USA RENEWABLE ENERGY

The Honorable Liane M. Randolph
Chair California Air Resource Board
P.O. Box 2815
Sacramento, CA 95814

September 3, 2021

Re: 2022 Scoping Plan Update

Dear Chair Randolph:

On behalf of the 11 signatories to this letter, we appreciate the opportunity to comment on the 2022 Scoping Plan Update, the focus of which "will assess the progress towards achieving greenhouse gas emission (GHG) reductions by 2030 and lays out a path to achieve carbon neutrality by mid-century." This diverse coalition of stakeholders firmly believes that any viable scenario to achieve Carbon Neutrality by 2045 must include renewable and carbon negative fuels. Please consider the following:

ADDRESSING SHORT-LIVED CLIMATE POLLUTANT (SLCP) REDUCTIONS SHOULD BE THE PRIORITY

The Scoping Plan must focus on climate change per state law and the top priority should be meeting statutory requirements to reduce climate pollution. Nothing can do this more effectively than renewable fuels that displace diesel because of their low carbon intensities and because diesel is a major source of black carbon.

It is unclear why CARB has been reluctant to include as a strategy the use of renewable fuels in the transportation sector, but SLCP reductions should be the highest priority in the Scoping Plan. These are the only reductions that benefit the climate right away and time is running out to avoid the most severe and irreversible impacts of climate change. Climate change is happening more quickly and more destructively than was predicted even a few years ago. Climate scientists have said that we have only six to seven years left to slow warming or we will go beyond a 1.5 degree Celsius increase that will trigger very dangerous feedback loops. If we focus only on carbon dioxide reductions, we will not begin to reverse global warming for several decades or more.

In a presentation on SLCP reductions in late June, Dr. V. Ramanathan from UC San Diego and the Scripps Institute stated that we have much less than 10 years to bend the warming curve.[1] He also said that the only lever we have left to make a difference in that time frame is reducing SLCP reductions.[2] Dr. Ramanathan, along with experts from Environmental Defense Fund and ClimateWorks Foundation, said we must go all out – and fast - on SLCP reductions by doing the following:

- Eliminate diesel use right away since it causes black carbon emissions and other climate pollution;
- Reduce wildfire emissions and open burning of forest and agricultural waste;
- Reduce methane from livestock and from landfill waste;
- Reduce HFCs[3].

Scientific experts also agree that these same steps will provide enormous benefits for air quality, public health, agricultural productivity, forest health, and more. **SLCP reductions MUST be the number one focus of the 2022 Scoping Plan Update.**

ALTERNATIVE SCENARIOS SHOULD BE CONSIDERED AND PUBLICLY ANALYZED

Transparency into the selection of all the scenarios to be evaluated, including the continued use of renewable fuels, as well as electrification, is important. The magnitude of the Scoping Plan demands that alternative scenarios to 100% electrification be considered and their analysis made public, and if rejected, provide a quantitative response. CARB has promised, and we look forward to participating in, a more complete detailed public Scoping Plan meeting to discuss project scenario alternatives and needed technical analyses with stakeholders.

During the Mobile Source Strategy development, CARB has confirmed receipt and review of the study conducted by Ramboll U.S. Consulting Inc. titled "Multi-Technology Pathways to Achieve California's Air Quality and Greenhouse Gas Goals: Heavy-Heavy-Duty Truck Case Study." This study found that "expanded implementation of zero-emission and low NOx vehicles, coupled with increased introduction of renewable liquid and gaseous fuels, can deliver earlier and more cost-effective benefits than a ZEV only approach."[3] The study also found that "near-term NOx reductions and long-term GHG goals can be achieved with a mix of advanced low-emitting trucks and renewable fuels."[4]

In addition to the Ramboll study, we request that CARB also provide an analysis of the recent scientific study[4] titled "Achieving NOx and Greenhouse Gas Emissions Goals in California's Heavy-Duty Transportation Sector" that found the best pathway to reducing GHGs and criteria pollutants is to eliminate diesel through a combined zero and near zero approach that includes low NOx trucks operated on renewable fuel.

