline producer

Bill Peters, OR DEQ: The slides are now posted on DEQ's rulemaking website that Gillian linked to above in the chat, the direct link is here:

<https://www.oregon.gov/deq/rulemaking/Documents/cfp2022m1Pres120921.pdf>

Gillian Garber-Yonts: That link to the DEQ rulemaking website shared again:

<https://www.oregon.gov/deq/rulemaking/Pages/cfp2022.aspx>

Kathy Moyd: Thanks! I discovered I went to mentie instead of menti.

Jeff Rola: How will the implementation of the CFP be communicated to the consumer? Access and marketing have lagged in the past.

Curtis Powers: Kent Hartwig, my alternate, will be REG's panelist after lunch.

Jon Costantino: Jessica H had to step away, but will be back in 10 mins

Alex Schay: I know that Oregon's current CFP reaches a CI Score of 88.87 gCO₂e/MJ in 2025. What CI Score must Oregon's transportation fuel mix reach by 2035?

Mason Murphy: What unit is most common to use? I keep seeing mtCO₂/MWh any quick conversion factor to what you referenced, Alex?

Mason Murphy: Thanks

Bill Peters, OR DEQ: For the electricity sector, here's the most recent document for the calculation of the statewide mix and various utility-specific carbon intensities:

<https://www.oregon.gov/deq/ghgp/Documents/cfpUpdated2021CIs.pdf>

Gillian Garber-Yonts:

Does setting targets through 2035 provide sufficient long-term certainty for investment decisions?

What are the risks of setting the targets too low or too high?

Are there any community needs and health impacts that we need to take into consideration?

What are the supply chain considerations that we need to account for? Production capacities of different fuel types?

What are the time horizons for potential commercialization of new technologies?

Michelle Detwiler: Is electricity/power production part of your pie chart on GHG emissions?

Michelle Detwiler: Ok - got it, thanks!

Bob Yuhnke: Is carbon in biofuel not counted in calculating compliance with the standard?

Jeff Rola: Carbon intensity of post-consumer feedstock, used cooking oil, is usually not counted as its carbon is already measured in the in the ag and commercial sector (food production)., It would be counted twice if its life cycle carbon was considered for fuel,

Mason Murphy: How are we accounting for carbon-based electricity supply use for Electric vehicles?

Mason Murphy: I will review GREET models, thank you. To build on that, one of CTUIRs concern is that electrification of vehicles will drive further demand on the hydroelectric system. We would like to see hydroelectric excluded from the clean fuels crediting.

Bob Yuhnke: Are fleet data used in the modeling available to the public? Would like to see share of VMT and emissions attributable to vehicle type such as school and transit buses.

Kiara Winans, OR DEQ: Correct

Kiara Winans, OR DEQ: Correct was about Bill's explanation

Jon Costantino: Does the model include any CCS pathway assumptions for ethanol?

Jeff Rola: There was an effort to adopt conversion kits to adapt regular gas engines to run as flex fuel, I believe that EPA killed that pathway. is it possible to revisit this effort?

Michael Graham: Jeff, I'd like to learn more. I was under the impression that effort was ongoing. Was there a recent update?

Robert Parkhurst: In the ethanol scenarios, what was the date by which the CI value would decrease to 50 g/MJ?

Michelle Detwiler: Scenario C included hydrogen, correct? But I don't see any H2 in the modeling.

Michael Graham: Jeff Rola, this?

https://eflexfuel.com/us?gclid=EAIaIQobChMI9LmIpOHX9AIVPu7jBx1g1wJkEAAYASAAEgL40vD_BwE

Bill Peters, OR DEQ: On the question about fleet data and what data is available -- VISION (<https://www.anl.gov/es/vision-model>) groups vehicles by type and weight class, but it doesn't have the granularity of more specific categories like buses or garbage trucks. I believe we also have some limitations on the underlying truck data that don't as clearly identify the type

Jeff Rola: It was several years ago. I will go back and dig it out.

Michelle Detwiler: We'll have to work on that timing assumption, it's way too conservative'

Jone van Rees: I apologize, I am late in this workshop but have attended other DEQ meetings. Can you speak to how the public transit TriMet buses and the various railroad companies operating within Portland with their use of diesel will transition? Or can you point me in the correct direction to find out where they purchase their fuel and which agency monitors that? I am aware that DEQ at this time is not addressing TriMet fuel use and the trains. Thank you!

