



Oregon Clean Fuels Rules Advisory Committee

Meeting #1

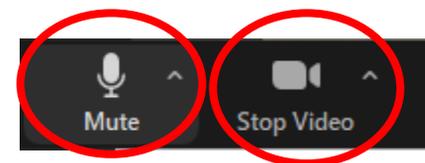
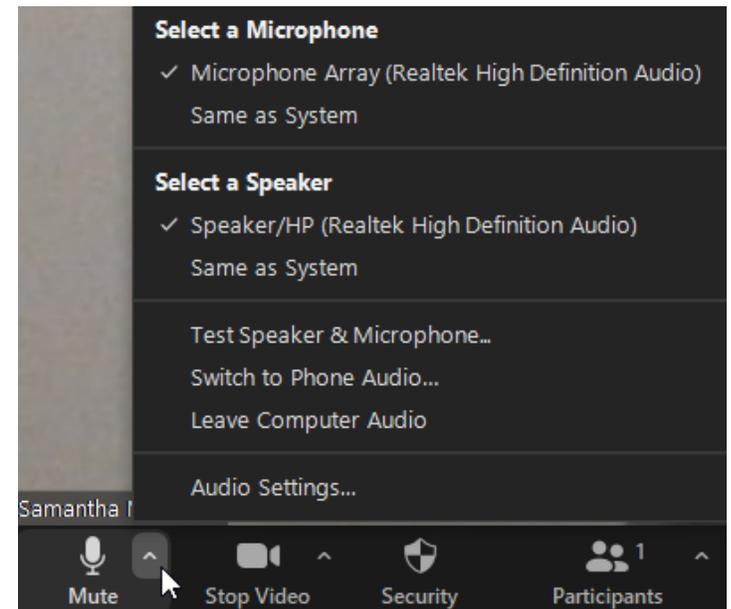
Dec. 9, 2021

10 a.m. – 4 p.m.

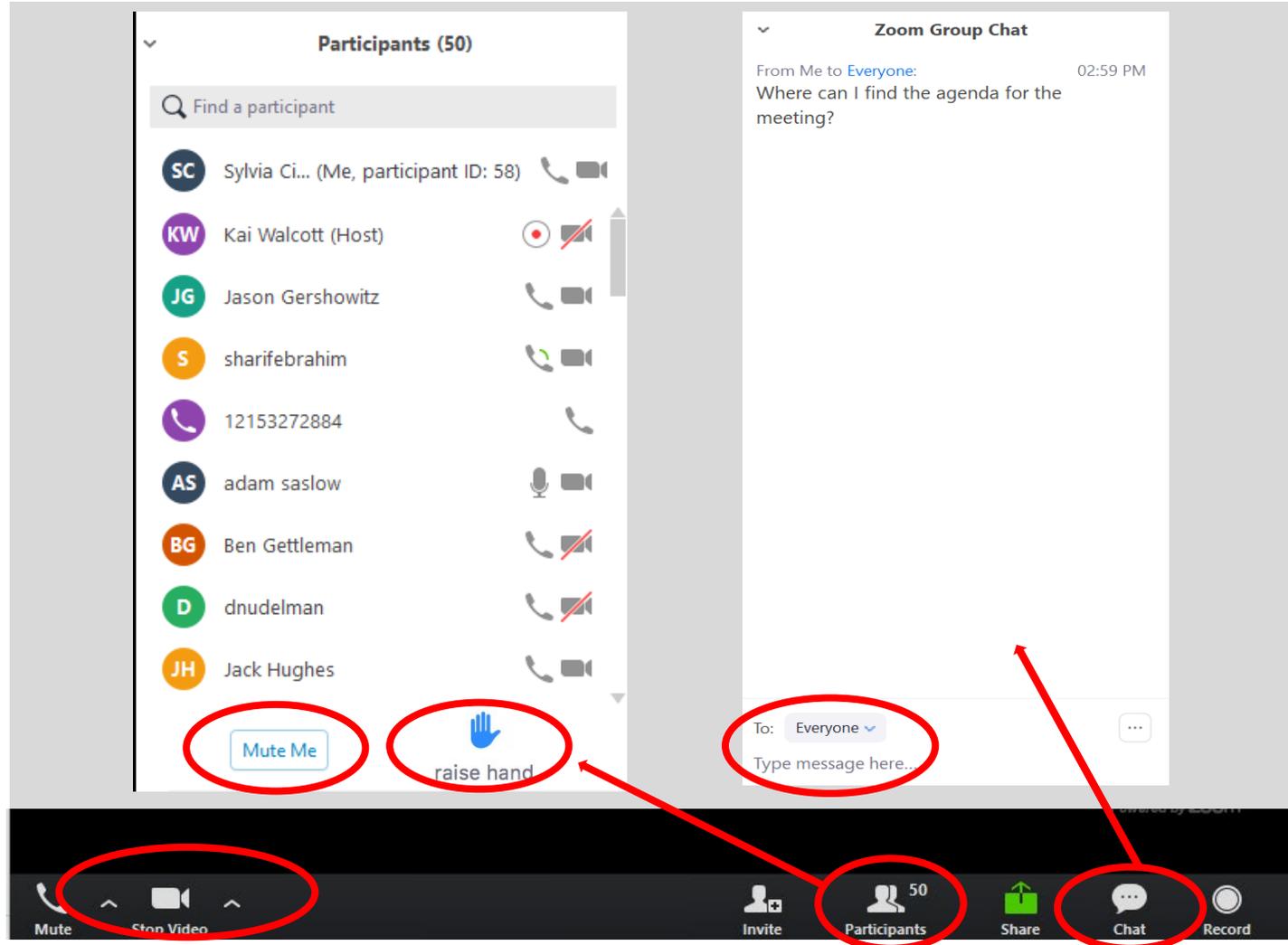
Zoom Meeting Tips

- Please see below webinar instructions and tips below:
 - If you have not already **connected your audio**, click on the arrow next to the microphone icon, then click “Join Computer Audio” or “Switch to Phone Audio” to connect your computer speakers or to view the conference line information.
 - Please **keep yourself on mute** when not speaking. To mute and unmute, either select microphone icon, or use your personal phone.
 - **Use video** if possible, to promote face to face communication. Click the video icon to turn on your webinar camera.

If you are experiencing technical difficulties, please send a text to Gillian Garber-Yonts at 206-617-7626.



Zoom Meeting Tips



- To raise your hand by phone, press *9.
- To unmute yourself by phone, press *6.

Meeting Agenda

Item	Time	Topic	Presenter
-	9:45 a.m.	Webinar Setup and Login	-
A	10 a.m.	Welcome and Introductions	All
B	11:15 a.m.	Committee Business	Kearns & West
C	11:30 a.m.	Overview of Scope of the Rulemaking	DEQ
D	12:15 p.m.	Lunch	
E	1:00 p.m.	Overview of the Long-Term Illustrative Compliance Scenarios	ICF & DEQ
F	3:00 p.m.	Scope of the Rulemaking - Detail	DEQ
G	3:30 p.m.	Public Comments	
H	3:50 p.m.	Next Steps	Kearns & West
I	4 p.m.	Adjourn Meeting	

Meeting Guidelines



Fully participate in Work Group meetings



Come prepared for meetings



Participate in an open and mutually respectful way



Balance of speaking time



Serve as a liaison to your larger community of interest



Act in good faith

Public Comment Instructions

To make verbally ask a question or make a comment:

- ▶ If you have joined by Zoom, click “Raise Hand.”
- ▶ If you have joined by phone, press *9 to raise your hand.
- ▶ The facilitator will call on participants. You will receive an “unmute” request. Please accept it. If you are commenting by phone dial *6 to unmute.
- ▶ Please provide your name and affiliation.
- ▶ Attendees will be allocated reasonable time for public comment depending on the number of commenters.
- ▶ **If we run out of time and you have not had a chance to speak, you can still provide written comments after the meeting.**



Attendees: What is your Affiliation?

RAC Meeting Attendees:

- Open a browser window on your cell phone or computer.
- Go to **Menti.com**
- Type in the code in the chat. Click “Submit”



Please enter the code

The code is found on the screen in front of you

Introductions

Please share your name, affiliation and introduce your alternate. Briefly let us know what your interest is in this process.

