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**21-IEPR-01 Comments by Clean Energy on the December 2, 2021
Workshop, Session #2**

Additional submitted attachment is included below.



December 21, 2021

Commissioner Andrew McAllister
Vice Chair Siva Gunda
California Energy Commission
1516 9th Street
Sacramento, CA 95814

**Re: CEC Docket 21-IEPR-01;
Comments by Clean Energy on the December 2, 2021 Workshop, Session #2**

Dear Commissioner McAllister, Vice Chair Gunda, and Commission Staff:

Clean Energy appreciates this opportunity to comment on the draft *2021 Integrated Energy Policy Report* (referred to as the Draft IEPR). These comments recognize the significant effort made by the California Energy Commission (CEC) staff in their detailed modeling and analysis. Clean Energy recommends the following:

- While the Draft IEPR properly evaluates California's clean transportation and electrification goals and investments, modeling and analysis of alternative fuels in the transportation sector should also be performed, as such fuels are crucial for meeting the State's mid-century decarbonization goals.
- The Appendix limits the study of renewable natural gas (RNG) as an alternative transportation fuel, especially in the medium-duty and heavy-duty (MD/HD) transportation sector. However, depending on the source of the RNG (e.g., dairy, swine farms, landfill, etc.), usage of RNG can result in significant *negative* carbon emissions, which presents an important near-term opportunity to reduce GHG in California.

Accordingly, Clean Energy recommends the review of RNG as a standalone alternative fuel to diesel in the MD/HD transportation sector to immediately inform policymaking, and continue in the near- to mid-term to displace heavy-duty diesel trucks with low NOx trucks powered by RNG. Moreover, RNG has a critical long-term role to play once the transportation space eventually transitions to a zero emission future. Specifically, RNG can be converted into electrical power generation, improving overall resiliency to the grid when other renewables are not available, or be reformed to produce green hydrogen for fuel cell buses and trucks. RNG's significant flexibility as a future transportation fuel for electric generation and hydrogen production should not be lost or discounted.

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As noted in prior comments at the Commission, Clean Energy has been fully committed to growing the immediate use of RNG in the MD/HD transportation sector to displace diesel and, more broadly, as a drop-in fuel for the natural gas grid. Clean Energy stands ready to work with State agencies to support California's clean air and energy goals.

The Draft IEPR's Analysis of RNG is Limiting Given its Potential Role in Significantly Reducing Diesel Usage in Trucks

The Commission plays a critical role in transportation infrastructure planning and is the State's "primary" ZEV infrastructure planning agency.¹ It is therefore important for the Commission to separate its calculations and analysis of RNG in the MD/HD vehicle sector because of its potential to displace diesel in the near- to mid-term.

While it remains important for the Commission and the Draft IEPR to focus attention on electrification in the MD/HD sector, electrification of the MD/HD sector will experience a very different path than the light-duty sector. The Commission's own analysis shows that diesel will be the dominant fuel for at least another decade in the MD/HD transportation space.²

The Draft IEPR recognizes that for some use cases of MD/HD transportation vehicles, "[n]ot all vehicles and transportation applications can rapidly transition to zero-emission alternatives."³ It also indirectly recognizes the negative carbon emissions from RNG. It states:

Furthermore, waste-based feedstocks are quite low in life-cycle greenhouse gas (GHG) emissions, to the point that CARB's Low Carbon Fuel Standard (LCFS) currently counts some fuel from these sources as a net negative source of GHG emissions.⁴

In other words, using RNG as an alternative fuel for MD/HD transportation sector vehicles can result in a material *reduction* of GHG emissions. Equally important, RNG removes waste methane, a known Short Lived Climate Pollutant (SLCP), that would otherwise enter the

¹ Draft IEPR, Appendix at 2.

² See, e.g., December 2, 2021 workshop in docket 21-IEPR-03, Session #2, titled "IEPR Commissioner Workshop on the Electricity and Natural Gas Demand Forecast for 2021-2035: Transportation Forecast and Demand Scenarios Project," presentation titled "Transportation Energy Demand Forecast," slide 4 (titled "Diesel Dominates Medium- and Heavy-Duty (MD-HD) & Electricity Makes Inroads with Light-Duty Vehicles (LDV)") available at <https://www.energy.ca.gov/event/workshop/2021-12/session-2-iepr-commissioner-workshop-electricity-and-natural-gas-demand>.

³ Draft IEPR, Appendix at 20.

⁴ Draft IEPR, Appendix at 20.



atmosphere, and puts it to productive use by displacing diesel (a form of black carbon that has been identified as another significant SLCP).

Clean Energy has found that RNG-fueled trucks consistently operate and perform reliably across MD/HD vehicle sector applications (i.e., refuse, transit, drayage, regional delivery, etc.). Low NOx trucks and buses powered by RNG are commercially available, operationally viable, deliver carbon neutral outcomes from existing infrastructure for MD/HD vehicles, and do not require any additional demonstration studies.