The highly respected authors stated, in part, "GHG results show that very aggressive deployment of low carbon technologies is necessary to achieve 2040 emission targets…The analysis suggests that Heavy-Heavy-Duty Near-Zero Emission Vehicles should be encouraged in the near to mid term, and even long

[1] Presentation by Dr. Verrabhadran Ramanathan, UC San Diego, on June 24, 2021, at MoveCA's symposium on SLCP Reductions.
[2] Id.
[3] Id.
[4] *"Achieving NOx and Greenhouse Gas Emissions Goals in California's Heavy-Duty Transportation Sector*," 2021, Raju, Wallerstein and Johnson, www.sciencedirect.com/science/article/pii/S1361920921001826

term, if operated on renewable natural gas." The authors continued by stating, "We evaluate the NO_x and greenhouse gas (GHG) emissions trends of the Heavy-Duty (HD) transportation sector in California's South Coast region, under four future scenarios with varying deployment trends of near-zero-emission vehicles and zero-emission vehicles (NZEV and ZEVs) over two decades… Analysis shows that emissions are significantly impacted by the rate of deployment of cleaner technology options...The results show accelerating the fleet turnover to be a more important NO_x control strategy than dividing the vehicle replacement between NZEVs and ZEVs."

CARB should therefore model what renewable fuels can do to meet the state's greenhouse gas emission goals. It is the responsibility of CARB to examine alternatives that can meet or exceed the state's goals, and provide the public with their analyses and conclusions for review and comment. This includes a written analysis in response to both of these studies. Further, as indicated in prior Scoping Plan materials, CARB will be preparing an environmental assessment under the California Environmental Quality Act ("CEQA"). In preparing this document, CARB is required to evaluate feasible alternatives to the 100% electrification option. Indeed, CARB may not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of a project. Cal. Pub. Res. Code, § 21002. Here, CARB should evaluate an alternative that includes continued use of alternative fuels in order to fully comply with its obligations under CEQA.

Besides a verbal comment that CARB does not agree with some of the Ramboll study's conclusions, the public has not been made aware of why such a conclusion has been reached. The public does not know the technical rationale used in this evaluation, with what CARB does agree, what might need further study, alternative scenarios provided by CARB itself or why only electrification of the transportation sector is the sole scenario being pursued despite the plausible and valid quantitative research and conclusions provided in the Study.

The natural gas vehicle fleet in California powered by RNG is already low to carbon negative. According to CARB data, California fleets that fueled with bio-CNG in 2020 achieved carbon negativity for the year, with an annual average carbon intensity score of -5.845 gCO2e/MJ. Latest data puts the carbon intensity of bio-CNG in California's system at -16.57 gCO2e/MJ (Q1, 2021). This level of emissions is critical to reach carbon neutrality.

Adoption of RNG in trucks, buses and other vehicles grew 25% across California from 2019 to 2020, and RNG use is up more than 170% in the past five years according to recent data released by CARB. Ninety-two percent of all on-road fuel used in natural gas vehicles in California in 2020 was RNG.

In addition, RNG used as a motor fuel in California in 2020 displaced 1.83 million tons of carbon dioxide equivalent. To put this into perspective, California RNG motor fuel use:

- Lowered GHG emissions by the equivalent amount generated by driving the average passenger car 4.6 billion miles;
- Eliminated CO2 emissions, equal to 205.7 million gallons of gasoline consumed, or the energy use of 220,118 California homes in one year;
- Sequestered the amount of carbon captured by 2.24 million acres of U.S. forests in one year.

Transparency is critical in a democracy. We urge CARB staff to share their own analyses and those in response to these studies with the public and the Environmental Justice Advisory Committee.

INCLUSION OF RENEWABLY FUELED LOW NOx VEHICLES

CARB has an obligation to produce scenarios and analysis which include near-term air quality strategies, along with scenarios which acknowledge not every HD vehicle category is a good fit for electrification. Low NOx vehicle strategies that meet CARB's 0.02g/bhp-hr NOx standard today should be included in any scenario and analysis. Addressing both air quality and GHG goals in the heavy-duty sector is key to success.