Welcome

Colin McConnaha, Manager

DEQ Office of Greenhouse Gas Programs

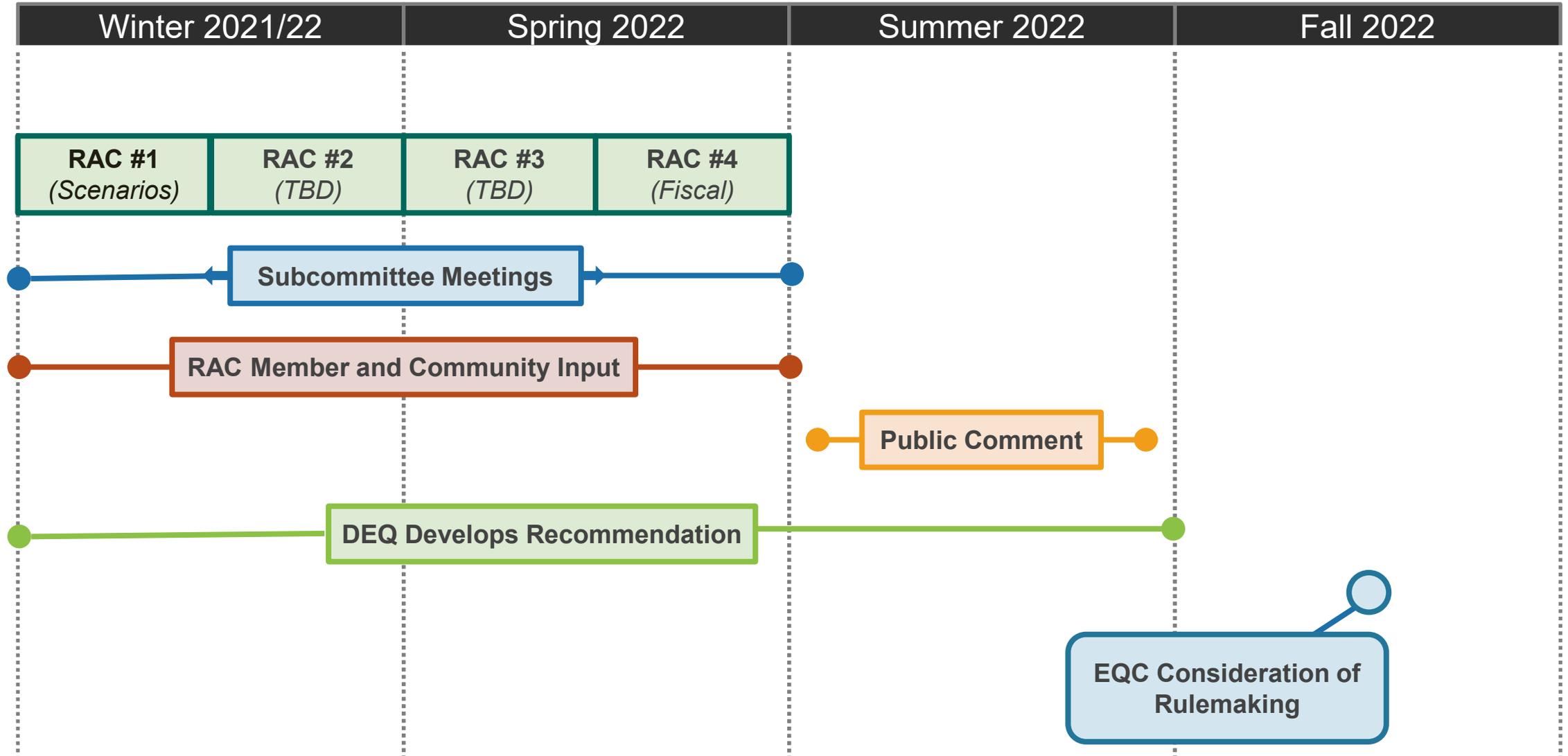
Brief Overview of Charter



Clean Fuels Program Expansion 2022 Rulemaking

Rulemaking Advisory Committee Meeting #1
Item C – Overview of the Scope of the Rulemaking
via Webinar
Dec. 9, 2021

Clean Fuels Program Expansion 2022 Rulemaking Timeline



Expanding the Clean Fuel Standards

- The primary goal of an expanded Clean Fuels Program is to continue and maximize the reduction of greenhouse gases from the transportation sector.
- There are several co-benefits associated with the expansion including:
 - Improvements to local air quality and public health outcomes
 - Transition to lower carbon liquid fuel substitutes for gasoline and diesel at commercial scale, at lower costs, and with existing vehicles and infrastructure
 - Deployment of zero-emission vehicle technologies and infrastructure
 - Reducing the total cost of ownership for fleets using alternative fuels
 - Investments made to distribute clean transportation fuels such as electric vehicle charging and propane or compressed natural gas dispensers
 - Reducing reliance on fossil fuels
- In addition to expanding the clean fuel standards, other program modifications will be considered to support achievement of the new targets. These topics will be covered in Item F

Questions?

Clean Fuels Program Expansion 2022 Rulemaking web page:
<https://www.oregon.gov/deq/rulemaking/Pages/cfp2022.aspx>

For rulemaking-related questions: CFP.2022@deq.state.or.us

For program-related questions: OregonCleanFuels@deq.state.or.us

Lunch

12:15-1 p.m.



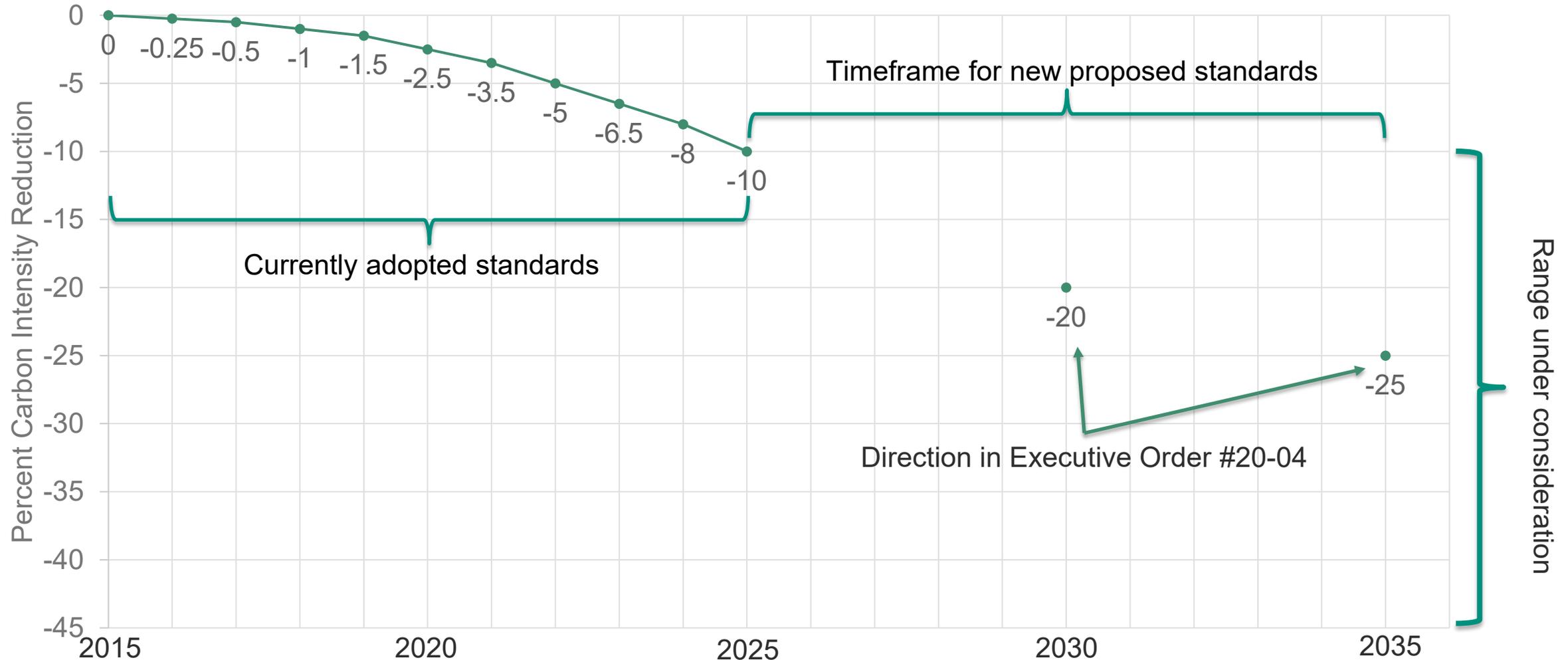
Clean Fuels Program Expansion 2022 Rulemaking

Rulemaking Advisory Committee Meeting #1

Item E – Overview of the Long-Term Illustrative Compliance Scenarios
via Webinar

Dec. 9, 2021

Extending the Oregon Clean Fuel Standards



How to use the Scenarios for Target Setting

- The scenarios use the best available data and provide estimates of what 2035 could look like; they are not a forecast. Actual volumes and carbon intensities will be different, but the scenarios offer options for how new targets could be achieved.
- Consider the assumptions of each scenario and the role that they play in achieving a future target.
- If you disagree with an assumption, consider how that will impact a future target. Will it make it higher or lower?
- Consider whether there are other assumptions that could offset that impact. If you think one fuel is over-estimated, might you also think that another fuel is under-estimated?
- We do not plan to develop additional scenarios so take a qualitative approach when you provide your feedback. However, if you are asserting that an assumption is not accurate, please provide documentation to support your position.

Factors to Consider for Target Setting

- How should we think about the CFP targets in relation to the state's GHG reduction goals?
- How should complementary programs/policies be considered (like the renewable fuel standard (RFS), ZEV regulations, clean energy requirements, etc.)?
- How do we use the illustrative scenarios to understand specific outcomes given the inherent flexibility of the program? For example, to achieve certain levels of low carbon liquid fuels improvements and use or to support ZEV deployment?
- What are the outcomes anticipated with the new targets? What are the pros and cons that we should consider and what weight or priority should they be given?
- How should co-benefits be weighed alongside the primary greenhouse gas reduction goals?
- Are there different considerations for the 2035 targets versus other years? How should the targets for interim years be set?

Key Questions

- 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?