Unfortunately, the Draft IEPR's analysis does not separately measure the GHG benefits from RNG use in the MD/HD sector. For example, Table 5, titled "Annual Petroleum Fuel and GHG Reductions (Expected Benefits)," represents "calculated displacement of petroleum-derived fuels for the vehicle, fuel, or infrastructure."⁵ The rows titled "Fuel Production-Biomethane" and "Vehicles-Natural Gas Commercial Trucks" both appear to contain RNG-fueled vehicles. The petroleum reduction for both rows are material, however, compelling Clean Energy to ask the CEC to separately calculate the benefits of RNG.

In describing Table 5, the Draft IEPR states: "for this analysis, NREL focused specifically on fuel and vehicle types with emission reductions recognized under the VISION and GREET models," and that "[t]his focus narrows the analysis to projects using electricity and hydrogen as the alternative fuel."⁶ Even if NREL focuses its study on specific fuel types, the Commission should expressly consider RNG independently in its Table 5 and general analysis.

RNG Can be a Potentially Carbon Neutral Fuel and Therefore Should Be Expressly Considered as a Meaningful Alternative in the MD/HD Vehicle Sector

The Draft IEPR emphasizes the importance of California taking the lead in "designing or implementing clean air and climate strategies."⁷ It notes the benefits of vehicle electrification (as long as the electricity stock is also renewable) and the funding from the Clean Transportation Program. The Commission anticipates "nearly \$100 million in funding for medium- and heavy-duty zero-emission vehicle (ZEV) infrastructure over the next two and a half years"⁸ from the proposed Clean Transportation Program Investment Plan. In the subsequent two fiscal years, the Commission anticipates up to \$672 million from other sources for MD/HD infrastructure.⁹

⁵ Draft IEPR, Appendix at 28.

⁶ Draft IEPR, Appendix at 29 (citations omitted).

⁷ Draft IEPR, Appendix at 1.

⁸ Draft IEPR, Appendix at 15.

⁹ Draft IEPR, Appendix at 15.

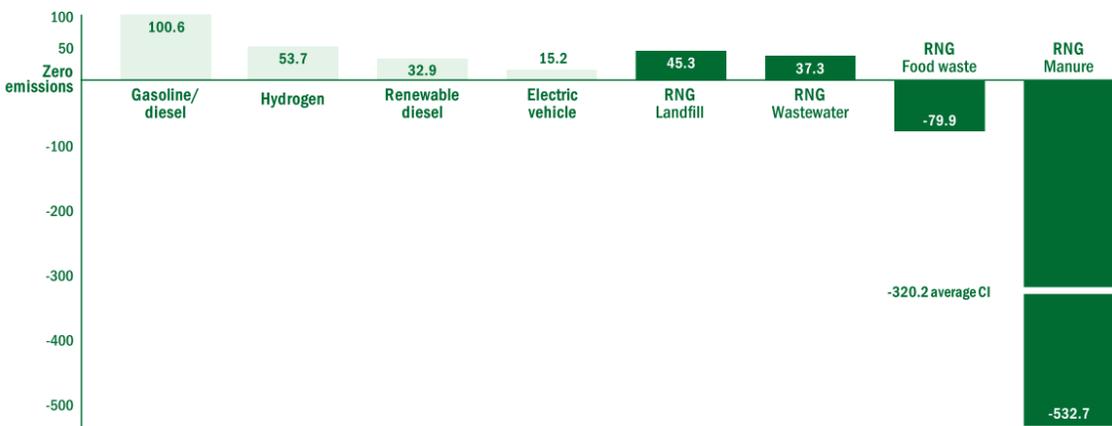


However, as referenced above, existing RNG in California is not only carbon neutral, but can also be carbon negative. California Air Resources Board (CARB) data shows that RNG is the lowest carbon alternative transportation fuel currently available in California. In implementing its Low Carbon Fuel Standard (LCFS) program, CARB measures a fuel’s carbon intensity, and provides the information on its website,¹⁰ which is compiled into the table below.¹¹

RNG is the lowest carbon alternative fuel



Carbon emission by fuel type (gCO₂e per MJ)



Source: California Air Resources Board, Q4 2020 LCFS data, and certified pathways as of May 11, 2021.

As shown above, RNG sources such as food waste and manure result in negative carbon intensities when used as a transportation fuel. We therefore strongly urge the CEC to note and make use of this important alternative to help California reach its carbon goals as it transitions to a zero emission future.

¹⁰ CARB Website: LCFS Pathway Certified Carbon Intensities, available at <https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities>.

¹¹ The inputs to this table are from CARB’s most recent quarterly reporting of the tab titled “Emissions per GGE,” available at https://ww3.arb.ca.gov/fuels/lcfs/dashboard/quarterlysummary/quarterlysummary_043021.xlsx.



Conclusion

In conclusion, Clean Energy urges the Commission's careful evaluation, analysis, and inclusion of RNG in its final IEPR, and recommends that the Commission revise the Draft IEPR to include the recommendations and comments contained herein.

Respectfully submitted,

CLEAN ENERGY

By

A handwritten signature in black ink, appearing to read 'Todd R. Campbell'. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Todd R. Campbell
VP, Public Policy & Regulatory Affairs