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**21-IEPR-05 Comments by Clean Energy on the August 31, 2021
Commissioner Workshop on Renewable Natural Gas**

Additional submitted attachment is included below.



September 14, 2021

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

**Re: CEC Docket 21-IEPR-05;
Comments by Clean Energy on the August 31, 2021 Commissioner
Workshop on Renewable Natural Gas**

Dear Commissioner McAllister, Commissioner Gunda, and Commission Staff:

Clean Energy appreciates this opportunity to comment on the August 31, 2021 IEPR Workshop on Renewable Natural Gas (RNG), comprised of two sessions (referred to as the Workshop). Much of the State's focus is to "electrify everything," without due consideration for RNG, its potential use now and into the future. Clean Energy supports the adoption of electric vehicles, particularly heavy-duty vehicles by fleets and owner-operators, but empirical data and reports from OEMs confirm that these vehicles will not be commercially viable for a decade, if not longer. Clean Energy thus strongly supports this IEPR's review of RNG and the development of gas analytical tools to inform policymaking to immediately displace heavy-duty diesel trucks. Since 2011, Clean Energy has been fully committed to expanding the use of RNG in the transportation sector and, more broadly, as a drop-in fuel for the natural gas grid. Clean Energy urges the California Energy Commission (Commission) to consider the following four key points in the 2021 IEPR:

- The critical need to support an immediate transition away from the highest carbon fuel, diesel, to broader use of RNG *now* in medium- and heavy-duty transportation fleets, to achieve attainable negative carbon emission reductions and reductions in short-lived climate pollutants (SLCP), particularly in highly impacted local air districts in the state. Gas-grid RNG can and should be expanded, with a near-term focus on the use of RNG as a transportation fuel, as the commercially available, proven technology provides for very low SLCP and *negative* carbon emissions.
- Sufficient supplies and availability of RNG exist to replace natural gas where it is needed most—for example, in medium- and heavy-duty transportation for the near term – its highest and best use.

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- Drive expansion of the use of RNG to other sectors of the economy with a Low Carbon Fuel Standard (LCFS)-like program. LCFS is a technology neutral, performance driven, successful program, and the well-to-wheels focus is the right focus and should be shared. Notably, while the displacement of SLCP is encouraged in the transportation sector through the LCFS program, the same encouragement does not exist in other sectors. Additionally, the comments during the Workshop that raised concern about encouraging “more dairy farms” by promoting the capture of methane from dairies are misguided. Dairies are driven by the demand for milk—not the demand for RNG. Capturing methane, an incredibly potent GHG and SLCP, and using it to replace the highest carbon fuel, diesel, is the quintessential virtuous cycle that brings additional, ancillary benefits.
- As long as the produced RNG meets pipeline specifications, there should be easy access to pipelines. The 2021 IEPR should consider how to facilitate pipeline interconnection – a key aspect of encouraging RNG, which was referenced in multiple presentations.

Each item is discussed in further detail below. It is important to remember that certain types of RNG provide immediate reductions of pollutants in sectors that do not have an immediately cost effective or feasible electrification option. This precise point has been emphasized by the Commission’s sister agency, the California Air Resources Board (CARB) in a recent report to the Legislature. In CARB’s report on the State’s climate investments, the two most cost-effective investments—by far—are in RNG from dairies and diverted organic waste, which reduce carbon by \$9 and \$10 per ton, respectively.¹

The Negative Carbon Emissions of RNG Can Immediately Achieve SLCP Reductions in Underserved Areas

Multiple presenters, including from the Commission,² Pacific Gas & Electric Company (PG&E),³ and the Coalition for Renewable Gas,⁴ note the expansive potential for RNG. Negative

¹ 2021 Annual Report by CARB on Cap-and-Trade Auction Proceeds, Table 2 at pp. 17-18, available at <http://www.caclimateinvestments.ca.gov/annual-report>.

² Presentation titled *2021 IEPR Workshop on Renewable Natural Gas*, by Melissa Jones at the CEC, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-1-iepr-commissioner-workshop-renewable-natural-gas-rng-supply>.

³ Presentation titled *PG&E Progress on RNG*, by Francois-Xavier Rongere at PG&E, at slide 7 (explaining the technology of woody biomass to RNG), available at <https://www.energy.ca.gov/event/workshop/2021-08/session-1-iepr-commissioner-workshop-renewable-natural-gas-rng-supply>.