Illustrative Compliance Scenarios for Oregon CFP Expansion

Philip Sheehy

Director, Transportation and Energy

December 9, 2021

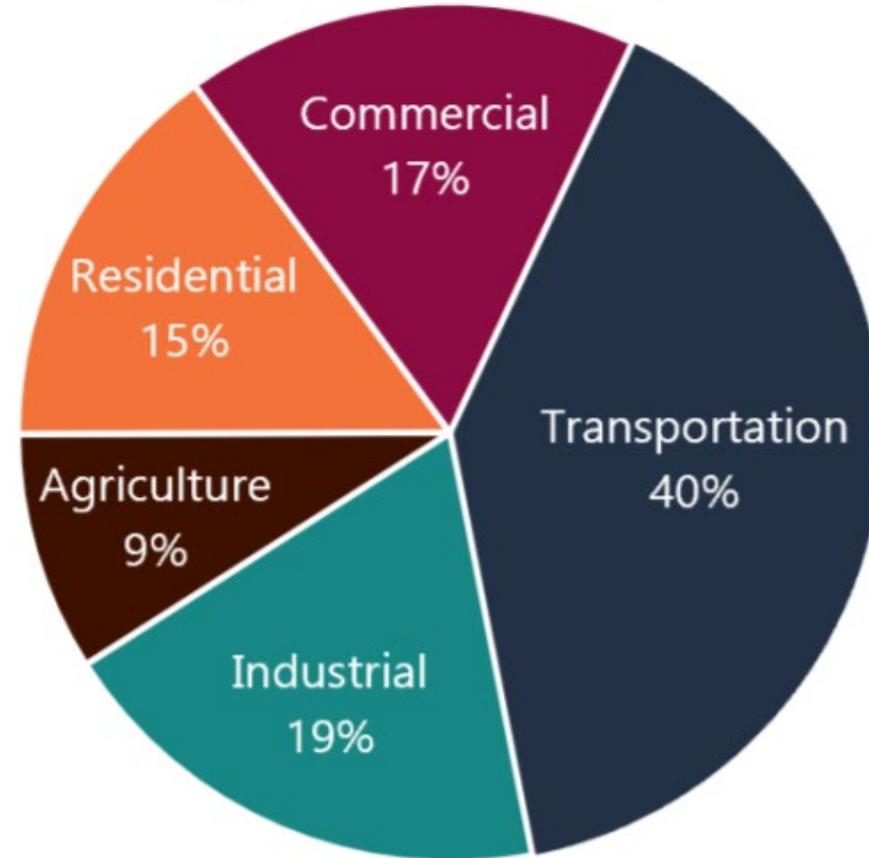
Agenda

- Clean Fuels Program 101
- Review Illustrative Compliance Scenarios
 - Purpose of Illustrative Compliance Scenarios
 - Methodology for Developing the Scenarios
 - Results
 - Key Takeaways

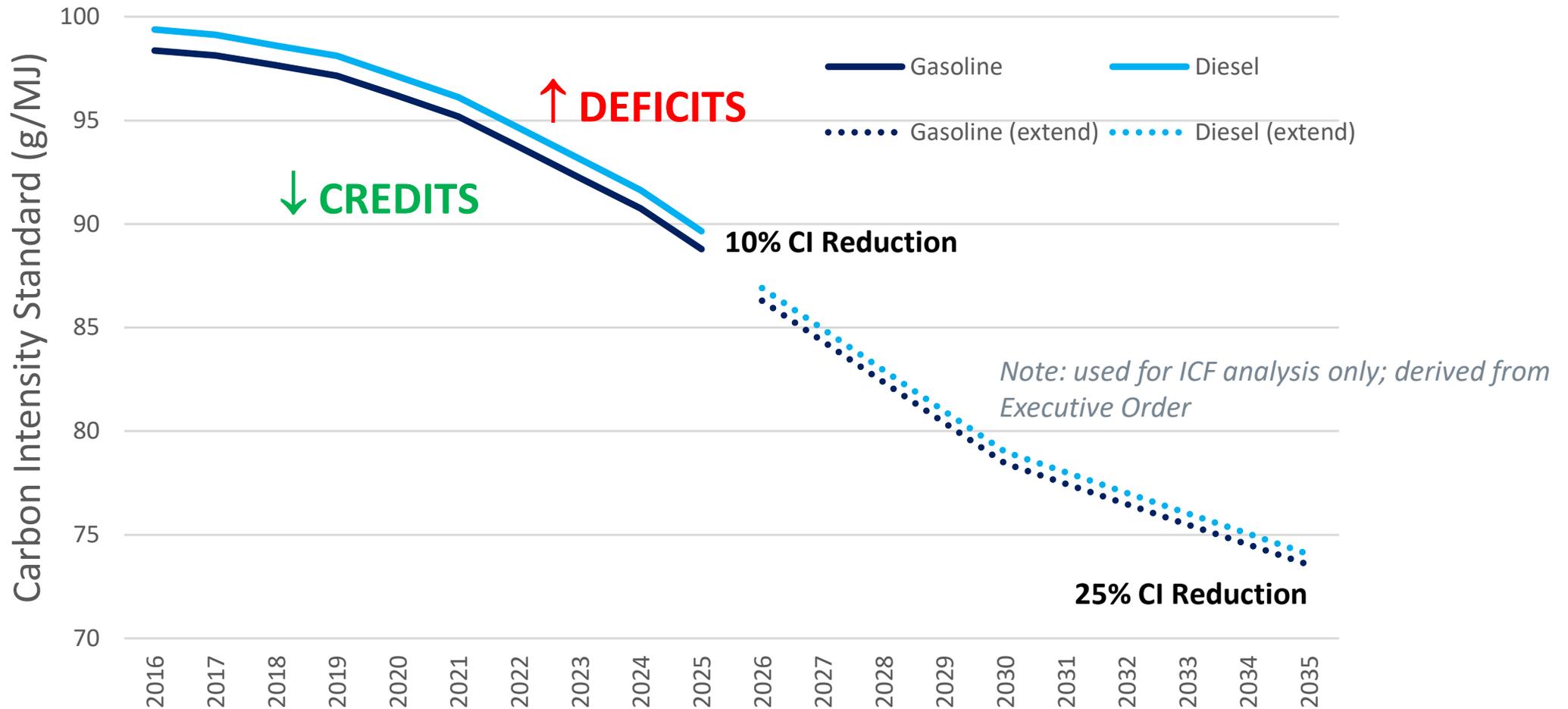
Transportation Fuels in Oregon

- 1.5 billion gallons of gasoline
 - Pandemic impact: -10%
- 760 million gallons of diesel
 - Pandemic impact: -5%
- E10 Market
- Biodiesel blending (B5)
- Top 5 EV registrations (per capita)

Greenhouse Gas Emissions by Sector (2017)



