



The Honorable Mary Nichols
Chairman, California Air Resources Board
Post Office Box 2815
Sacramento, CA 95812

July 18, 2016

Re: Comments on the Proposed 2016 State Strategy for the State Implementation Plan

Dear Chair Nichols:

On behalf of Clean Energy, please accept the following comments concerning the *Proposed 2016 State Strategy for the State Implementation Plan* (SIP) released May 2016.

Clean Energy strongly supports the state's environmental and public health goals, and has been a highly active stakeholder in exploring and recommending public policies for how California can meet its statewide clean air goals with particular interest in the South Coast and San Joaquin Valley air basins. It is rightfully acknowledged by the "proposed 2016 State Strategy for the SIP" that a failure to remedy the transportation sector will result in California inability to meet the reductions of nitrogen oxide (NOx) required by the 2023 and 2031 federal deadlines, respectively. It is vitally important that such remedies promote both public health and a strong economy to achieve critical state air quality, energy, and social justice goals. We hope that our comments will help to further improve upon the final document that ultimately will be considered by the agency's Governing Board in September.

The draft *SIP* proposes to implement several air quality measures impacting mobile sources, and relies upon the findings by ARB in the *Mobile Source Strategy* discussion draft that calls for the deployment of 900,000 low NOx trucks powered by 50% renewable fuel blends by 2031. Specifically, this document calls for low NOx trucks that can reduce NOx emissions by at least 90% over current medium- and heavy-duty truck emission standards or 0.02 grams. Renewable fuel blends could include but are not limited to biodiesel, renewable diesel and renewable natural gas. Clean Energy and the Natural Gas Vehicle Industry stand ready, willing and able to help the state meet its attainment goals and would very much like to be a part of any on-going advisory group or committee to help the State implement its proposed 2016 State Strategy over the next 15 years.

WHO ARE WE?

As North America's largest provider of natural gas transportation fuel with over nineteen years of leading industry experience, Clean Energy provides construction, operation and maintenance services for refueling stations nationwide. We have a deep understanding of the growing marketplace, and our portfolio includes over 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 is abundant and proven to be a cost-saving alternative fuel to diesel and gasoline. Natural gas for 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 90%, respectively, relative

to diesel fuel. Carbon emissions are reduced even further – approximately 80% to 90% - when renewable natural gas (RNG) is used to power our engines compared to diesel.

We believe it is imperative that the final draft of the *State Implementation Plan* focus on the most cost-effective measures to reduce NOx, including in-state RNG production and near zero emission vehicles that can partially or completely run on RNG, which can provide the most significant reductions in NOx and provide the most immediate benefits for disadvantaged communities.

Next Generation Heavy-Duty Engines Powered by RNG is a Game Changer for State and Non-Attainment Regions

In May 2016 a groundbreaking report was released entitled *Game Changer*¹ – sponsored by several stakeholders including the South Coast AQMD – which concluded 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. In sync with many recent documents being produced by the Air Resources Board, the report states that, “(e)xpeditious 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.”

The report further identified that near-zero engine strategies result in 3 to 8 times more NOx reductions and have 5 to 14 times more greenhouse gas emission reductions simply because near-zero trucks are four times more cost-effective compared to fuel cell or electric vehicle options at this time. In addition, these engines help meet Short-lived Climate Pollutant reduction goals by reducing black carbon and methane, especially if renewable natural gas fuel blends are used to power the engine.

Summary

Los Angeles Metro is committed to moving into ZEB's as aggressively as practical. However, Metro's *Zero Emission* program also needs to be fiscally prudent, and built around proven, operational technologies.

