March 6, 2020

David Allgood
California Air Resources Board
1001 I Street
Sacramento, California 95814

**RE: Meeting California's Carbon Neutrality Goals & Approaches for the Industrial Sector**

Dear Mr. Allgood,

The Coalition for Renewable Natural Gas (RNG Coalition)[1] offers this letter in support of the preliminary concepts for industrial decarbonization presented by the California Air Resources Board (CARB) staff during the February 24, 2020 webinar. As discussed on the webinar, additional policy support is needed to effectively reduce greenhouse gases (GHGs) from industrial activity in California and put us on the path to achieve carbon neutrality by 2045.

**Renewable Natural Gas Will be a Key Technology Option to Reduce Emissions from All Sectors**

A variety of studies have found that Renewable Natural Gas (RNG) will be a necessary component of any strategy for reaching California's long-term decarbonization goals. For example, work done by Energy and Environmental Economics (E3) found that RNG could contribute to GHG reductions in all sectors, and that use of RNG in the industrial sector would be especially helpful due to the limited alternative GHG abatement options available in that sector.[2] The Energy Futures Initiative (EFI)[3] also found that RNG is likely to be an essential contributor to California's decarbonization effort, because it is a cost-effective solution available at scale in the near-term.

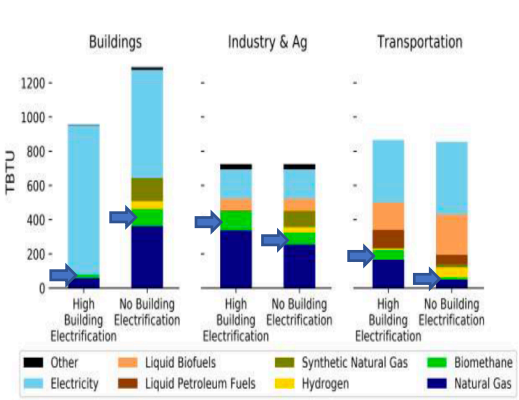
The RNG Coalition supports the increased development, deployment and utilization of RNG regardless of the feedstock, indiscriminate of the competing technologies used to upgrade raw biogas to RNG, and for all sustainable end-use applications. Therefore, we believe it is helpful to evaluate the potential for RNG use across all sectors. For example, both of following charts (from E3's *Aas et al. 2019* and the EFI work,

[1] The RNG Coalition is the trade association for the RNG industry in the United States and Canada. Our diverse membership is comprised of leading companies across the RNG supply chain. Together we advocate for the sustainable development, deployment and utilization of RNG, so that present and future generations have access to domestic, renewable, clean fuel and energy in California and across North America. For more information see: http://www.rngcoalition.com/

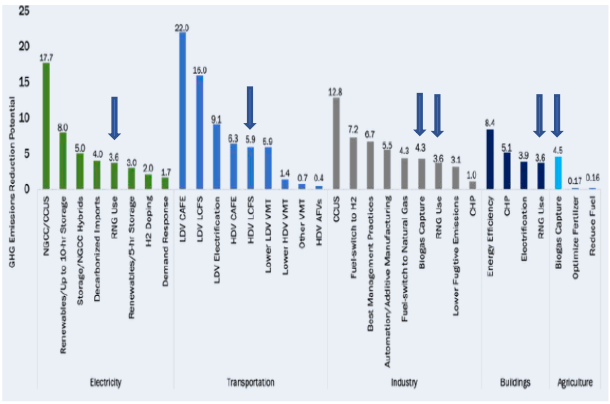
[2] E3 has produced a series of work that shows the complementary nature of RNG and other low-carbon technologies. This series includes: The *2017 Scoping Plan* Pathways Analysis, *Deep Decarbonization in a High Renewables Future: Updated Results from the California PATHWAYS Model* (June 2018) and *Residential Building Electrification in California* (April 2019) and *Natural Gas Distribution in California's Low-Carbon Future: Technology Options, Customer Costs and Public Health Benefits*, (*Aas et al. 2019)*. E3 has consistently included statements such as, "industrial sector emissions are expected to be among the more difficult, and more expensive to mitigate." (See page 30 of *Deep Decarbonization*.)

[3] EFI, May 2019, *Optionality, Flexibility, and Innovation, Pathways for Deep Decarbonization in California*, https://static1.squarespace.com/static/58ec123cb3db2bd94e057628/t/5ced6fc515fcc0b190b60cd2/1559064542876/EFI_CA_Decarbonization_Full.pdf.

shown together below as Figure 1), demonstrate that RNG can be used across all sectors and in the context of a broad portfolio of GHG reduction technologies. [4]




Source: *Aas et al. 2019* (E3)




Source: Energy Futures Initiative

*Figure 1. Both E3 and EFI Show RNG Use in All Sectors*

**RNG is Naturally Suited to Industrial Facilities Using the Existing Gas Infrastructure**

Our members represent more than 95% of all RNG produced in North America and supply the RNG demand for a variety of markets, including those created by policies, across the US and Canada. However, after consideration of the environmental impacts of all relevant policy support, RNG tends to be supplied to the sector that provides the most attractive project economics due to the relatively high cost of RNG production (compared to geologic natural gas).