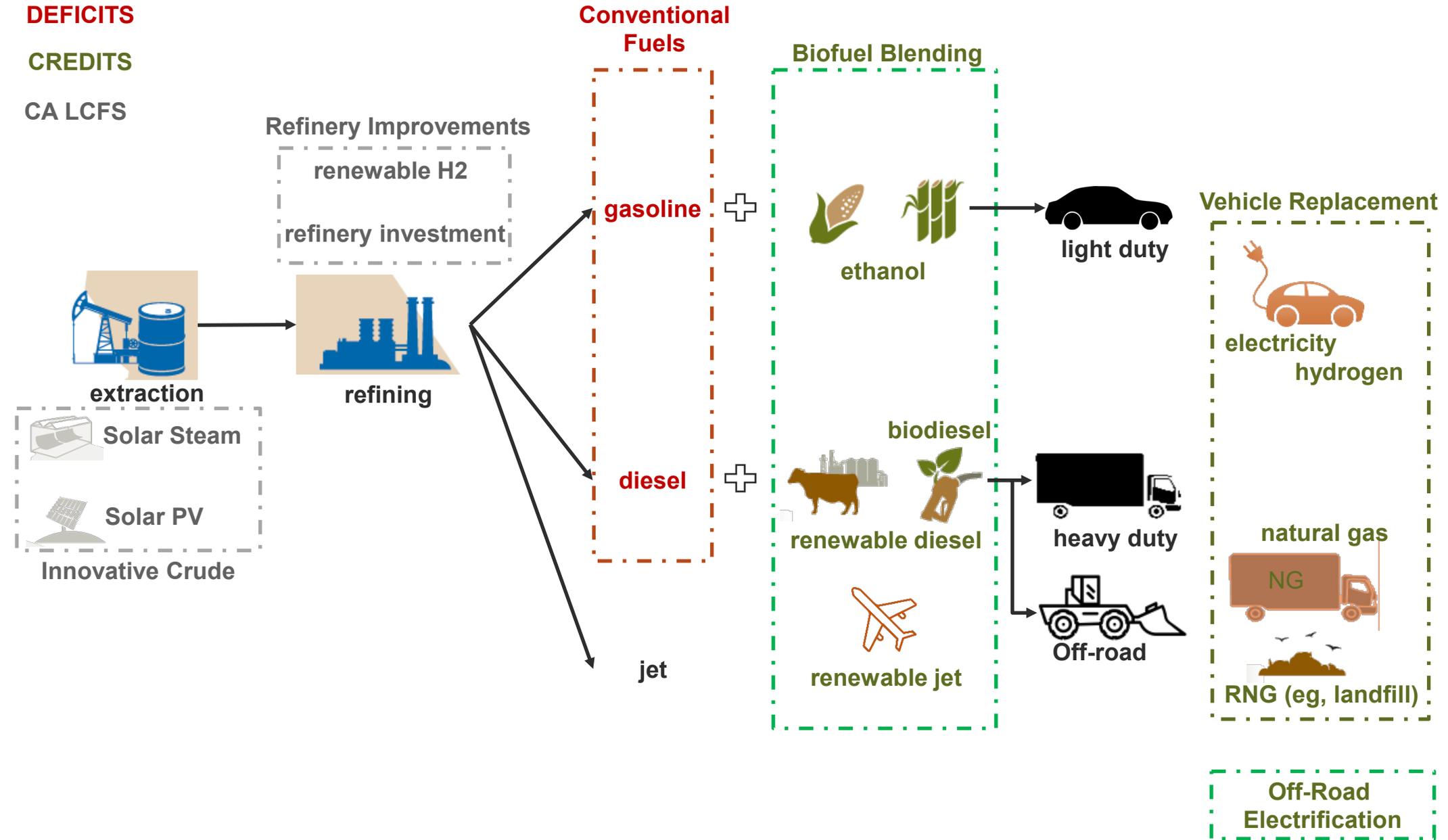
Oregon CFP: Now and Then



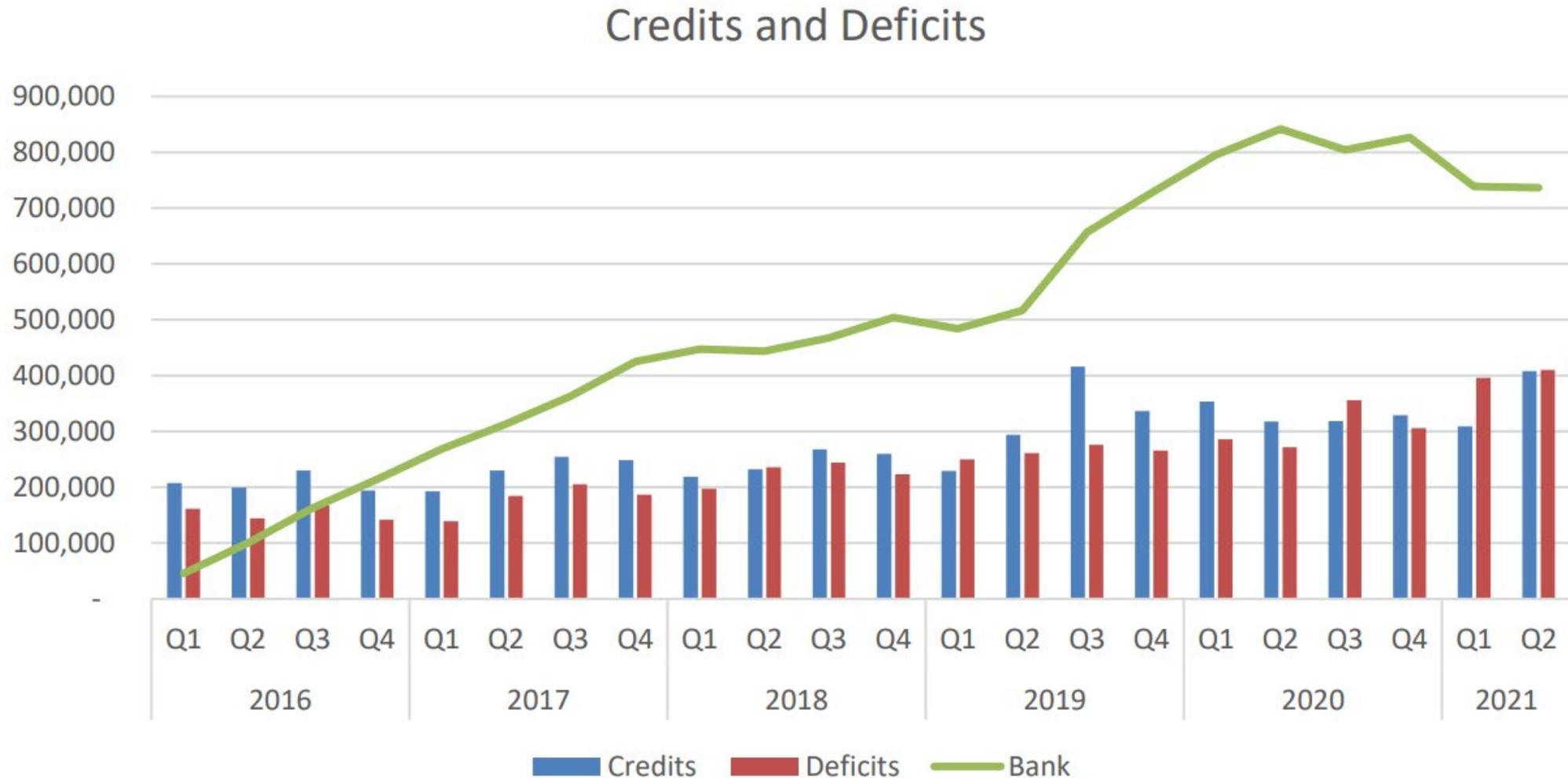
DEFICITS

CREDITS

CA LCFS



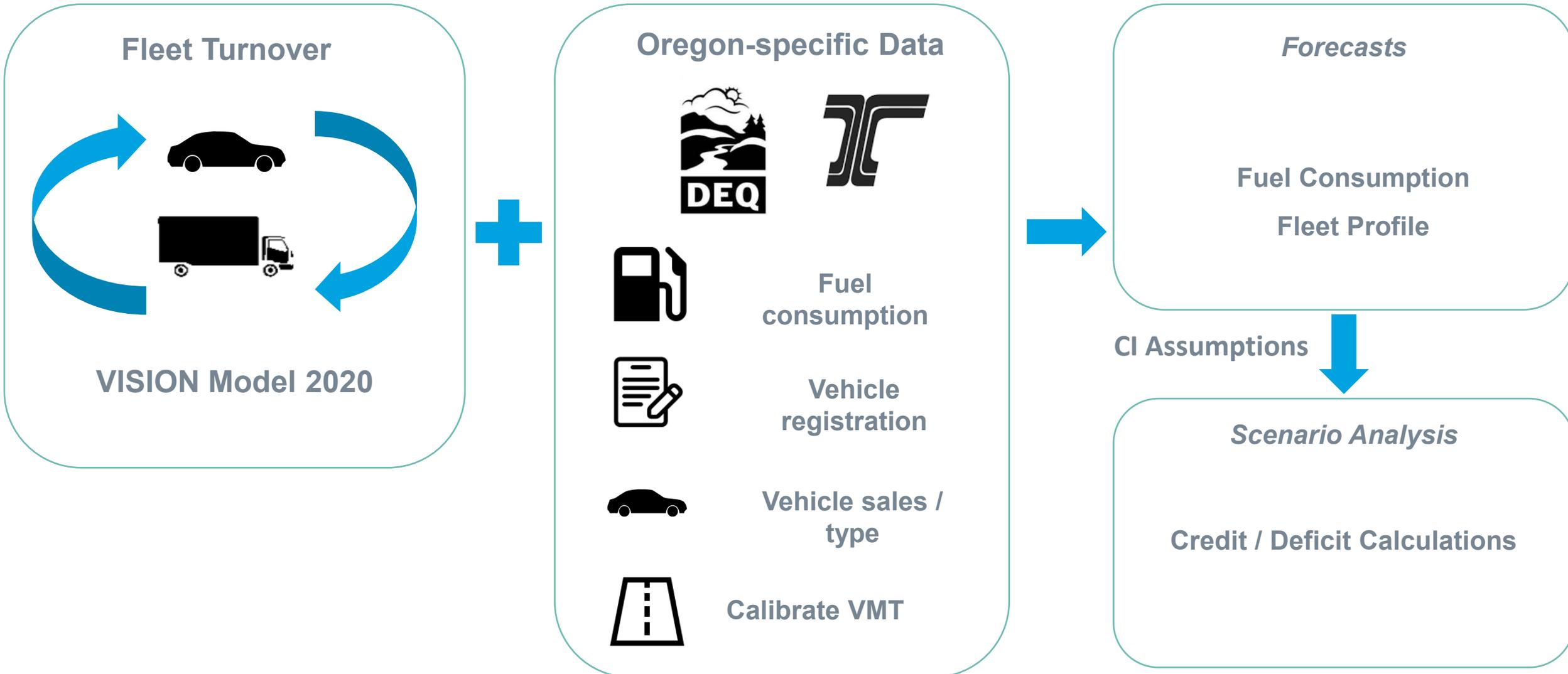
Oregon CFP: Credit and Deficit Generation



Purpose of the Illustrative Compliance Scenarios

- Illustrative compliance scenarios allow for understanding what are the main drivers and levers for compliance, and how much of and what types of fuels are required under different conditions
- Illustrative compliance scenarios are NOT meant to predict the future but inform what are the important fuels or time periods when considering compliance with the program

Methodology for Developing Scenarios



Methodology for Designing Scenarios

- Steps in developing the scenarios and identifying fuels:
 - Identify other regulations being considered and assign to scenarios
 - Determine compliance as it relates to Clean Fuels Program
 - For example, the ZEV regulation has separate compliance pathways, but has an outcome that yields CFP credit generation
 - Develop assumptions about complementary regulatory compliance pathways
 - Identify the fuels that should be included and which fuels are the main levers for compliance – meaning they are likely the fuel that will be produced/purchased/sold in Oregon to reach the marginal compliance (i.e., the last unit of compliance)
 - Consider the constraints on each type of fuel to maintain the structure of the scenario
 - For example, for low and high CI *biofuels*, consider the supply or demand limits on fuels that might be sold into Oregon considering: feedstock, proximity of production facilities to Oregon, competition with other markets (e.g., CA LCFS), etc..

Methodology for Designing Scenarios (cont.)

- Regulations (as directed by DEQ)
 - ZEV1 – Increasing light-duty (LD) EV sales up to 22% by 2025
 - ZEV2 – Expanding on ZEV1 and increasing light-duty EV sales from 22% in 2025 to 90% by 2035
 - Advanced Clean Trucks (ACT) – Medium- and heavy-duty EV sales requirements starting in 2024 (with model year 2025 vehicles) and increasing to 2035, based on California’s Advanced Clean Trucks regulation
 - All three of these policies operate independently of the CFP
- Fuels
 - Liquid Biofuels
 - Biodiesel
 - Renewable Diesel
 - Ethanol
 - Gaseous Fuels
 - Renewable natural gas
 - Hydrogen
 - Alternative Fuels
 - Electricity

Methodology for Designing Scenarios (cont.)

- Scenario A: Assumed adoption of *additional* light-duty (LD) and medium- and heavy-duty (MD/HD) zero emission vehicle (ZEV) regulations including Advanced Clean Cars for the LD and Advanced Clean Trucks for MD/HD. Biofuels are then blended into supply to achieve targets.
- Scenario B: Combination of *existing* LD ZEV regulations and liquid biofuel blending.
- Scenario C: **Hybrid version of A+B**; add the LD and MD/HD ZEV regulations from A; maintain biofuel blending levels from B; and increase consumption of natural gas and hydrogen.
- Variations: A and B include 2 variations considering high CI and low CI biomass-based diesel to determine renewable fuel volumes necessary to comply with 25% standard, reflecting the availability of the lowest CI diesel substitutes.

