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The Honorable Mary Nichols
Chairman, California Air Resources Board
1001 I Street
Sacramento, CA 95814

May 26, 2016

Re: Comments Regarding Draft Short-lived Climate Pollutant Reduction Strategy

Dear Chairman Nichols:

On behalf of Clean Energy, I would like to comment on the *Draft Short-Lived Climate Pollutant (SLCP) Reduction Strategy* dated April 2016. This is a vital document that will contribute toward California's environmental and public health goals, for which the natural gas transportation fuel and vehicle industries have and will continue to play a major part.

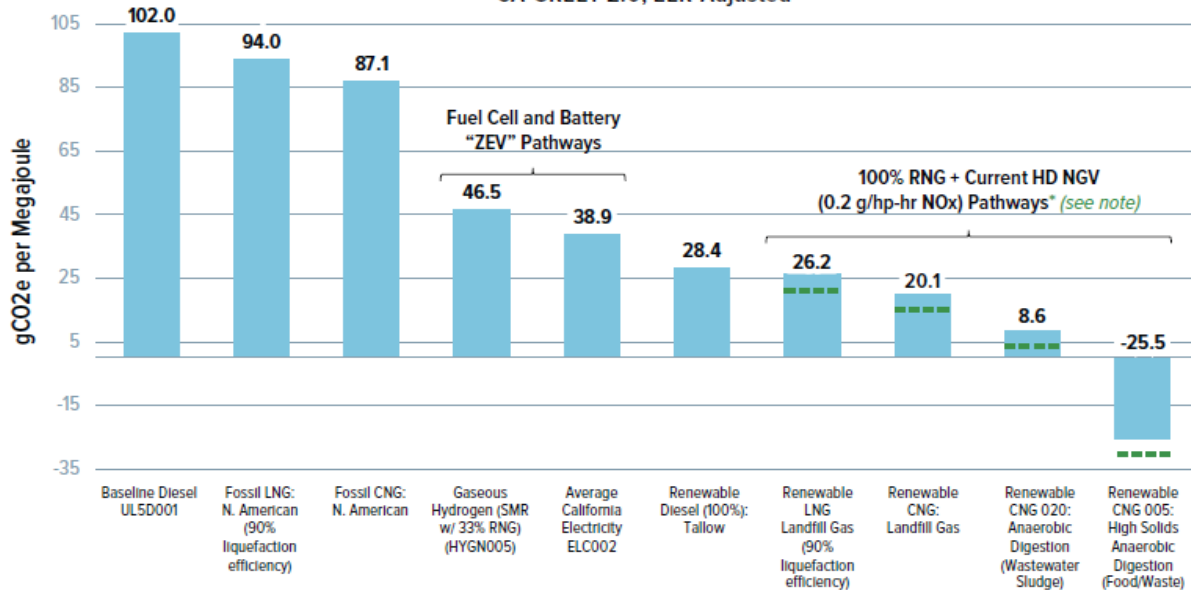
This document is very important in that it defines the problem and provides a concise, clear vision on how to reduce SLCPs. Our company sees itself as an active actor in collaborating on public policy remedies to help realize the goals of this document. As North America's largest provider of natural gas and renewable natural gas (RNG) transportation fuel with over eighteen years of leading industry experience, we provide construction, operation and maintenance services for refueling stations. We also are active supporters of policies to increase the number of heavy-duty vehicles on highways that meet a .02 NOx performance standard. Our portfolio includes 589 stations in 43 states, including a significant presence of 165 stations in California.

Already used as a clean, low carbon source of energy around the world, natural gas and RNG are abundant and proven to be cost-saving alternative fuels when compared to diesel and gasoline. Natural gas as a transportation fuel strengthens our economy with lower fuel costs, increases our energy security, and significantly benefits our environment by reducing carbon emissions and smog-forming NOx emissions by up to 23% and 95%, respectively, relative to diesel fuel. Carbon emissions are reduced even further – approximately 80% to 125.5% - when RNG is used in lieu of diesel.

Clean Energy strongly supports the goals outlined in the document targeting reductions in methane, black carbon, and fluorinated gases. However, we do not believe ARB can realistically meet its goals without accelerating the adoption of natural gas fuel use in the heavy-duty vehicle sector. Failure to do so will compromise the successful achievement of the following state environmental goals:

- Meet the LCFS goal of 10% greenhouse gas emissions (GHG) by 2020;
- Mandated federal regional attainment goals for 8-hour ozone by 2023 and 2031;
- 40% GHG reduction by 2030;
- 50% petroleum reduction by 2030;
- Significant reductions in Short-lived Climate Pollutant of black carbon and methane.