⁴ Presentation titled *Renewable Natural Gas Building on Lessons from Low Carbon Fuel Standard Success to Drive RNG Use Across All Sect*, by Sam Wade by the Coalition for Renewable Gas, Aug. 31,

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carbon emissions are available *now* from RNG’s use as a transportation fuel for medium- and heavy-duty fleets;⁵ other sectors could similarly further their decarbonization efforts with the expansion of RNG.

As Southern California Gas Company (SoCalGas) described, the benefit of RNG for the natural gas grid is that it is a drop-in fuel, and unlike other fuel options, requires no need for equipment and infrastructure changes.⁶

As SoCalGas noted, certain sectors “cannot be economically retrofitted to electric;” further, the gas distribution network already has significant existing receipt and storage capacity that can be used without building additional infrastructure.⁷ The Coalition on Renewable Gas correctly recommends building “RNG projects immediately to reduce methane from organic waste streams as fast as possible” to reach 2030 short-lived climate pollutant goals.⁸ It rightly also emphasizes that “[m]any additional opportunities exist to deploy RNG across all California sectors that currently use conventional gas” and it is “[c]ritical to build out RNG to reach methane reduction goals and to begin the decarbonization of the gas sector.”⁹

Economy-wide decarbonization cannot be attained by electrification alone. Many available sources, described briefly in the section below, exist in California and can provide RNG once digesters are built and connected. The 2021 IEPR should recognize the significant benefits from near-term GHG emissions reductions that can be achieved with greater deployment of RNG. Notably, harm to local communities from dairy and swine farms—high emitters of methane—is

2021, at slide 8 (showing the RNG production facilities across North America), available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

⁵ Presentation titled *2021 IEPR Workshop on Renewable Natural Gas*, by Melissa Jones at the CEC, at slide 5, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-1-iepr-commissioner-workshop-renewable-natural-gas-rng-supply>.

⁶ Presentation titled *CEC IEPR Workshop on Renewable Natural Gas (RNG)*, by Yuri Freedman at SoCalGas, at slide 3, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

⁷ Presentation titled *CEC IEPR Workshop on Renewable Natural Gas (RNG)*, by Yuri Freedman at SoCalGas, at slide 3, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

⁸ Presentation titled *Renewable Natural Gas Building on Lessons from Low Carbon Fuel Standard Success to Drive RNG Use Across All Sect*, by Sam Wade by the Coalition for Renewable Gas, Aug. 31, 2021, at slide 18, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

⁹ Presentation titled *Renewable Natural Gas Building on Lessons from Low Carbon Fuel Standard Success to Drive RNG Use Across All Sect*, by Sam Wade by the Coalition for Renewable Gas, Aug. 31, 2021, at slide 19, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

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best addressed with increased access to biomethane production, as discussed below. Further, RNG can be a highly effective fuel to power hydrogen vehicles, when those zero emission vehicles become commercially available to the market; Clean Energy believes that the gas utility pipeline systems should eventually be upgraded to distribute hydrogen, in addition to expanding pipeline access to RNG now.

Contrary to Comments at the Workshop, RNG Supplies Should Not Be a Barrier to Broader Deployment

The 2021 IEPR should include accurate, up-to-date analysis on RNG supply and its potential growth. California policy makers need to be informed by this information on potential future supply, and the 2021 IEPR report and its analysis will be a basis for decision making. Several presentations during the Workshop document the numerous and available potential RNG sources, which include dairies, food waste, landfill gas, wastewater treatment, and agricultural waste.¹⁰ Forest waste also has real potential, and its use as a source for RNG could further help mitigate both catastrophic wildfire risk and climate change.

Relatedly, supply estimates vary depending on the source and the potential ability to capture methane.¹¹ The record on supply and potential supply in the 2021 IEPR should be based on accurate, up-to-date facts. For example, adding digesters for RNG is a significant opportunity in California's numerous dairy farms. Specifically, Verdant's presentation noted there is significant potential from RNG from the many dairies in California – the question is how close they are to pipelines.¹²

In addition, the general consensus from the Workshop is that policy efforts should focus on the biggest “carbon bang,” which include RNG from dairies and swine farms.¹³ The Commission

¹⁰ See, e.g., presentation titled *2021 IEPR Workshop on Renewable Natural Gas*, by Melissa Jones at the CEC, at slide 2, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-1-iepr-commissioner-workshop-renewable-natural-gas-rng-supply>.

