



March 4, 2022

The Honorable Liane Randolph
Chair, California Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Chair Randolph:

The California Natural Gas Vehicle Coalition (CNGVC) appreciates this opportunity to comment on the January 31, 2022 release of the "Draft 2022 State Strategy for the State Implementation Plan" (SIP). Whereas with the AB 32 Scoping Plan focuses on climate change, the SIP is the State's major planning document specifically focused on air quality and air pollution emission reductions. This distinction and importance cannot be understated.

CNGVC is a diverse and dedicated coalition of members whose sole focus is the reduction of criteria, toxic and greenhouse gas pollutant emissions from the heavy-duty (HD) transportation sector. Our membership includes engine and vehicle manufacturers, fleet operators, utilities and fuel providers that collectively have successfully brought to market an alternative to the diesel engine. The deployment of carbon-negative, renewable natural gas (RNG)-powered HD trucks is the most cost-effective and immediate solution to achieve near-term emission reductions in criteria pollutants and improve public health. This technology is in use today and can easily be deployed at scale to provide a 1-to-1 replacement for the current higher-emitting diesel fleet.

Our industry was an active stakeholder during the public process for the 2017 SIP adoption. At that time, we were dismayed that our recommendations were not incorporated and now California will miss its 2023 federal non-attainment deadline for the South Coast and San Joaquin Valley air basins. That was an opportunity lost, but with the 2022 SIP adoption, we have a chance to correct course to ensure that we meet the 2031 non-attainment deadline and still achieve NOx tons per day reductions in the interim. This is vitally important, especially for those low-income and disadvantaged communities within these non-attainment areas.

Draft SIP Fails to Prioritize Near-Term NOx Emission Reductions

The Draft SIP neglects to address near-term NOx emissions reductions from the HD transportation sector. It essentially ignores the 2031 deadline altogether and primarily focuses on the 2037 non-attainment deadline strategy. Further, the Draft SIP is over reliant on the need for uncertain and unknown federal action and fails to include HD low NOx trucks as a measure to achieve near-term emission reductions. HD low NOx trucks are immediately available, meet the

California Air Resources Board's (CARB) 0.02 grams per brake horsepower-hour (g/bhp-hr) optional low NOx emissions standard and operate on carbon-negative RNG¹, thus helping the Scoping Plan meet its carbon neutrality goals.

Draft SIP Is Over Reliant on Uncertainties

The Draft SIP contains only two measures that address NOx emissions from the HD transportation sector, both of which are unadopted and unproven regulatory programs that can experience significant changes before finalized – Advanced Clean Fleets and the Zero Emissions Truck Measure. The former is not scheduled to be considered for full adoption until at least the first quarter of 2023, and the latter will not come before the Board for consideration until 2025. In addition, it is unclear what, if any, action will be taken by the federal government that could affect near-term reductions.

Draft SIP Omits the Only Immediately Viable Solution

Given its over reliance on uncertain measures, the Draft SIP purposely omits a solution that includes low NOx HD trucks powered by RNG, which provide immediate NOx emission reductions throughout the state, especially in disadvantaged communities. This exclusion of a clean technology, lack of a suitable, workable near-term alternative to diesel, and avoidance of a near-term strategy will unfortunately result in continued diesel use as the default fuel option.

We should not allow diesel to become the default alternative if the widespread commercial readiness of HD zero-emission vehicles (ZEVs) is lacking. Diesel engines are a major source of harmful pollution (NOx emissions) and air toxins as well as damaging Short-Lived Climate Pollutants (diesel particulate matter or black carbon). And diesel emissions have been identified as the number one source of NOx and toxics pollution in the South Coast and San Joaquin Valley airsheds and are substantially harmful to public health and negatively impact our environment.

RNG-fueled low NOx trucks are beneficial for a host of reasons, including:

- NOx emissions are reduced by 90%, or better, in comparison to the diesel trucks on the road today;
- Diesel particulate matter is reduced 100%: a known air toxin identified by the Office of Environmental Health Hazard Assessment;
- As of the 3rd quarter 2021, the average carbon intensity of all of the natural gas reported in the California LCFS is **negative** 28.17 gCO₂e/MJ;
- Low NOx trucks are commercially available, proven and supported statewide by existing fueling infrastructure built out with private investments;
- RNG fuel reduces carbon intensities by up to 400%;
- RNG fuel has already fully penetrated the California market and is readily available.