Carbon Intensity Scores for Heavy-Duty Truck Pathways
 Final California Low-Carbon Fuel Standard, 2015
 CA-GREET 2.0, EER-Adjusted



----- * Note: using the new "NZ" NG engine (0.02 g/hp-hr) will further reduce the CI scores of these RNG pathways by about 4 gCO₂e/MJ (closed crankcase ventilation reduces methane by 70%).

Source: California Air Resources Board, "LCFS Illustrative Fuel Pathway Carbon Intensity Determined using CA-GREET2.0," discussion presented by staff on 9/17/15 and/or CARB LCFS Final Regulation Order, Table 6; note that "HSAD pathway is EER-adjusted by the CARB formula (-22.93 base CI divided by EER of .9), even though this improves its CI score.

GAME CHANGER: "Next Generation Heavy-Duty Natural Gas Engines Fueled by Renewable Natural Gas"

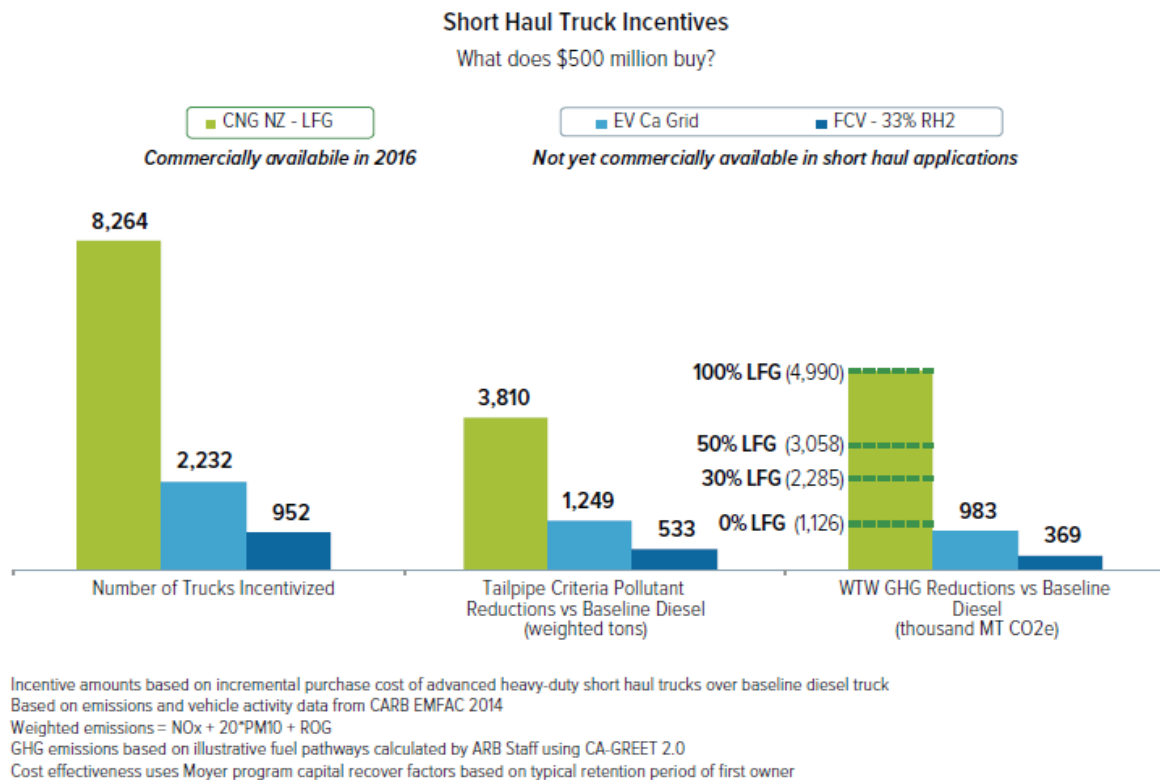
In May 2016 a groundbreaking major report was released, *Game Changer*¹ – sponsored by several stakeholders including the South Coast AQMD – which concluded that there should be an immediate start to deploying zero-emission and near-zero-emission heavy-duty vehicle (HDV) technologies on a wide-scale basis in the United States. It stated, "Expeditious action is needed to reduce smog-forming emissions from HDVs to restore healthful air quality—as is legally required under the federal Clean Air Act—for approximately 166 million Americans who reside in areas with exceedingly poor air quality. At the same time, to combat global climate change, the United States must aggressively reduce greenhouse gas (GHG) emissions from HDVs, which are the fastest growing segment of U.S. transportation for energy use and emissions."

California will not reach greenhouse gas emission (GHG) reductions and other goals, including a large reduction in black carbon, without dedicating significant resources to the heavy-duty class 7 and 8 transportation sector to decrease its dependence upon diesel fuel use and increase the use of much cleaner low carbon fuels. To this end, the recent ARB-certified Cummins Westport's 0.01 g/bhp-hr NOx heavy-duty engine will play a significant role as it is a **game changer** for the transportation sector and public health. The 9L engine is now available for deployment and the 12L in late 2017.