¹¹ See, e.g., presentation titled *PG&E Progress on RNG*, by Francois-Xavier Rongere at PG&E, Aug. 31, 2021, at slide 7 (describing the different estimates of biomass resource potential), available at <https://www.energy.ca.gov/event/workshop/2021-08/session-1-iepr-commissioner-workshop-renewable-natural-gas-rng-supply>.

¹² Presentation titled *RNG Market*, by Stephan Barsun from Verdant Associates, Aug. 31, 2021, at slide 6, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-1-iepr-commissioner-workshop-renewable-natural-gas-rng-supply>.

¹³ See, e.g. presentation titled *RNG Market*, by Stephan Barsun at Verdant Associates, Aug. 31, 2021, at slide 16 (“Dairies have significant potential in both production and carbon reduction”), available at <https://www.energy.ca.gov/event/workshop/2021-08/session-1-iepr-commissioner-workshop-renewable-natural-gas-rng-supply>; see also presentation titled *Short-Lived Climate Pollutants*, by Jeff Kessler at CARB, Aug. 31, 2021, at slides 4-5 (noting that the dairy and livestock sector are leading emission

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explained that agriculture and landfills are the largest methane source, with a combined 80% of total 2019 methane emission sources.¹⁴ CARB observed that in 2018, leading statewide emission sources included the dairy and livestock sector (54%) and landfilled organic waste (22%) for methane emissions.¹⁵ Other sources that include food waste and forest waste could further bolster these supply projections with co-benefits.

In essence, it is important for the 2021 IEPR to recognize that there are sufficient supplies readily available to be able to replace natural gas where needed the most, including particularly and immediately in medium- and heavy-duty transportation in highly polluted areas: our disadvantaged communities. Moreover, the 2021 IEPR should catalogue and highlight the opportunity for RNG in dairies and livestock farms.

During the Workshop, CPUC Commissioner Rechtschaffen asked how much of the 5.5 bcf/d of natural gas that California uses could be sourced from RNG. On the transportation front, a 2020 study by GNA considering projects only in existence or development estimates that 160 California-based RNG production facilities could supply more than 15.8 million MMBTU to end users by the beginning of 2024.¹⁶ Recent reports note that there are currently 190 RNG production facilities operating in the United States, with an additional 232 facilities under construction or under substantial development.¹⁷ Industry has only just begun “cracking the code” on RNG production. Given the multiple sources of RNG, the supply forecasts are likely underestimated. However, it is important to emphasize that the discussion surrounding RNG should not focus on replacing *all* conventional natural gas. Rather, the reduction over time in natural gas use must be considered, and the expanded use of RNG should be recognized as an *immediate* opportunity to replace fossil fuels now, specifically in the transportation sector, and also in the future for the hard-to-electrify processes and sectors.

sources), available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

¹⁴ Presentation titled *2021 IEPR Workshop on Renewable Natural Gas*, by Melissa Jones at the CEC, at slide 5, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-1-iepr-commissioner-workshop-renewable-natural-gas-rng-supply>.

¹⁵ Presentation titled *Short-Lived Climate Pollutants*, by CARB, Aug. 31, 2021, at slide 4, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

¹⁶ *An Assessment: California's In-State RNG Supply for Transportation, 2020-2024*, by GNA, at p. 5, available at <https://cdn.gladstein.org/pdfs/whitepapers/report-assenment-california-in-state-rng.pdf>.

¹⁷ *NGV America: Passing the Infrastructure Bill Will Advance a Carbon-Negative Transport Future*, Daniel Gage, Sept. 13, 2021, available at <https://www.act-news.com/news/ngvamerica-passing-the-infrastructure-bill-will-advance-a-carbon-negative-transport-future/>.