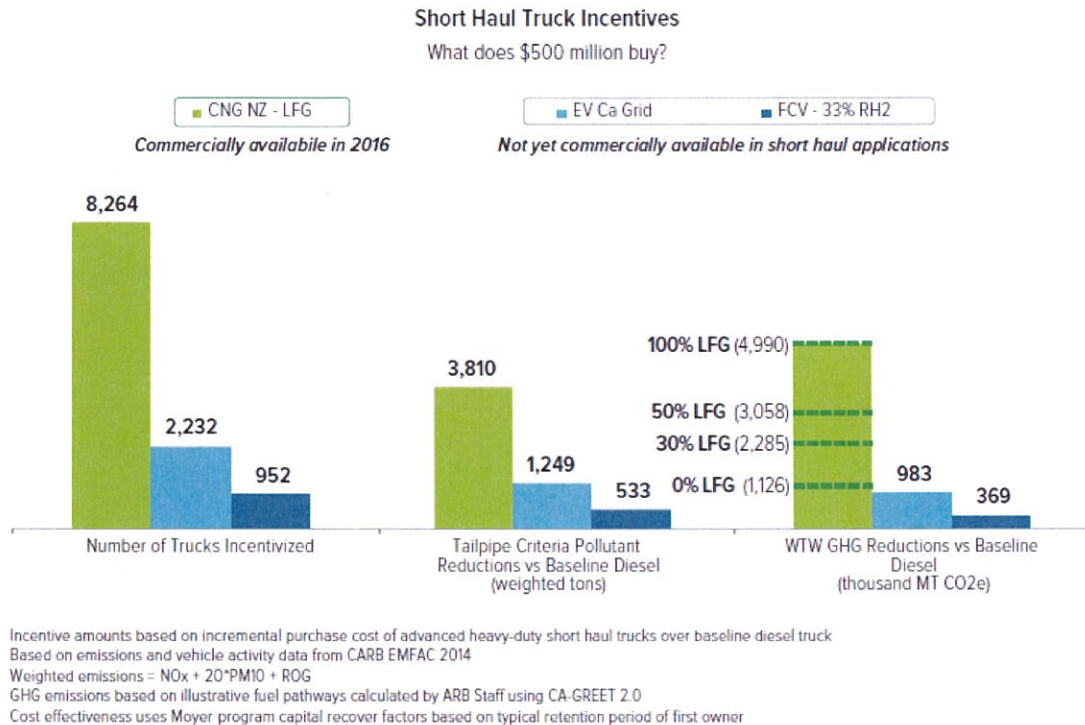
- Wide variety of *Zero* and *Near-zero* emission options available today, and more coming.
- **Technical Maturity?** Available ZEB technology options are not suitable to every transit application. All ZEB options reviewed to date have technical, economic and/or operational trade-offs that would restrict immediate broad scale adoption at Metro.
- **Scale?** ZE technologies that work for a 10 or 100 bus fleet may not be operationally suitable for a 2,000+ bus fleet like Metro's.
- **Any Game Changers?** Not that we've seen. At this time we do not see logical opportunities to "Leap Frog" directly into ZEB operation on a broad scale. The transition to ZEB's is expected to take several years. All ZE technologies are evolving rapidly, and Metro is continually re-assessing all ZEB and *Near ZE* technology options.
- **Low NOx, Near Zero CNG?** At least with Los Angeles Metro's fleet, there will be immediate air quality and economic benefits to pursuing a "Near ZE" approach using Low NOx engines and RCNG for the next 3-5+ years.