Heavy-duty Zero-Emission Vehicles (HD ZEVS) are not expected to achieve widespread commercial readiness before the 2030 deadline in SB 32. The 2045 deadline in Governor Newsom's Executive Order to electrify the heavy-duty transportation sector is a "where feasible" goal. To emphasize this point, in a recent letter to the Legislature three air districts wrote, "We are fully supportive of the deployment of ZE technology, however, the reality is that it is not yet ready for mass deployment and there is a lack of sufficient charging infrastructure. Thus, for every low NOx truck not funded now, there will be one more diesel truck in its place further polluting our communities."[5]

Omitting such a scenario will result in more diesel trucks on California's roads and highways, not less. Diesel trucks are the single largest source of air pollution in California's two most polluted air districts. Given that low NOx trucks operated on renewable fuel are such a critical component for California to achieve air quality goals, reduce GHG emissions, attain the National Ambient Air Quality Standards, and protect the health and well-being of Californians, we believe it is imperative that heavy-duty vehicle technology policy should effectively include the early adoption of low NOx trucks operated on low carbon renewable fuels now. For example, CARB's Low Carbon Fuel Standard data from the third quarter in 2020 confirms that the energy weighted carbon intensity value of Renewable CNG is now already below zero at -17.95 gCO2e/MJ.

Zero emission technology is anticipated to eventually be market-ready and cost-competitive with today's low NOx HD trucks, but until that time, immediate climate change solutions and Californians breathing unclean air should not be subject to a delay. Without a suite of incentives and regulations that promote the near-term implementation of low NOx technology, CARB will have failed its public health mission. It continues to be troubling that CARB equates zero tailpipe to zero carbon, which is just not correct. CARB certainly has a long-term vision of a carbon neutral grid but that is many years away as we consider logistics and costs associated with the installation of generation, storage and distribution. Again, zero tailpipe does not equal benefits related to climate change, even if one ignores the mining, refining, production and other upstream environmentally damaging activities associated with lithium-ion batteries.

Currently available, low NOx heavy-duty trucks remain one of the most cost-effective immediate remedies **to the problems of NOx and greenhouse gas (GHG) emissions.** Available low NOx trucks are currently certified by CARB as 90 percent cleaner than today's certified diesel and provide even greater

[5] Letter to the Legislature, May 27, 2021, South Coast Air Quality Management District, San Joaquin Valley Air Pollution Control District, Bay Area Air Quality Management District

in-use emission benefits than the latest diesel technology (note: newer diesel trucks can actually emit at times 10 times above 2010 standards[1]).

In today's heavy-duty truck marketplace, insufficient or ineffective incentives or policy drivers are significantly impairing any meaningful deployment of heavy-duty low NOx vehicles over the purchase of dirtier diesel trucks to meet the Truck & Bus deadline of 2023 (i.e. when fleet owners have a choice of how to replace the pre-2010 diesel trucks required to be removed from California's roads). Moreover, there is little incentive for manufacturers to bring more 0.02 NOx certified vehicles to market prior to 2027. We strongly believe that cleaner low NOx trucks would be introduced into the market to displace diesel trucks if policy drivers made them much easier to obtain.

The time to act is now. California can work toward meeting the GHG reduction and extreme ozone attainment challenges in the South Coast and San Joaquin air basins. Further reduction of NOx emissions is critical for attaining federal ozone and PM2.5 standards."[2] The first major ozone deadline under the federal Clean Air Act is January 1, 2023, and even the deadline in 2031 is at risk.