Scenario Modeling

Biofuel Blending

Scenario A

Scenario B

Scenario C



Ethanol

15% blend
E85 uptick
CI to 50 g/MJ

15% blend
E85 uptick
CI to 50 g/MJ

15% blend
E85 uptick
CI to 50 g/MJ



Biodiesel

10% blend
UCO / Corn Oil / Tallow
+ Canola

10% blend
UCO / Corn Oil / Tallow
+ Canola

10% blend
UCO / Corn Oil / Tallow
+ Canola



Renewable
diesel

5% blend to 20% blend
-decrease post-2030

5% blend to 67% blend

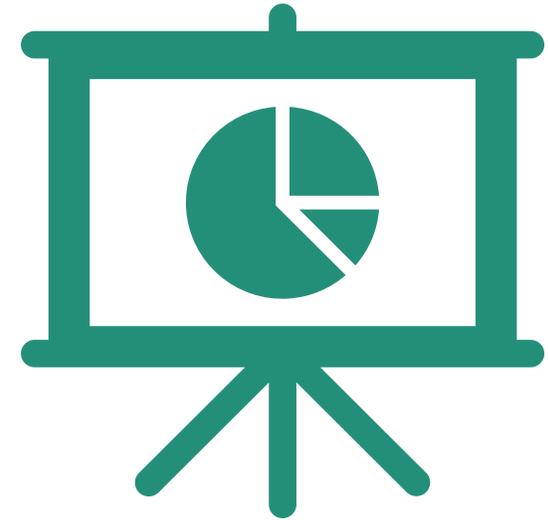
5% blend to 25% blend

Scenario Modeling (cont'd)

Vehicle Replacement	Scenario A	Scenario B	Scenario C
 EVs	ZEV2 Compliance 900,000 EVs by 2035	Existing ZEV Compliance 400,000 EVs by 2035	ZEV2 Compliance 900,000 EVs by 2035
 EVs, MD/HD	MD/HD EV Policies+ 67,000 vehicles by 2035	Existing Policies <2,000 vehicles by 2035	MD/HD EV Policies+ 67,000 vehicles by 2035
 NG / RNG	100% RNG blend Fleet turnover constrained	100% RNG blend Fleet turnover constrained	100% RNG blend Sales Rate x2

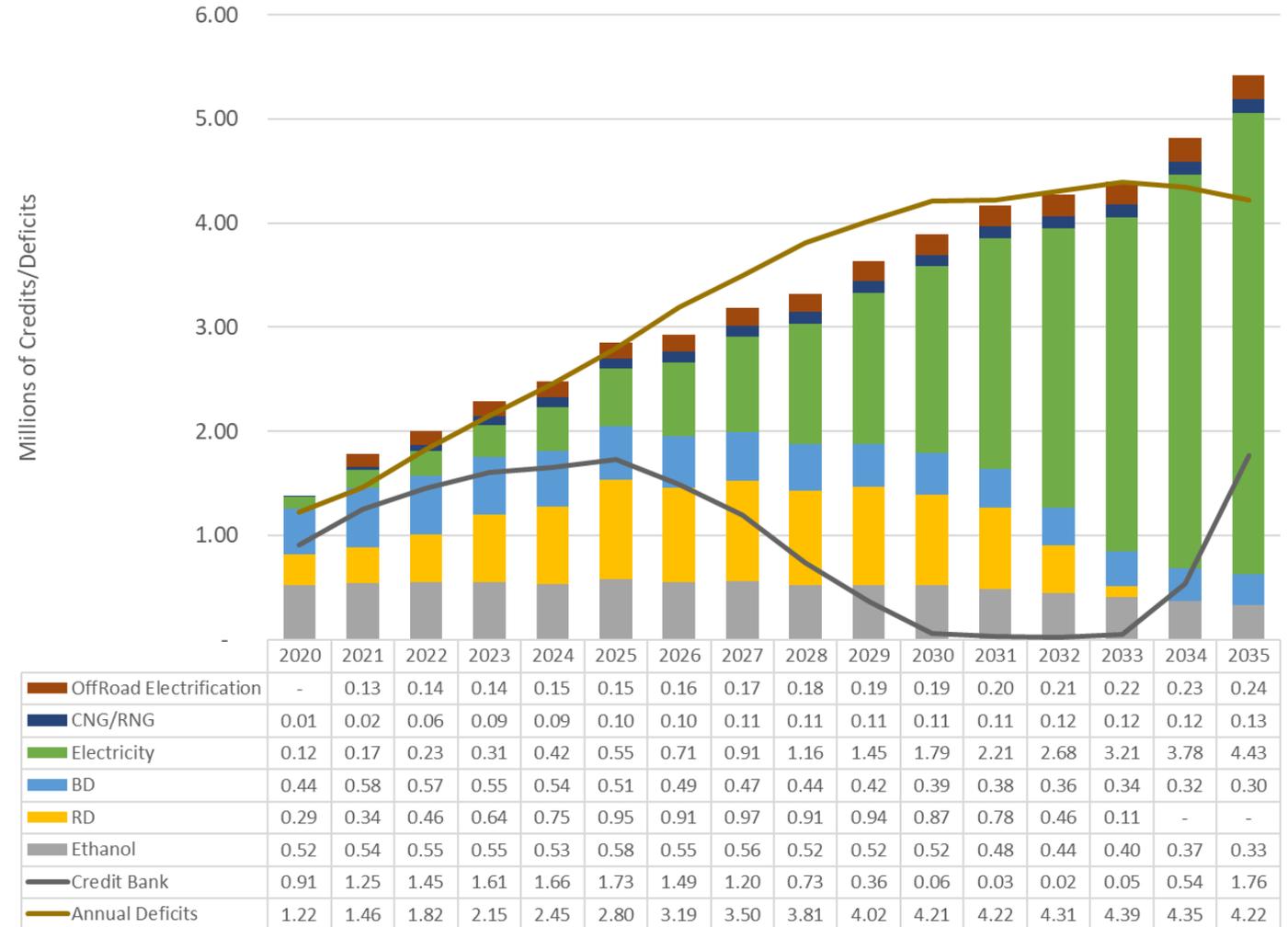
Results

- Review select detailed summary results
- Trends in fuel consumption between scenarios



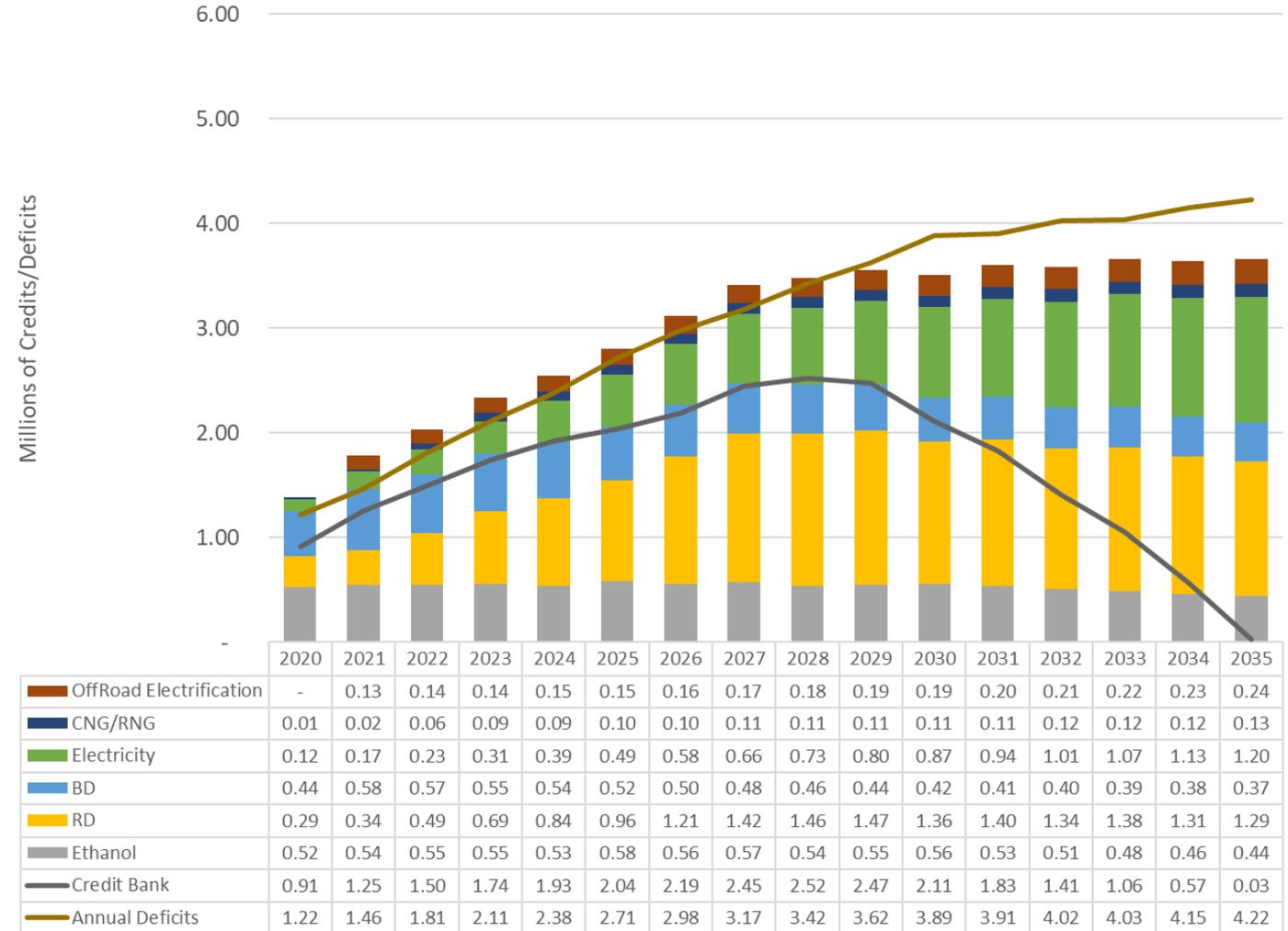
Results – Scenario A

- To 2025: increased blending of RD
- To 2030: deficits exceed credits and the bank is depleted almost to zero
- Post 2030: Credits and deficits balance; the transition to higher levels of electrification drives over compliance
- In 2035: Electrification makes up 85% credits generated