These engines will provide immediate environmental and health benefits, especially to disadvantaged communities. As the *Mobile Source Strategies Discussion Draft* specifically states on page 59, "Based on ARB staff's technology assessment, the most viable approach to meeting the 2031 and 2030 goals is low-NOx trucks." In other words, the only technically feasible way to meet the 2031 federal 8-hour ozone standards and the state's low carbon fuel and petroleum reduction goals is to power low-NOx trucks with renewable fuels like renewable natural gas.

¹ <http://ngvgamechanger.com/>

These low-NOx engines set at the 0.02 g/bhp-hr standard, powered by natural gas or renewable natural gas, or a blend of the two, will achieve greater environmental benefits than any electrified system for 1/5th to 1/10th the cost and far fewer operational and logistical challenges, as natural gas technology can be seamlessly integrated into large natural gas fleet operations such as drayage, goods movement, refuse, transit, and airport operations.



BARRIERS TO PIPELINE INJECTION OF BIOMETHANE

We are pleased the *Draft* acknowledges, in part, that:

- “Stubborn barriers remain, including connecting distributed electricity and biogas projects, which have slowed previous efforts to reduce emissions of SLCPs and capture a wide array of benefits.”²
- “...for projects that utilize organic waste to create transportation fuel, the value of LCFS credits and RIN credits from the federal Renewable Fuel Standard can make these projects profitable. However, there remain significant institutional, market, and technical uncertainties that must be addressed, and continued incentives and State support can help to demonstrate and scale these strategies.”³
- “Adopting state policies to promote biogas from organic waste would provide a strong and durable market signal to industry, agencies, and investors.”⁴
- “Interconnecting distributed sources of renewable energy onto the electricity grid, or biogas into pipelines, remains an unnecessary long and costly process in many cases.”⁵

We agree: As the current rules and regulations stand, it is still too difficult to get this ultra-low carbon fuel into the pipeline. We appreciate that the *Draft* discusses several current and potential broad policy concepts (page 27) to

² Page 3, *Proposed Short-lived Climate Pollutant Reduction Strategy*, April 2016

³ Page 11, *Proposed Short-lived Climate Pollutant Reduction Strategy*, April 2016

⁴ Page 24, *Proposed Short-lived Climate Pollutant Reduction Strategy*, April 2016

⁵ Page 25, *Proposed Short-lived Climate Pollutant Reduction Strategy*, April 2016

overcome barriers to pipeline injection of biogas, however, we believe a specific plan to address this should be part of the final SLCP strategy so that the public can review and provide valuable input.

Also, with ARB interested in addressing a problem that has been mostly within the jurisdiction of the CPUC thus far, the public should be informed as to how the two agencies plan to effectively work together and overcome all remaining barriers to jump-start this market.

These barriers are a major problem for an industry that has been frustrated by a very slow public process that started roughly 8 years ago. The failure to solve these issues in a timely manner has resulted in the vast majority of renewable natural gas fuel production being outside of California because:

1. The California Public Utilities Commission (CPUC) tariff regulating biogas injection mandates the most stringent gas quality cleanup standards in the country which is making in-state RNG production cost-prohibitive by requiring highly sophisticated testing that is not necessary. Further, the testing has an inherent risk of false positives and inaccuracies that can jeopardize the productivity of any biomethane plant injecting RNG into the California gas grid;
2. Pipeline interconnection costs are cost-prohibitive to the biomethane producer and are required to be paid entirely by the biomethane producer despite the fact that RNG injected into the gas grid provides a significant benefit to natural gas ratepayers via improved environmental benefits and gas supply diversity.

In 2012, California passed legislation (AB 1900, Gatto) explicitly intended to “facilitate” and “promote” the in-state production and distribution of biomethane. **Unfortunately, the regulations adopted by the CPUC pursuant to that legislation contain the very gas quality testing and tariff requirements that have made it highly difficult if not impossible to develop in-state biomethane production facilities that connect to the California natural gas grid.** To-date, the CPUC has not taken any action to try and mitigate any of the costs imposed on developers by these testing and tariff requirements and thereby stimulate project development. As a result, despite AB 1900 being passed into law, only one pipeline biomethane project is in the process of development in California since its passage.

Enabling pipeline injection of biomethane will help California meet its greenhouse gas reduction, landfill diversion, fuel diversity and clean energy goals, in addition to providing jobs and air quality benefits across the state. Clean Energy strongly supports the *Draft's* position for the need to make significant changes to utility processes and provide incentives to better align their incentives with SLCP reductions. We urge ARB to support specific recommendations to revise utility processes and incentives that include the following:

- Allocation of Cap and Trade revenues to incentivize the development of in-state biomethane projects;
- Accelerated interconnection processes between the pipeline and in-state biomethane projects;
- Cost certainty for pipeline interconnection and subsidization/incentives;
- Utility incentives for accelerated interconnection;
- Reconsider pipeline integrity standards - such as the BTU requirement and siloxane threshold - for biomethane that vary significantly from other states and make pipeline biomethane costs prohibitive.