SUFFICENT SUPPLY OF RNG TO MEET FUTURE HEAVY-DUTY TRANSPORTATION DEMAND

Recent research conducted by Gladstein, Neandross and Associates[6] indicates that the supply of RNG is growing rapidly both in California and nationally. By using data provided by state and local agencies, project developers, third party marketers and other reliable sources, their inventory analysis assessed the current and future RNG production from existing and developing production facilities. Their study concluded that California will have enough RNG supply to meet demand for heavy-duty low NOx vehicles. Please consider their findings:

- The market in California for natural gas as a transportation fuel is saturated by RNG. By the beginning of 2024, the oversupply of RNG in California will be sufficient to fuel more than 12,650 new natural gas trucks;
- Given the high financial value producers receive for their product when it is used in motor vehicles in California, not only will RNG flow to the Golden State first, but the market will incentivize the delivery here of the lowest carbon forms of the fuel. Given the powerful economic incentives to sell RNG in California, the national supply of RNG that will be available by the end of 2023 would be enough to fuel more than 62,860 new Near Zero Emission (NZE) natural gas trucks here, which would represent an approximate 1,200% increase in market sales;
- The dramatic growth in RNG production and the financial benefits that producers receive for selling their fuel to California end users leads to the conclusion that there is more than enough RNG supply to support even the most ambitious near zero emission vehicle deployment strategies here;
- More than $1 billion is being invested in California to build the state's supply of locally produced RNG—with 77% coming from private investors;
- California-produced RNG will have an average energy-weighted carbon intensity of -101.74 gCO2e/MJ as of January 2024;
- Fueling natural gas trucks with this upcoming supply of California-produced RNG will enable fleets to generate over 3.4 million tons of greenhouse gas emission reductions annually.

[6] "An Assessment: California's In-State RNG Supply for Transportation: 2020-2024," 2020, Gladstein, Neandross and Associates

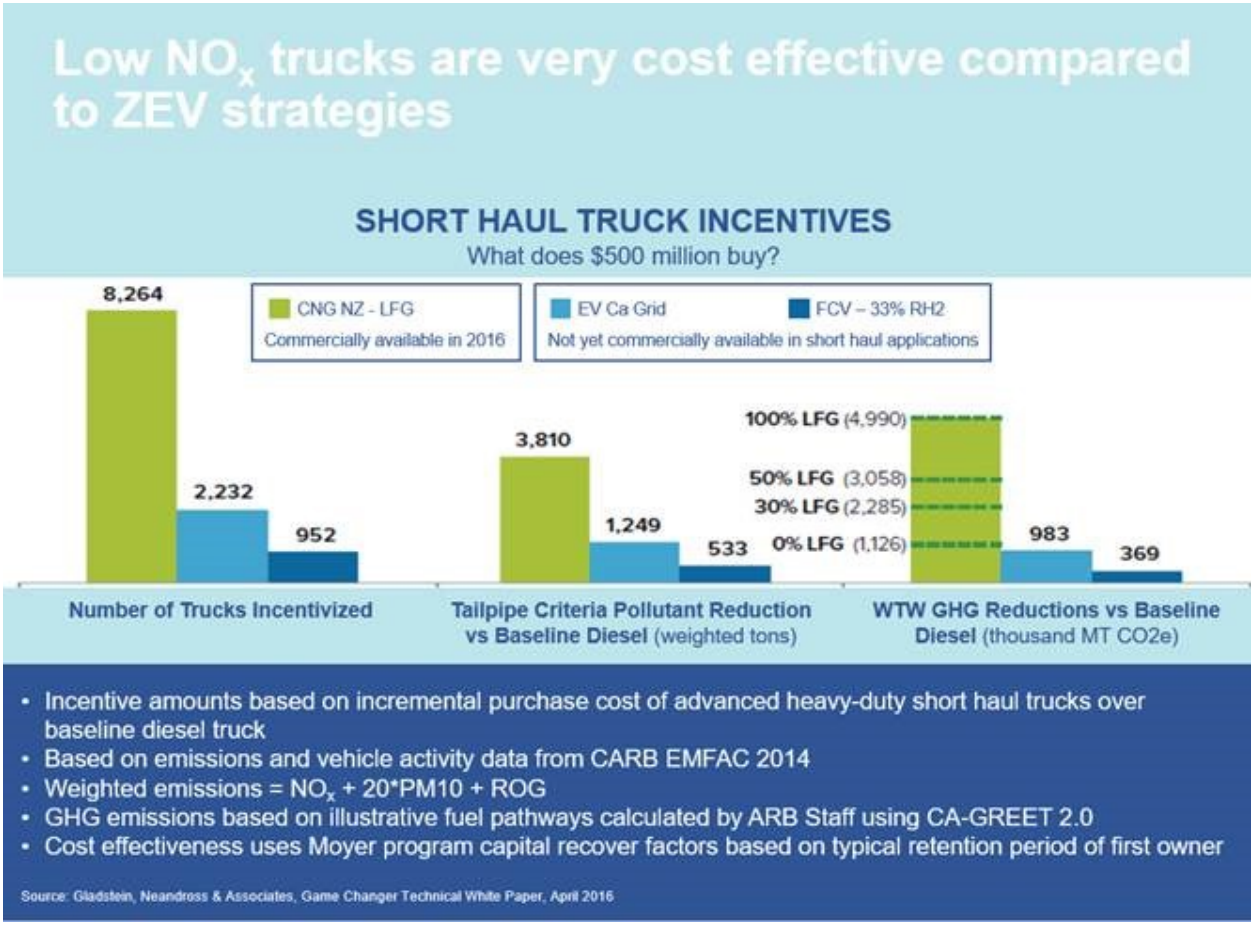
WHAT IS THE HIGHEST AND BEST USE FOR RENEWABLE FUELS IN 2050?