¹ <http://ngvgamechanger.com/>

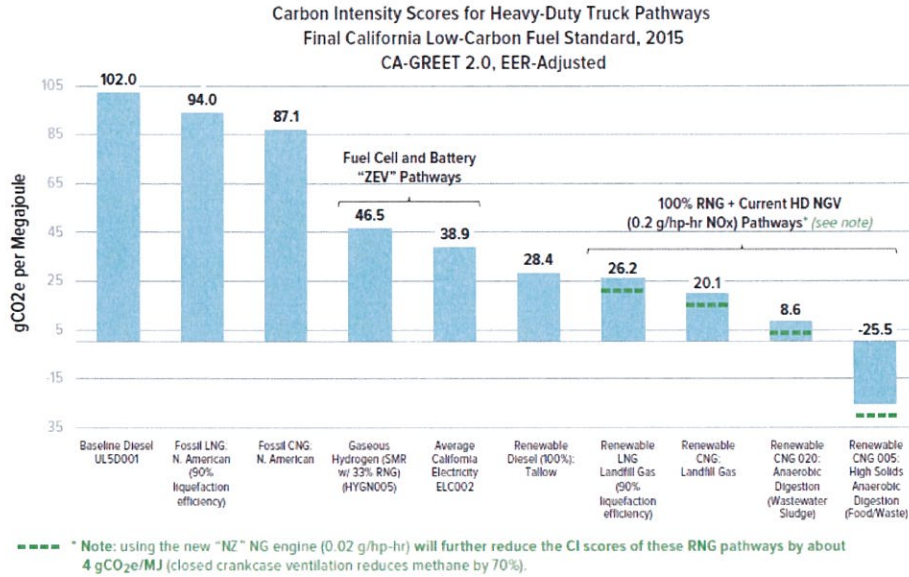
For example on cost-effectiveness, on the *APTA Clean Propulsion Committee Webinar* held on Thursday, June 30, LA Metro provided an assessment that they can get more cumulative greenhouse gas emission reductions over the next 40 years with low NOX engines using RNG at a cost that is \$3-5 billion lower than zero-emission based alternatives. This is a major declarative finding for the RNG pathway with empirical data from the second largest transit fleet in the country.

And please consider this analysis by GNA considering short haul truck incentives:



California will not reach NOx other goals 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 is expected to be certified by late 2017.

These engines will provide immediate environmental and health benefits, especially to disadvantaged communities. Returning to the ARB *Mobile Source Strategies Discussion Draft*, it 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 deploy 900,000 low NOx trucks powered by 50% renewable fuel blends by 2031.



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.

These low-NOx engines set at the 0.02 g/bhp-hr standard, powered by conventional 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.

Game Changer supports the argument why ARB and her sister agencies must pursue **all** advanced technology choices, not just a focus on zero emission vehicle tailpipe strategies that have yet to be fully commercialized and are only forecasted to replace 23,000 "last mile" delivery trucks over the next 15 years. The *SIP* should take a close look at the success stories that were enjoyed by the San Pedro Bay ports through their implementation of a joint Clean Air Action Plan and Clean Truck Plan. If we are ever to move away from polluting trucks and toward near-zero and zero emission strategies, we need to be able to have the mechanisms in place that can cull out aging trucks and replace those trucks with cleaner options.

It is unclear if the great state of California has any plans to require near-zero emission or better levels for trucks until 2023. Thus, it is clear the only way to deploy the sheer volume of near-zero trucks required to meet federal clean air standards is to develop a number of strategies that include meaningful truck incentives, the phase out of older model year trucks throughout the freight system, the acceleration of RNG production statewide, and other innovative strategies.

Specific Recommendations on Proposed 2016 State Strategies to Meet California's 2016 Targets

- **The Proposed 2016 Strategy Must Include Specific Fleet Rules for Low NOx Adoption.**

The challenges to reduce NOx emissions in a very brief amount of time from the mobile source sector is daunting. Specifically, the South Coast Air Basin for example must reduce its NOx emissions from mobile sources by 70% by 2023 and 80% by 2031 to reach federal ozone attainment. Such a goal would require approximately 272,000 low-NOx trucks meeting a 0.02 gram optional low-NOx value or better to be deployed in 6.5 years and yet the proposed 2016 State Strategy for the *SIP* is severely limited in actual measures capable of realizing such a critical deployment of vehicles in this timeframe. In fact, the proposed document does not even establish a California engine standard for medium- and heavy-duty trucks at a 0.02 gram NOx

value until the very year that both the South Coast and the San Joaquin Valley are expected to reduce mobile source emission by roughly 70%.

Much like the Air Resources Board's desire to accelerate zero emission-based strategies in both transit, last mile delivery, and airport shuttle fleets as outlined in the proposed document, the agency also needs to consider creative and innovative ways to promote near zero emission trucks and buses in key sectors to ensure that the over 97% of the vehicles this plan proposes to need are deployed. Specifically, the Air Resources Board should be consider additional state SIP measures that touch upon fleet operations that could deploy optional low-NOx trucks and buses well before 2023. Namely, the state's goods movement sector would be a prime candidate for such a measure as our state's sea and inland ports, airports, railyards, and warehouses could dramatically improve regional and state air quality with the adoption of commercially available low-NOx strategies.