We also believe a renewable gas standard would lead to an increase in RNG like the electricity sector enjoys with the Renewable Portfolio Standard and the transportation fuel sector with the Low Carbon Fuel Standard. Increasing renewable natural gas availability can reduce greenhouse gas emissions by tens of millions of metric tons per year.

UNINTENTIONAL BARRIERS TO RNG PRODUCTION

Given our graduating experience with both the Low Carbon Fuel Standard and the AB 32 Cap and Trade programs – regulations that Clean Energy has consistently been on record supporting – it is important that the SLCP plan not create any unintentional barriers to RNG development for transportation or power generation. Specifically, RNG projects highly depend upon the carbon reduction benefits to make projects pencil out.

While Clean Energy supports the goal of the SLCP to reduce fugitive methane leaks from all sources by 40-45% from current levels by 2030, it is equally important that the state implement strategies to reduce these emissions in such a way that it does not impact the value of generation of RNG credits. For example, if the ARB requires

that certain sources reduce methane emissions by a certain percentage by a said date, it would be very helpful to allow a RNG project to maintain credit generation of the reduction required if a facility or source chose to install a RNG production facility as a mitigation measure. As current rules stand, if methane reduction is required to reduce methane by a certain percentage at a source, that portion of the reduction is not eligible for credit generation under the LCFS. Unfortunately, this position may greatly reduce the viability of an RNG project and could encourage an alternative such as flaring this valuable low carbon fuel into atmosphere. Such an outcome should be avoided if at all possible. We therefore encourage ARB staff to think about ways that we could avoid this type of scenario once this effort is implemented.

METHANE LEAKAGE

The *Draft* mentions one objective is to reduce fugitive methane leaks from all sources 40-45% from current levels by 2030. We appreciate the recognition of the problem and intent to rectify it, but we also urge caution in how to proceed to prevent harm to several industries by considering conflicting data and conclusions from different studies. ARB is concerned that unless controlled, methane leakage from the production, distribution and storage of natural gas as well as emissions and leakage from the vehicles could completely offset any potential climate benefit advantages of natural gas. However, calculating methane leakage rates is difficult due to the existence of several conflicting methodologies.

Our industry is very interested in the continuing pursuit of scientifically valid methods to standardize and effectively calculate methane leakage from systems. The natural gas transportation fuel industry acknowledges there is some upstream leakage, but the scientific literature has not demonstrated exactly how much leakage occurs nor can any claim be made that this fuel does not provide sufficient and significant environmental, health and societal benefits. Simply put, the scientific literature has not demonstrated a causal link between methane leakage and reduced climate benefits relative to natural gas transportation fuel.

It is important to emphasize that the GHG benefits of switching from diesel to natural gas are consistent with ARB'S own adopted CI values in the LCFS regulations, which include a 1% methane leakage rate, so there should not be any basis for leakage concerns with offsetting use, as leakage is already factored into the CA-GREET 2.0 model. And with the ongoing interest in pursuing scientific studies, we recommend ARB consider now methane leakage values from utility studies that are scientifically valid which might show improved results. Further, we believe that there should be some acknowledgement that the US Environmental Protection Agency has recently enacted a rule that will further reduce upstream emissions by as much as 40-45% from 2012 levels by 2025. Clearly, the implementation of this rule can only improve the lifecycle performance of natural gas.

In addition, any regulation must take into consideration in-state and out-of-state sources so as to not inadvertently cause a cost difference and off-set the marketplace.

We strongly believe RNG needs to play a significant role in reducing the amount of methane and black carbon currently being emitted by California's transportation sector. The use of RNG would reduce greenhouse gas emissions 90% when displacing diesel fuel used by heavy duty vehicles. The *Draft* makes a direct link in the reduction of methane and black carbon to improved public health, many less premature deaths, improved agricultural effectiveness, an improved environment, and a growing economy.

We support incentives for the use of RNG in heavy-duty vehicles. RNG used as transportation fuel is one part of the overall solution, albeit a significant part. Our industry can help meet the goals of SB 605 and Governor Brown's commitment to limiting global warming to 2 degrees Celsius through 2050.

We commend staff on the development the *Draft* – it clearly makes the case for why SLCP need to be addressed. RNG can play a major role in meeting California's environmental goals. We look forward to working with ARB staff throughout the process and hope to assist the agency in developing the Strategy. Thank you for your time and consideration of our comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan Kenny". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Ryan Kenny
Senior Public Policy & Regulatory Affairs Advisor
Clean Energy

cc: Staff, California Air Resources Board