This question from CARB is being asked for a timeframe so far into the future that it cannot be answered effectively at this time. There are far too many variables involved to draw any useful conclusions, including but not limited to battery and fuel cell technology readiness, cost, industry presence, the highest and best use for biomass and public financial commitments. The timeframe for this question should be limited to the next decade since forecasting and visibility is much clearer now. This should include the replacement of heavy-duty diesel vehicles and the focus on near-term emissions reductions. We recommend that CARB not answer this question as part of the Scoping Plan.

COST-EFECTIVENESS SHOULD BE INCLUDED

An electrification-only scenario comes with substantial financial resource limitations for the state with it being the highest cost and highest risk option. There are faster and lower cost pathways to get closer to the Scoping Plan goals including protecting public health. Those suffering the effects of bad air quality don't have to wait that long; they can get relief sooner, but CARB seems to be ignoring beneficial alternative scenarios.

How many renewable natural gas vehicles can be purchased for the same amount of funding allocated for heavy-duty ZEVs? This chart was prepared to answer that exact question. It is titled "What does $500 Million Buy?" and compares the cost-effectiveness of the technologies. This chart analyzes only "short haul trucks" because there aren't any heavy-duty ZEVs in existence for comparison.



Please consider this chart below containing data provided by CARB. This shows the number of vehicles, by category type, which have received vouchers since CARB's Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) program's inception. While 596 ***more*** natural gas vehicles received vouchers, it cost $158,573,126 ***less than*** the total received by ZEVs.

Type	# of Vehicles	% Vehicles of Awarded	Total Awarded	% of Total Funds
ePTO	226	3%	$ 5,249,000	1%
HV	2,580	35%	$ 64,030,276	17%
Natural Gas	2,546	35%	$ 73,288,714	20%
ZEV	1,950	27%	$ 231,861,840	62%
Grand Total	**7,302**	**100%**	**$ 374,429,830**	**100%**

Low NOx trucks are essential in addressing climate change and clean air. Please consider these facts:

1. NOx emissions are reduced by 90% compared to the current EPA/CARB standard and by 99% compared to diesel trucks on the road today;
2. Diesel particulate would be reduced 100%;
3. Diesel fuel would be eliminated 100%;
4. RNG fuel reduces carbon emissions by up to 400%, which is far greater than the aspirational goal of ZE technologies that hope one day to achieve a mere 100% reduction;
5. RNG fuel has already fully penetrated the California market and is readily available;
6. NZE trucks are 90% quieter than diesel trucks;
7. NZE trucks are already commercially available and proven;
8. NZE trucks cost less than half the cost of ZE trucks. Every dollar spent on NZE gains greater emissions reductions than a dollar spent on ZE;
9. NZE truck fueling infrastructure is readily available, ZE infrastructure is a complete unknown.