Mason Murphy: Philip, are there any reports we can review that look at how much additional electrical demand EVs will place on the grid to reach the 2035 scenario under Scenarios A, B, and C?

Kathy Moyd: Why no CI reduction line on Scenarios A & B charts?

Bob Yuhnke: With major role played by RD and BD, fuel volumes should be reported. How do these volumes compare with expected supply? What happens to demand vs supply if many other states with aggregate demand 10x or 15x greater than OR adopt a similar program?

Cory-Ann Wind: Kathy, because in Scenarios A & B, we assumed 25% CI reduction in 2035.

Kathy Moyd: Withdraw my comment - follows specification.

Michelle Detwiler: Hi Jamie - could you hand over panelist status to Martina Steinkusz? Thank you, I'll be dropping off.

Jamie Damon: Will do!

Gillian Garber-Yonts: Done, thank you.

David Breen: good perspective. thx

Alex Schay: So, I am beginning to think that light-duty trucks & delivery vehicles + passenger cars can go battery-electric, while a combination of Renewable Diesel, Renewable Natural Gas, and Hydrogen Fuel Cell propulsion technologies can meet GHG-reduction targets in the medium- and heavy-duty transportation sectors. Could this be a reasonable approach? At the end of the day, Oregon's Clean Fuels Program isn't about picking technologies; the program rewards fuels and technologies to the extent that those fuels and technologies can be proven to reduce GHG emissions.

David Breen: Is there a date specific when the EER needs to be introduced into this rulemaking session?

Mason Murphy: Just throwing this out there, I'd like to dig into the GREET model around Electricity, specifically Hydroelectric.

Kiara Winans, OR DEQ: Sounds good, Mason. Point noted.

Robert Parkhurst: I would like to follow up on the potential future considerations slide. What information would be helpful for DEQ to evaluate the potential to include field-based agricultural practices in the CFP, such as no till, cover crops, and enhanced efficiency fertilizers?

Jon Costantino: Can you explain a bit more on the last bullet of slide 54

Chris Kroeker: Thanks for the opportunity for public comment: 1. Please consider advance credits for RNG fueling infrastructure as well. 2. Hopefully not book & claim just for 100% hydrogen pipelines - injection into natural gas pipelines should be considered, as this will happen first (blending). 3. Will you consider capacity credits for hydrogen and RNG fueling? 4. As mentioned earlier, there might be some efficiencies through allowing cross-sector decarbonization (e.g., decarbonizing transportation through RNG, create credits to apply towards CPP obligations). 5. Thoughts on including a resiliency metric for more reliable/made in-Oregon fuels to support essential services, natural disasters, etc.?

Mason Murphy: CTUIR believes that Climate Change impacts will make less pool available for electric generation on the hydroelectric system, i.e., shift to flood control, and that using current hydroelectric demand values in the calculation as low CI source of electricity will result in an overestimate of the CI reduction for scenarios with high EV adoption in Scenarios A and B.

David Breen: Sorry....I need to jump off 5 min early. Thank you all!

Mark McLeod: Transportation is our biggest source of climate pollution due to burning gasoline and diesel for our cars, trucks, and vehicles. The Clean Fuels Program is the cleanest and most cost-effective ways to achieve emission reductions.

Robert Parkhurst: Thank you very much!

Kiara Winans, OR DEQ: @Robert Parkhurst Thank you for your question. If you have specific recommendations, please provide them in written comments. We will take your written comments into consideration.

Miles Heller: just want to thank DEQ for including both advanced crediting for H2 fueling infrastructure and H2 book and claim for consideration in this upcoming rulemaking. We look forward to working collaboratively with DEQ on these concepts in the rulemaking.

Robert Parkhurst: If someone wants to follow up with my on my question, my email is

Gillian Garber-Yonts: Thank you Robert. Your contact information has been recorded.

Victoria Paykar: thank you!

Jeff Rola: Thank you all. Comments to follow.

Jone van Rees: Thank you

Jana Gastellum: Thank you!

Mark Bunch: Thank you!