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Counter to certain public commenters who suggested otherwise, there is no downside to increasing dairy-produced RNG. There are many benefits to surrounding local areas in doing so, for instance by capturing emissions that would otherwise be released into the air. A significant amount of methane is being released from dairy farms now that could be captured and used for RNG. The Commission should address this opportunity to acknowledge that increased diversion of the existing methane from dairy and livestock farms will benefit and help clean up local surrounding areas.¹⁸ Clean Energy agrees with the comment by Brian Biering on behalf of Dairy Cares, who notes that adding digesters and getting RNG does not risk creating more dairy farms in California; rather, it avoids emissions leakages from dairy farms moving out of state. Secondly, installing digesters to produce RNG supply will not drive the size of dairy farms – rather, it is the demand for milk. Consumption of milk products has increased over the past 20 years and has become more efficient.¹⁹ Data shows that dairy farms have maintained output of milk product using fewer animals, meaning that the industry will likely experience consolidation and will also see solutions for smaller dairy farms (1,000 head or under).²⁰

Importantly, RNG from dairy farms results in negative carbon intensity calculation, as calculated by CARB. There are multiple sources of RNG, from landfill to wastewater to forest waste to food waste to manure, and not all RNG is created equal. Data acquired from CARB measuring a fuel's carbon intensity, which is compiled into the table below, shows that certain fuel types result in *negative* carbon intensity.

¹⁸ Press Release for WWF Study: Larger US Dairy Farms Could Achieve Net-Zero Emissions Within 5 Years (describing how both large and smaller farms can benefit from advancements in technology in reducing emissions), Jan. 27, 2021, available at <https://www.worldwildlife.org/press-releases/wwf-study-larger-us-dairy-farms-could-achieve-net-zero-emissions-within-5-years>.

¹⁹ See, data provided by the U.S. Department of Agriculture Economic Research Service, available at <https://www.ers.usda.gov/data-products/dairy-data.aspx>. For example, the Aug. 16, 2021 table titled “U.S. milk production and related data (quarterly and annual)” shows that national milk production has overall increased since 1998, and that pounds of milk per cow has also increased.

²⁰ Id.

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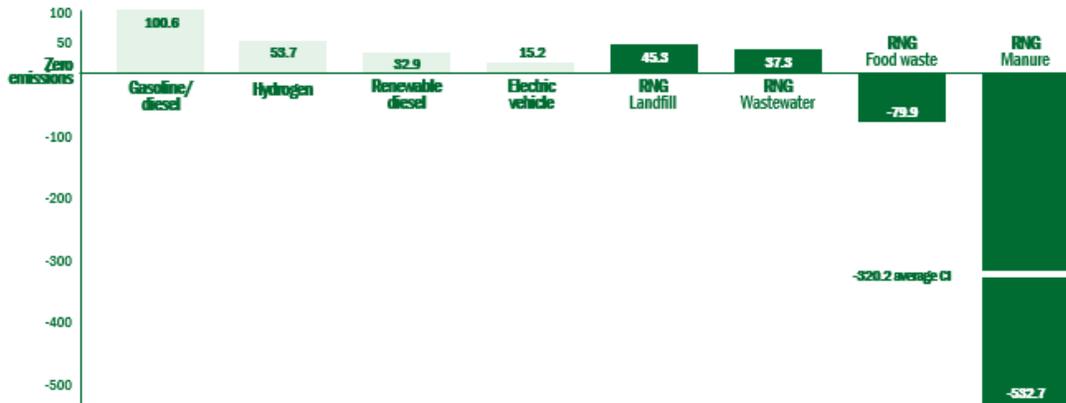
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RNG is the lowest carbon alternative fuel



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.

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The Commission Should Consider an LCFS-Like Program for RNG

During the Workshop, Commissioner McAllister commented on how the LCFS encourages RNG as a transportation fuel, implying that a similar program should be considered for broader encouragement of RNG. Clean Energy believes that an LCFS-esque program, along with improved pipeline access, would incentivize greater RNG injections into the gas grid. In the near term, this promotes distribution to transportation fleets (without the need for new infrastructure), which would provide the immediate benefits of reduced carbon and SLCP, cleaning up the air in disadvantaged communities. In the Coalition for Renewable Gas’s presentation, Sam Wade described how current California policy promotes RNG creation and use in transportation and power, but not use in the largest gas demand sectors.²¹ A LCFS-type approach for expanding RNG to other economic sectors beyond transportation would be crucial, particularly with a cradle-to-grave analysis. The LCFS program is technology-neutral and performance standard driven, with an appropriate focus on well-to-wheels analytics.

²¹ See, e.g., Presentation titled *Renewable Natural Gas Building on Lessons from Low Carbon Fuel Standard Success to Drive RNG Use Across All Sectors*, by Sam Wade by the Coalition for Renewable Gas, Aug. 31, 2021, at slide 14, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

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The success of the LCFS program is well documented.²² It should be emulated in promoting RNG in other sectors and uses, as well as by agencies other than CARB. The well-established scientifically rigorous approaches are based in the U.S. Department of Transportation GREET model, and modified by CARB for the LCFS program. The careful analysis of multiple inputs produces accurate, reliable, objective results, and those results should inform and drive RNG deployment across all state agencies, including this Commission.