We would also like to highlight that CARB's own report to the Legislature[7] shows that the state's investments in bioenergy are the most cost-effective of all the state's climate investments, costing just $9 and $10 per ton of carbon reduction from dairy manure and diverted organic waste, respectively. These key findings are in Table 2 on pages 17 and 18.

CARBON NEUTRALITY

An electrification-only scenario largely ignores the urgent need to reduce black carbon and smog-forming emissions from diesel fueled heavy duty vehicles this decade. Diesel trucks are the largest source of air pollution in the San Joaquin Valley and South Coast Air Districts, and they are also a significant source of black carbon emissions. Biogas from organic waste can virtually eliminate black carbon from diesel and

[7] "*Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds*," April 2021, California Air Resources Board

can cut lifecycle carbon emissions by 100 percent or more. Yet, new diesel fueled trucks will continue to be sold in California through 2040 at least. This is simply unacceptable from a climate and an air quality standpoint.

California needs to focus on reducing black carbon, other Short-Lived Climate Pollutant emissions, and the utilization of fossil fuels. To the extent that we need to prioritize, it is far more urgent to reduce SLCP emissions, especially anthropogenic black carbon that is so many times more damaging to the climate than carbon dioxide and the reduction of which benefits the climate right away (which carbon dioxide reductions do not). CARB should prioritize the elimination of diesel and the reduction of open burning of agricultural waste, all of which can be done by converting organic waste to energy and fuels.

CARB is attempting to ignore vehicles which are 90 percent cleaner and can run on fuels that are low to negative carbon. For example, from CARB's own analysis, near-zero emission low NOx trucks that run on RNG can cut NOx by 90 percent compared to diesel and can cut carbon emissions by 100-300% depending on the biogas source. Why not phase out diesel more quickly and encourage continued use of renewable fuels in near-zero emission trucks until truly commercial heavy-duty ZEV alternatives are available?

Eliminating the use of diesel should be one of California's top priorities for both climate change and air quality since diesel emissions contain black carbon and toxic air contaminants and are a major source of smog-forming pollution. In fact, Governor Newsom has called for the end of diesel-powered vehicles by 2030.

RENEWABLE NATURAL GAS IS A CARBON NEGATIVE FUEL

On Tuesday, June 8th CARB held the first of three workshops over what would be three days to begin the process to adopt the 2022 Scoping Plan Update. An industry stakeholder asked during the public comment portion of the workshop about RNG being a carbon negative fuel and what role it would play. The response from CARB staff was that for inventory purposes, organics diversion and biofuels are "counted as zero" and not negative like in the Low Carbon Fuel Standard (LCFS.)

We are highly concerned from this response that CARB could be planning to reverse the negative carbon intensity values in favor of a carbon neutral floor, and that redefining this in order to support electric vehicles could have a dramatic impact on the various industries which values the benefits from the LCFS, and which contribute to substantial greenhouse gas emission reductions. **We request that CARB address and clarify this statement.**

We appreciate having the opportunity to comment on the 2022 Scoping Plan Update. We hope to continue to work with CARB in developing the Scoping Plan to address the State air quality and climate challenges.

Sincerely,

Mark Bragg, Managing Member, USA Renewable Energy
Tim Carmichael, State Agency Relations Manager, Southern California Gas Company

Evan W.R. Edgar, Regulatory Affairs Engineer, California Compost Coalition
Daniel J. Gage, President, Natural Gas Vehicles for America
Ralph Harrison, President, E.J. Harrison & Sons, Inc.
Ryan Kenny, Senior Policy Advisor, Clean Energy
Kathryn Lynch, Regulatory Affairs, California Waste Haulers Council
Veronica Pardo, Regulatory Affairs Director Resource Recovery Coalition of California
Ashley Remillard, Vice President, Hexagon Agility
Nicole Rice, President, California Natural Gas Vehicle Coalition
Paul Ryan, Director of Regulatory Affairs, Inland Empire Disposal Association

Cc: Chair and Members, California Air Resources Board
Ms. Dee Dee Myers, Senior Advisor and Director, California Governor's Office of Business & Economic Development
Cabinet Secretary, Office of the Governor