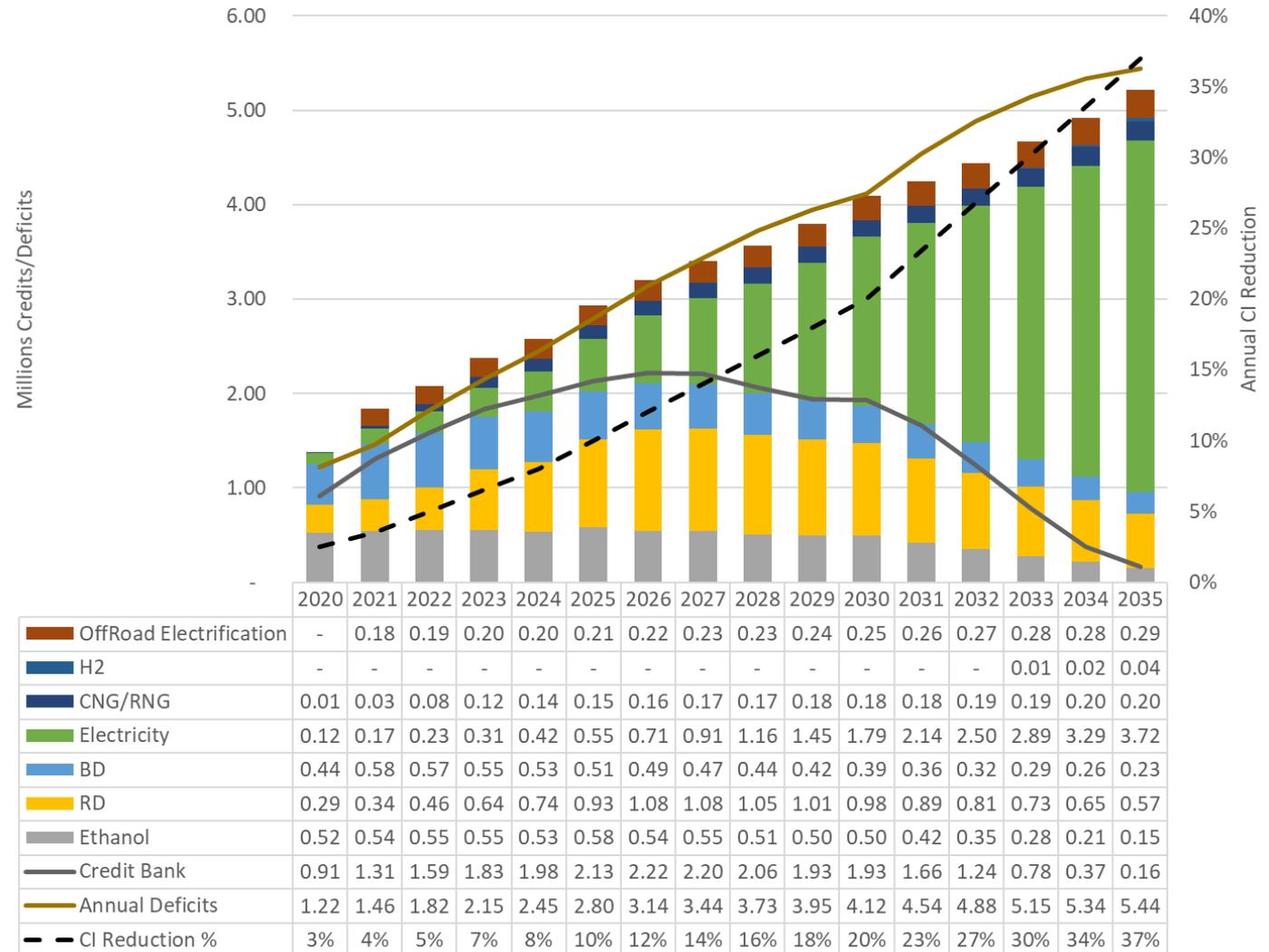
Results – Scenario B

- To 2028: Increased blending of RD along with petroleum displacement increases credit generation rapidly.
- To 2035: Bank is almost depleted mainly due to the increasing stringency of the standards.
- In 2035: Biofuels account for over 57% of credits generated.



Results – Scenario C

- To 2026: Credits exceed deficits. The bank increases due to the increased blending of RD combined with the lower standards.
- To 2035: Deficits exceed credits. The bank is almost depleted with the rapidly increasing stringency of the standards from 10% in 2025 to 20% in 2030 (2% increase per year) and 20% to 37% from 2030 to 2035 (3% increase per year).
- Post-2030: Electricity credits drive compliance while the RD blend level is maintained at 25%. Credits from ethanol decrease with reduced gasoline consumption. Slight increase in natural gas consumption and inclusion of hydrogen.
- In 2035, electricity contributes 70% of credits. Stacking the electrification and biofuel assumptions results in 37% CI reductions.



Key Takeaways

- The expanded Clean Fuels Program can be achieved through a **diverse fuel supply**. In other words, all of the scenarios include a combination of ethanol, biodiesel, and renewable diesel from various feedstocks, electricity, renewable natural gas, and propane to achieve the carbon intensity reduction targets.
- **Over-compliance prior to 2025** allows time for the increasing adoption of electric vehicles to build a healthy bank of credits that will carry the Clean Fuels Program to achieve its compliance targets through 2035.
- Current and additional light-, medium- and heavy-duty **electrification policies** plus expected reductions in the carbon intensity of electricity have the potential for significant credit generation and contribution to compliance of the expanded Clean Fuels Program.

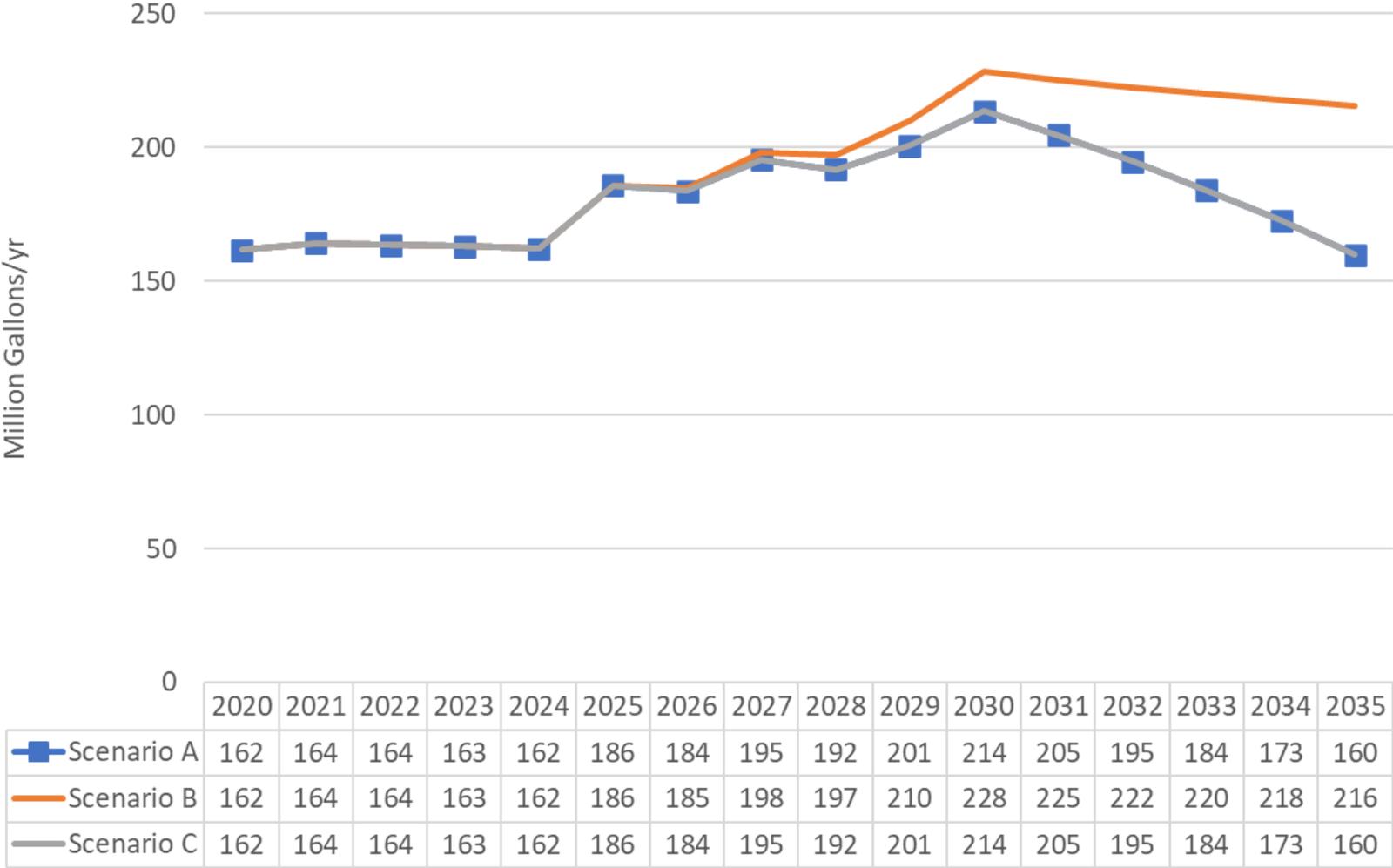
Key Takeaways

- **Renewable diesel is necessary for compliance** as the primary drop-in fuel to generate credits and reduce deficits with the existing diesel vehicle fleet.
- The combined potential of renewable diesel plus electrification has the potential to exceed the carbon intensity reduction targets identified in Executive Order 20-04. The **critical period for compliance is during the late 2020s to 2030**, when the carbon intensity reduction targets are increasing 2% per year, and the zero emission vehicle sales requirements are still ramping up.
- After 2030, the electric vehicle policies have resulted in modeled populations that can significantly contribute credits and reduce deficit generation by replacing diesel vehicles as the zero-emission vehicle population continues to grow.