In the transportation sector and as a drop-in replacement to the natural gas grid, methane repurposing achieves the biggest impact. Capturing the incredibly potent GHG (methane), using it, and replacing the highest carbon fuel (diesel) carries substantial benefits. Methane repurposing can help the livestock farms that drive the economic engine in the Central Valley in California, clean up air locally, and provide ancillary benefits (such as cleaner water, reduction of odor, and the production of digestate) – a virtuous cycle.

Facilitating Pipeline Interconnection

Regarding the quality of injected RNG, Clean Energy strongly believes that if the produced renewable natural gas meets pipeline specifications, there should be easy access to pipelines.

The 2021 IEPR analysis should consider how to facilitate pipeline interconnection, an issue that was referenced in the CPUC's presentation on renewable gas programs.²³ The CPUC's Senate Bill 1440 regulatory proposal proposes to procure biomethane to support the diversion of the 8 million tons of organic waste that exceeds CalRecycle's Senate Bill 1383's projected organic waste diversion capacity from wastewater treatment plants by 2025.²⁴ However, the lack of pipeline connections between the dairy or swine farm digester-produced RNG can be challenging; in the absence of readily-available pipeline interconnections, trucks are used to transport the RNG.

Private companies such as Clean Energy are investing private funding into the projects because they believe there is more than one use for RNG, and that flexibility should be recognized and encouraged at the policy level. Critically, from a policy perspective, while the preponderance of the State is moving towards the reduction of natural gas use, California still must be willing to

²² See, e.g., Presentation titled *Renewable Natural Gas Building on Lessons from Low Carbon Fuel Standard Success to Drive RNG Use Across All Sectors*, by Sam Wade by the Coalition for Renewable Gas, Aug. 31, 2021, at slide 12 (showing an increase in RNG blend rate in transportation natural gas vehicles in Q1 2021), available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

²³ Presentation titled *CPUC Renewable Gas Programs*, by Karin Sung at the CPUC, Aug. 31, 2021, at slide 4, available at <https://www.energy.ca.gov/event/workshop/2021-08/session-2-iepr-commissioner-workshop-renewable-natural-gas-policy-approaches>.

²⁴ Id. at slide 10.

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use gas-fired generation in some locations. If access to pipelines is not feasible, using RNG onsite to create electrons to input into the electric grid helps with reliability, and greens the grid.

Accordingly, Clean Energy is not only producing RNG for medium- and heavy-duty vehicles with compressed natural gas engines, but is also working with onsite power generation projects to produce and move a renewable electron where it is more difficult to move a renewable therm. During the transition over the next decade, using RNG onsite to create electrons to sell into electric grid where it can't be injected into a pipeline should be encouraged, as it can help with reliability and greening the grid. The ultimate policy recommendations in the 2021 IEPR should encourage flexibility, and must be performance-driven. There can and should be many tools at play to solve our climate challenges, not just solar, wind, and batteries.

Relatedly, in regard to the CPUC's Senate Bill 1440 staff proposal, Clean Energy has previously commented that the staff proposal is too narrow and does not effectively accelerate the goal of increased biomethane or RNG use.²⁵ Specifically, a biomethane procurement program—funded by ratepayers—in isolation leads to concerns with cost effectiveness and the potential hindering of private enterprise.

In conclusion, Clean Energy supports the Commission's careful evaluation and study of the importance of developing the policies and programs needed to help industries accelerate decarbonization with RNG. Most importantly, Clean Energy emphasizes that use of RNG in transportation is the highest and best use of this renewable fuel, and that the importance of the utility pipeline systems to deliver low carbon RNG to the transportation market is critical. Clean Energy thanks the Commission for its attention to these comments and looks forward to continuing working to expand RNG deployment.

Respectfully submitted,

CLEAN ENERGY

By

Todd R. Campbell
VP, Public Policy & Regulatory Affairs

²⁵ *Clean Energy Comments on Administrative Law Judge's Ruling Directing Parties to File Comments on Phase 4A Staff Proposal and Related Questions*, June 30, 2021, in CPUC docket R.13-02-008.

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