Our membership constantly evaluates the incentive structure created by regulation and RNG incentive programs. Currently, the transportation sector delivers the most attractive economics for RNG applications, due to California's Low Carbon Fuel Standard (LCFS), Oregon's Clean Fuels Program (CFP) and the federal Renewable Fuels Standard (RFS). Our members have responded swiftly to these programs and committed significant capital to supply RNG and help decarbonize heavy-duty vehicles—in-line with the signals created by CARB, Oregon's Department of Environmental Quality and the United States Environmental Protection Agency through these transportation fuel programs.

However, industrial activities represent the largest demand for natural gas in California. RNG is a "drop-in" low carbon fuel that can be used as a direct substitute in the existing gas infrastructure. Supplying RNG to industrial customers who currently use conventional gas does not require any capital improvements or change in equipment on the part of those customers.

Given the growing recognition that industrial applications are difficult to decarbonize, and that RNG is one of the most attractive GHG abatement strategies currently available for the sector, CARB should establish a similar level of support for RNG use in industrial applications to that currently available in and responsible for decarbonizing the transportation sector.

[4] Each of these studies has demonstrated the importance of combining RNG with other strategies to reduce greenhouse gas emissions across all sectors in California. For our decarbonization efforts to be successful, we must expand, rather than limit, the set of technologies contributing to GHG abatement.

**There is Strong Potential for Additional RNG Supply**

Recent studies have highlighted the potential for RNG supply to be expanded significantly, both in California and nationally. For example, ICF completed a national study commissioned by the American Gas Foundation that identifies between 1,660 trillion Btu (tBtu) and 3,780 tBtu of RNG which could be produced annually for pipeline injection (and delivery to residential, commercial and industrial customers) by 2040.[5]

The ICF estimate of RNG supply potential can be compared to the current industrial demand for natural gas in California of about 760 tBtu per year,[6] or to the 34 tBtu of RNG reported as used in transportation applications nationwide in 2019.[7] Lawrence Livermore National Labs also recently looked at the supply of RNG from various sources,[8] and found that RNG could be a critical contributor in reaching California's carbon neutrality goals.

**Addressing Economic Impacts and GHG "Leakage" Remains a Critical Issue**

We understand from conversations with industrial users of gas that the premium associated with using RNG creates concerns about losing market share to their out-of-state competitors and the associated economic and emissions "leakage"[9] as a result. CARB has already acknowledged industrial leakage concerns in the design of the allowance allocation in the Cap-and-Trade (C&T) program,[10] and we recommend that CARB build off of that work in considering additional programs to promote further decarbonization of the industrial sector.

Some of the most well established ways to address leakage concerns include either putting imported product and in-state production on a level playing field (perhaps through a consumption-based

[5] ICF, December 2019, *Renewable Sources of Natural Gas: Supply and Emissions Reduction Assessment*, prepared for the American Gas Foundation. https://www.gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-Study-Full-Report-FINAL-12-18-19.pdf

[6] https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm

[7] https://www.epa.gov/fuels-registration-reporting-and-compliance-help/rins-generated-transactions

[8] Lawrence Livermore National Laboratory, January, 2020, *Getting to Neutral: Options for Negative Carbon Emissions in California*, Sarah E. Baker, Joshuah K. Stolaroff, George Peridas, Simon H. Pang, Hannah M. Goldstein, Felicia R. Lucci, Wenqin Li, Eric W. Slessarev, Jennifer Pett-Ridge, Frederick J. Ryerson, Jeff L. Wagoner, Whitney Kirkendall, Roger D. Aines, Daniel L. Sanchez, Bodie Cabiyo, Joffre Baker, Sean McCoy, Sam Uden, Ron Runnebaum, Jennifer Wilcox, Peter C. Psarras, Hélène Pilorgé, Noah McQueen, Daniel Maynard, Colin McCormick, LLNL-TR-796100, https://www-gs.llnl.gov/content/assets/docs/energy/Getting_to_Neutral.pdf

[9] For an introduction to the concept of GHG leakage see: https://climatepolicyinfohub.eu/carbon-leakage-and-industrial-innovation

[10] https://ww3.arb.ca.gov/cc/capandtrade/allowanceallocation/allowanceallocation.htm

framework that uses lifecycle accounting, similar to the approach employed in the LCFS)[11] or to support industrial abatement through incentive programs for RNG use (perhaps using C&T allowance value).

The RNG industry is open to all options that effectively promote the use of RNG to decarbonize the industrial sector, and we look forward to future conversations with CARB and other stakeholders on these issues as this process develops.

**Conclusion**

The RNG Coalition appreciates the opportunity to participate and provide comments in this proceeding. Our members continue to invest in and construct new RNG production facilities that create clean energy sector jobs and improve air quality for the collective benefit of our environment and economy. We thank CARB for their leadership on this issue as such dialogue provides an example for policymakers interested in industrial decarbonization across all of North America, and around the world.

Sincerely,

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[11] We note that the proposed design of the Canadian Clean Fuel Standard includes a consumption-based framework and lifecycle accounting for industrial uses of fuels (as well as transportation applications). See: https://www.canada.ca/en/environment-climate-change/services/managing-pollution/energy-production/fuel-regulations/clean-fuel-standard.html