Further, unlike current commercial ZEV technology that is mired by cost, limited range, weight, durability, and infrastructure issues, low-NOx technologies powered by natural gas in the 6.7L and 8.9L are certified today, proven in the field, supported by existing infrastructure, and are far more cost-effective in price and operation. Additionally, an 11.9L low-NOx natural gas engine is expected to be certified as early as Q4 2017 making it possible for the proposed State Strategy document to consider a State SIP measure covering the goods movement sector as early as 2018-9 for implementation purposes. Providing this immediate relief to communities that are already heavily burdened by ozone, particulate, air toxics, and carbon pollution should be embraced by the State Air Resources Board as such measures would immediately help address air toxics goals and petroleum reduction targets while improving the opportunity to attain healthier federal ozone levels by 2023 and 2031. Consequently, such an inclusion of goods movement measures capable of deploying early low-NOx engine trucks will help make the case that both a state and federal low-NOx rulemaking is technically feasible by 2023 and 2024, respectively.

- **Advanced Clean Transit, Last Mile Delivery, and Airport Shuttle Bus SIP Measures**

While the goals laid out within the Proposed 2016 Strategy for the SIP relating to transit, last-mile delivery, and airport shuttle buses are noble, these proposals are completely devoid of low-NOx consideration despite the fact that the current public process developing the Advanced Clean Transit rule development is plagued with concerns over ZEV readiness. This is especially the case when considering factors such as cost, durability, range, etc. In fact, many transit properties are expressing deep concerns over the Air Resources Board's proposal to leap frog directly into zero emission bus (ZEB) operation on a broad scale to such an extent that the Governing Board has asked the staff to scale back its plans. After all, costs and operations can significantly impact ridership and fares.

Again, since the Air Resources Board itself predicts that only 23,000 ZEVs in the class 4-8 space will be on California's roads by 2031, it seems odd that the three fleet-focused SIP measures are exclusively targeting 2.6% of the deployment needs for 2031. Further, it seems almost reckless to heavily depend upon SIP measures that cannot establish a new state engine standard until 2023, cannot compel a federal engine standard, and require financial incentives for 15,000 to 20,000 trucks annually over the next 7 years without any identified source of funds to allocate or a similar set of fleet rules accelerating the adoption of low-NOx strategies.

Due to the largely contested readiness of ZEV strategies for all transit, last mile delivery and airport shuttle bus fleets within the state of California, we strongly recommend that staff modify these State SIP measures to be inclusive of low-NOx strategies and consider cost, durability, range and other factors to be off-ramps for otherwise seemingly ZEV mandates within the SIP. By being more inclusive of low-NOx strategies in the Air Resources Board's future rulemakings, we believe not only will the SIP be more attainable, it will also

encourage ZEV and near ZEV technology development in a more meaningful way as this flexibility would provide greater certainty of success for the fleets being asked to adopt cutting edge air quality strategies.

Concluding Remarks

California has aggressive emissions goals that **CANNOT** be realistically met without accelerating the adoption of near-zero strategies like natural gas fuel in the heavy duty vehicle sector. Most importantly, this technology is both proven and available today. Failure to provide SIP measures that are more inclusive of near-zero emission strategies will almost certainly compromise the successful implementation of the following objectives:

- Mandated federal 8-hour ozone attainment goals for NOx reduction in 2023 and 2031;
- Improved conditions for disadvantaged communities;
- Meet the LCFS goal of 10% greenhouse gas emissions (GHG) by 2020 and 30% by 2030;
- 40% GHG reduction by 2030;
- 50% petroleum reduction by 2030;
- 80% GHG reduction by 2050;
- Significant reductions in short-lived climate pollutants.

We would like to thank the Air Resources Board staff for providing the opportunity to share our views and for considering our comments. We look forward to continuing our participation and partnership with you in this healthy discussion and process.

Sincerely,



Todd R. Campbell
Vice President, Public Policy & Regulatory Affairs
Clean Energy