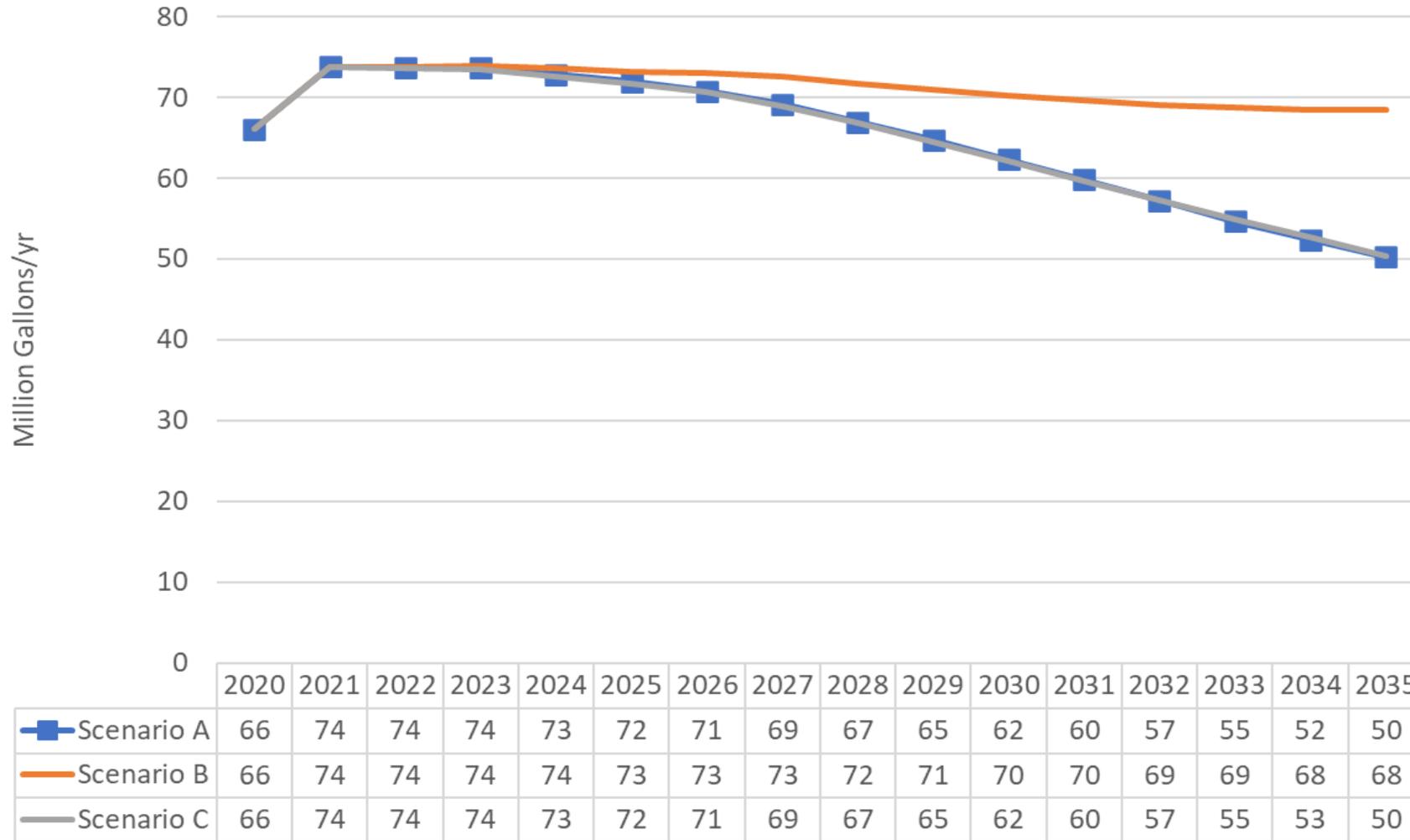
Questions

Appendix

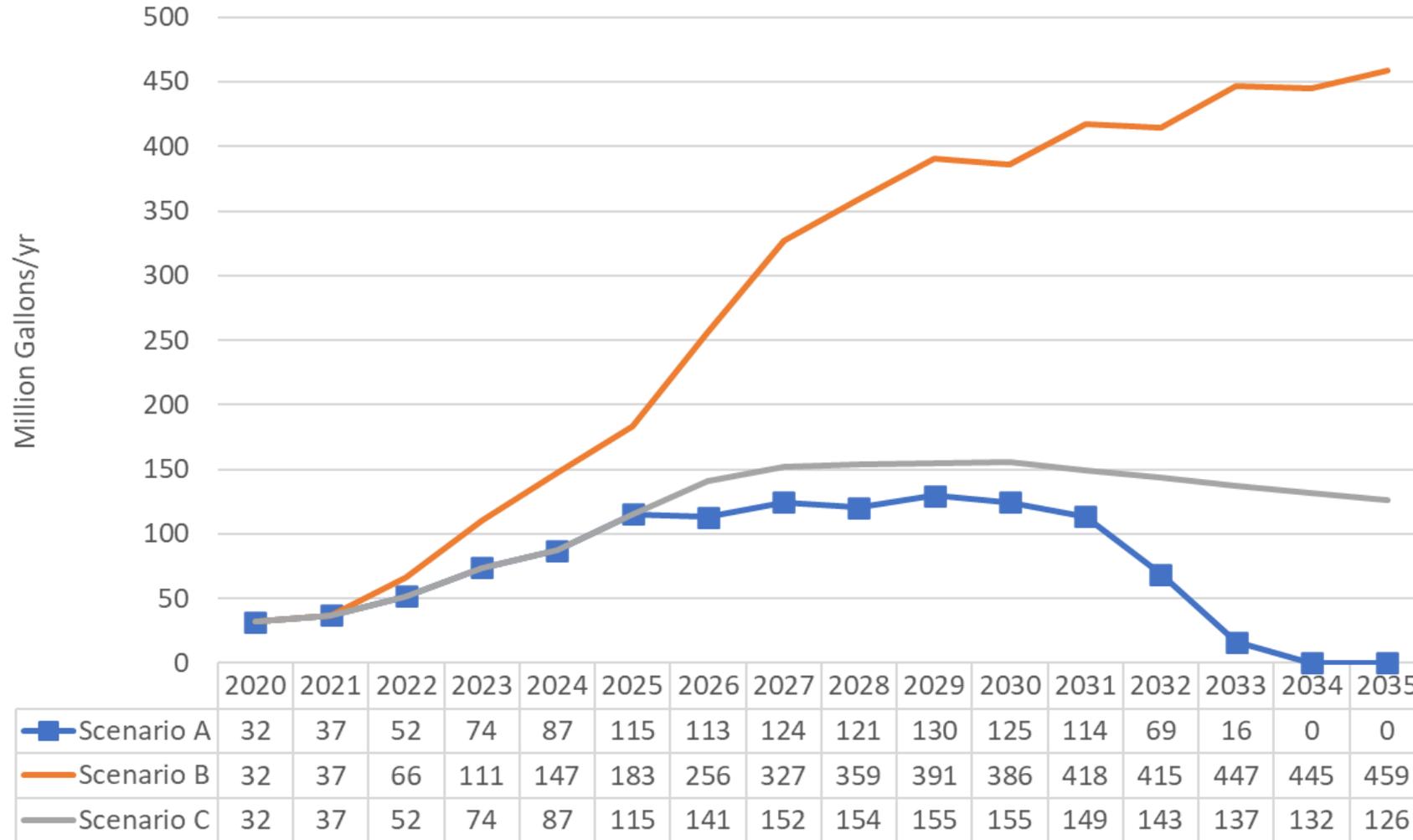
Results – Trends in Ethanol Fuel Consumption



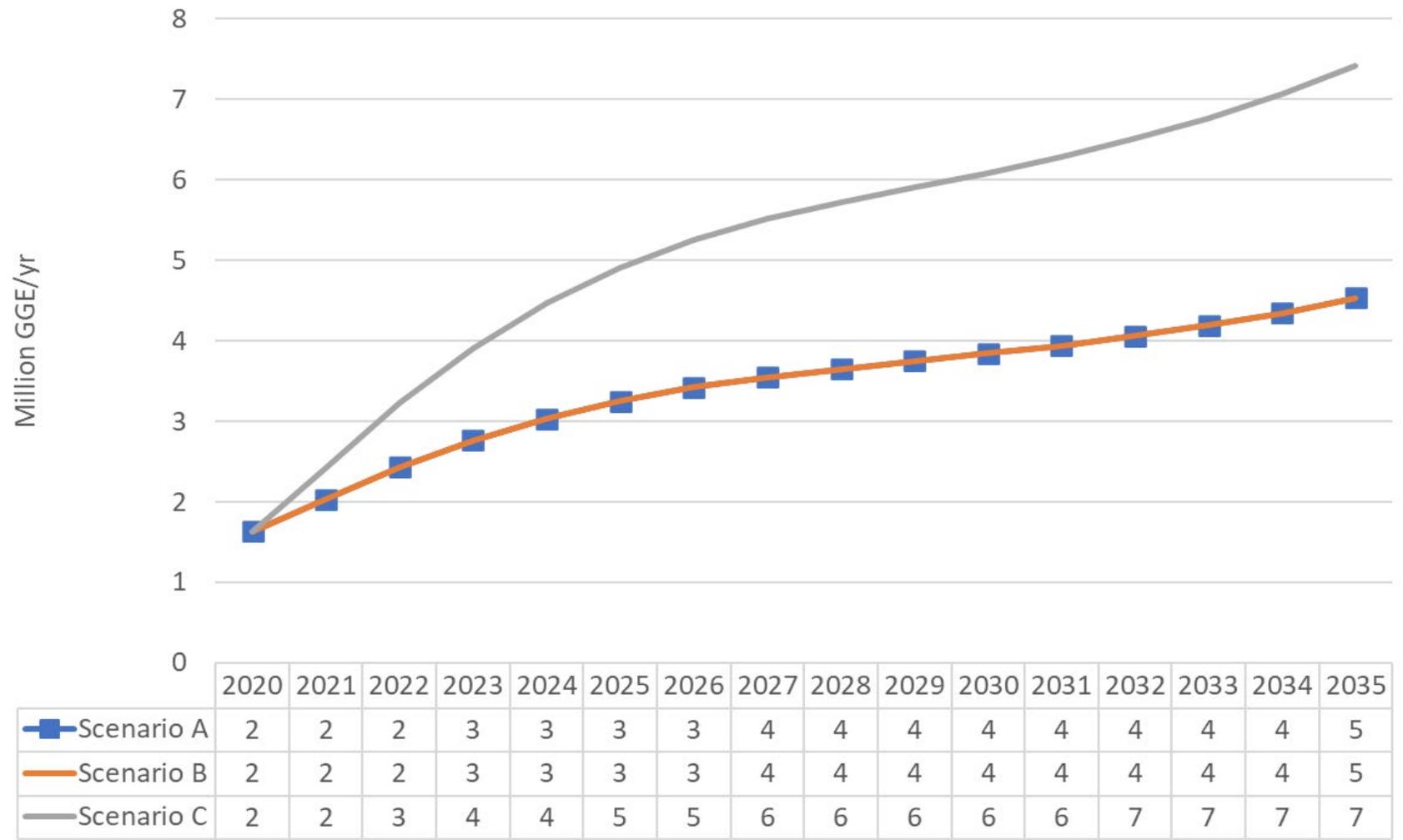
Results – Trends in BD Fuel Consumption



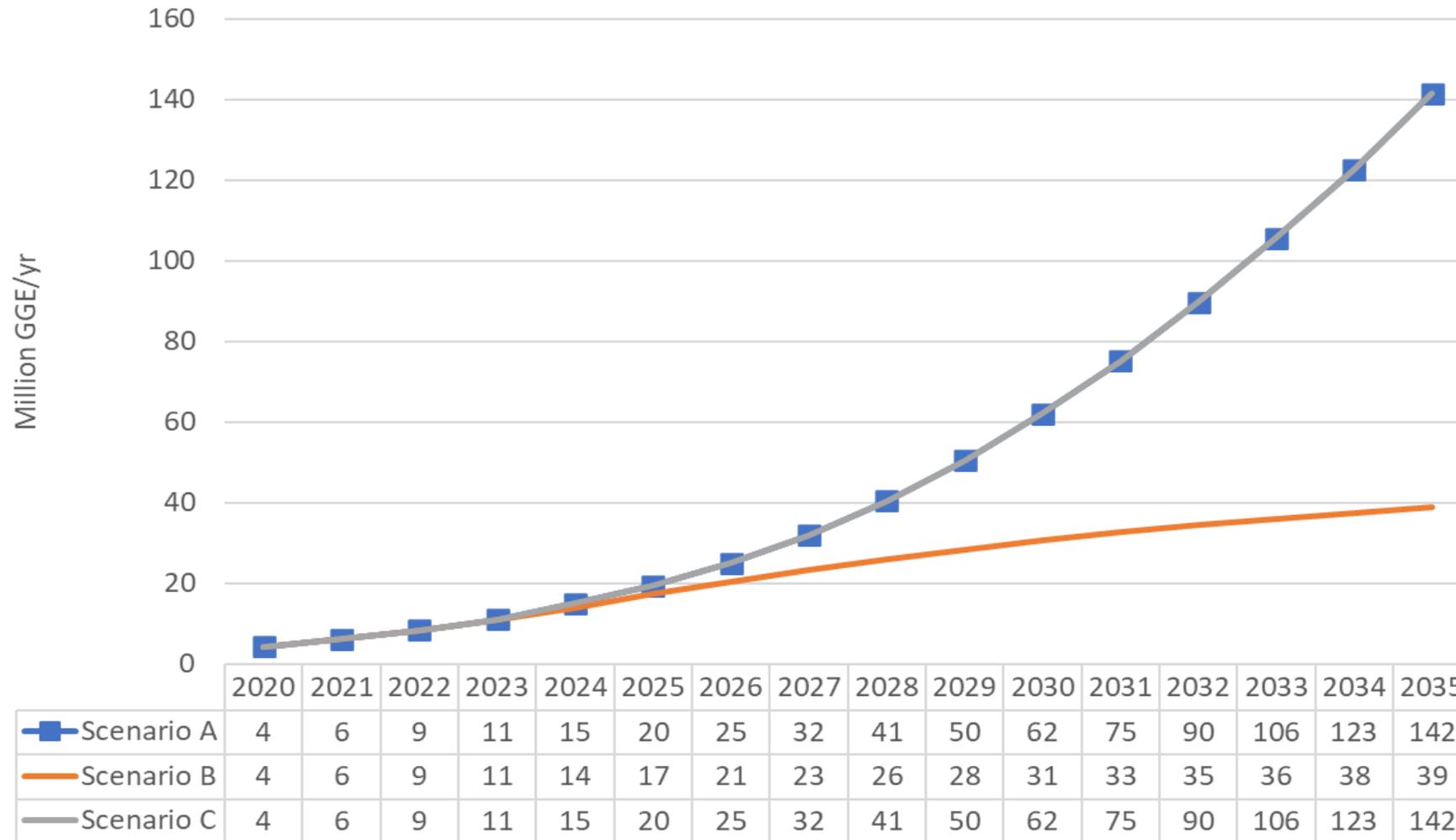
Results – Trends in RD Fuel Consumption



Results – Trends in NG/RNG Fuel Consumption



Results – Trends in Electricity Fuel Consumption



Back to DEQ

Could Even Greater Reductions be Achieved?

There could be...

- Higher blending of biodiesel and renewable diesel
 - Blend rates have already approached 15% early in the program
 - Planned capacity expansions can supply additional demand
 - Existing vehicles and infrastructure can accommodate higher blends
 - Fleets are already switching to near-100% renewable blends

Could Even Greater Reductions be Achieved?

There could be...

- Greater advancements in reducing biofuel carbon intensity
 - CCS deployment at ethanol facilities
 - Emergence of renewable gasoline at commercial scale
 - New waste-based feedstocks that don't have indirect land use change impacts

Could Even Greater Reductions be Achieved?

There could be...

- Higher rates of electric vehicle deployment
 - Only compliance with Advanced Clean Cars 2 and Advanced Clean Trucks were included in the assumptions
 - Additional ZEV regulations could be adopted
 - ZEVs may hit the tipping point on being cheaper to own and operate in this time period
- Sustainable aviation fuel in Oregon
 - These fuels are expected to be available in Oregon
 - Those credits were not modeled

Questions?

Clean Fuels Program Expansion 2022 Rulemaking web page:
<https://www.oregon.gov/deq/rulemaking/Pages/cfp2022.aspx>

For rulemaking-related questions: CFP.2022@deq.state.or.us

For program-related questions: OregonCleanFuels@deq.state.or.us



Clean Fuels Program Expansion 2022 Rulemaking

Rulemaking Advisory Committee Meeting #1
Item F – Detailed Scope of the Rulemaking
via Webinar
Dec. 9, 2021

Proposed Topics – Detailed Discussion

Proposed Topic: Reporting

- Formalize guidance into rule language
- Clarify language for regulated parties for liquid fuels based on implementation (flash sales, position holder transactions, exports, bulk system transactions, etc.)
- Clarify exemption language
- Consider if credit generation should be retroactive post-verification

Proposed Topic: Pathways

- Possible corrections and updates to the models or simplified calculators used to calculate carbon intensity
- Update tables

Proposed Topic: Electricity

- Add new EERs
- Updates to the advance crediting and utility renewable power program provisions based on implementation

Proposed Topic: Hydrogen

- Consider expanding advance crediting to hydrogen
- Consider book-and-claim accounting for hydrogen into a hydrogen network, including dedicated hydrogen pipelines

Proposed Topic: Propane

- Clarify the registration process for propane
- Clarify language for fossil and renewable propane

Proposed Topic: Market Monitoring

- Require contracts to be uploaded for zero-priced or long-term credit transfer agreements
- Include provisions for bankruptcy, successorship, mergers and acquisitions

Proposed Topic: Enforcement

- Add violations related to:
 - the new EER-adjusted CIs, or REC provisions
 - the new third-party verification provisions

Proposed Sub-Committees - Workshops

Proposed Workshop: Electricity

- Who generates the credits for:
 - Take-home fleet vehicles
 - Charging when the workplace is a residence
- What is the policy rationale for who generates those credits?
- What documentation will be required?
- What adjustments in the calculation of residential credits may be required if we made these changes?

Proposed Workshop: GREET Updates

- Correct errors in the model and simplified calculators
- Clarify what GREET should be used for
- Develop Tier 1 calculator for biogas-to-electricity pathway
- Any additional modifications to support this rulemaking

Proposed Workshop: Biogas and RNG

- Consider requiring the use of a tracking system such as M-RETS for RNG claims
- Re-examine engine efficiencies, project year requirements, etc. for biogas to electricity projects

What is Out of Scope for this Rulemaking

Potential Future Considerations

- Updates to OR-GREET, OPGEE, CCLUB, GTAP
 - Update canola and soybean indirect land use change values
 - Update eGRID emission factors
- Updates to third-party verification rules (Division 272)
- Further updates to how DEQ calculates the carbon intensity of electricity

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Opportunity for Public Comment

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Comment Instructions

To submit comment after the meeting:

- ▶ Email comments to CFP.2022@deq.state.or.us with “Clean Fuels RAC #1 Meeting Public Comment” in the subject line **by Dec. 23**.
- ▶ Thank you for sharing your feedback.



Next Steps



- ▶ Next meeting: **Wednesday, January 26**
- ▶ Confirm upcoming meeting topics:
 - ▶ Deeper dive on 12/9 RAC #1 topics
 - ▶ Discuss any additional topics from 12/9 RAC #1
 - ▶ Presentation by UC Davis – *Impacts of the Clean Fuels Program*
 - ▶ **Colin Murphy**, Deputy Director, Policy Institute for Energy, Environment and the Economy
 - ▶ **Mike Kleeman**, Professor, Department of Civil and Environmental Engineering

Thank you!