¹ <https://cngvp.org/wp-content/uploads/2022/02/CARB-Data-Fact-Sheet-FINAL.pdf>

Low NOx trucks are affordable and cost less than half the price of other clean technology. CARB should help avoid the continued use and purchase of polluting diesel trucks when a cleaner option is readily available, especially when that option came about through clean air funding from EPA, CARB and regional air districts. This is counter to the policy goal behind federal attainment and the spirit of CARB's fundamental mission.

CalStart ZETI Tool Is Unreliable

CARB and CalStart have often pointed to the “Zero Emission Technology Inventory” (ZETI) tool² as a reliable indicator of HD ZEV readiness. However, the empirical evidence provided below does not support this tool being an accurate resource in identifying the true commercial readiness status of HD ZEVs. There is a significant disconnect between a company's logo appearing on CalStart's ZETI tool page and the vehicle being made commercially available for immediate production based on placed orders. Consider this:

- If the “North America and HD Truck” category is selected in the tool, it will highlight 14 manufacturers. Of these 14 manufacturers, only two are currently producing electric trucks: BYD and Volvo (which is a very limited spec truck with less than a 100-mile range). As for the rest:
 - **Freightliner** is not currently in production on their electric trucks (eM2 nor eCascadia).
 - **Hyundai** fuel cell electric trucks are not in commercial production. They have a single unit being demonstrated and a 50-unit pilot project funded by CARB and California Energy Commission. While they advertise that they will produce trucks for the North American market, they have no manufacturing plant in the United States and there is currently no available way to order new fuel cell trucks from the company. The company's own press releases say that the vehicles won't be in commercial production until 2025.
 - **Mercedes** makes no electric trucks for the North American market. They do, however, make an electric step van and electric cab over truck for the European market.
 - **Meritor** is not a truck manufacturer. They are a Tier 1 component supplier that makes electric drive axles. Consequently, their inclusion on the list is puzzling.
 - **Nikola** does not have any trucks in production currently.
 - **Roush** has an F650 demonstration truck now operating, but no trucks in production at this time.
 - **Toyota** does not produce electric trucks for the North American market. They are a fuel cell provider and are involved in several demonstration programs. They should not be listed as a truck OEM.
 - **Tesla** currently does not have a truck in production.
- In other categories, companies like **Arrival**, **Avevai**, **Bollinger Motors**, **Canoo**, **Easy Mile**, and **Workhorse** are listed as having trucks “Available.” However, none of the companies have anything in production nor delivered and nothing is expected for at least another year or two.

² CALSTART (2020): Drive to Zero's Zero-emission Technology Inventory (ZETI) Tool Version 6.5. Available online at <https://globaldrivetozero.org/tools/zero-emission-technology-inventory/>

- Even **Chanje** remains on the site as having commercially available product. Yet, the company went out of business in 2021 after a very public collapse and failure to deliver 1,000 units to FedEx, which CARB funded with \$80M in HVIP funding.

The CalStart’s ZETI tool creates a false narrative about the actual availability of these products and further raises the question of whether the Advanced Clean Fleets or Zero Emissions Truck Measure will achieve the necessary NOx reductions within the next decade or longer. Additionally, this empirical data raises doubts as to whether South Coast and San Joaquin Valley will meet their respective federal attainment goals even with full electrification in the transportation sector. At the February 24, 2022 CARB Board hearing concerning the informational item on the SIP, staff answered this question in the negative and added not unless the federal government acts.

Draft SIP Should Avoid Misleading Policymakers with Misinterpreted Data

CNGVC takes exception to the comment found under the “Zero Emissions Trucks Measure” section (included below for reference) that claims, “Low mileage natural gas vehicles certified to the optional 0.02 g/bhp-hr NOx emissions standard pollute in the field more than expected...”³

- Low mileage natural gas vehicles certified to the optional 0.02 g/bhp-hr NOx emissions standard pollute in the field more than expected⁴⁴; if this continues to be the case, staff commit to explore additional measures to bring natural gas vehicles into the HD I/M requirements, and any future regulations and programs designed to ensure a clean future fleet of HD trucks.

We respectfully request this unsubstantiated statement **be removed**, especially because it is being used to suggest a need for new regulatory measures.

While we would not necessarily oppose new regulatory measures that are properly and transparently justified, we find it very inappropriate for CARB to insinuate the presence of higher-than-expected emissions based on a study that has yet been finalized, is unavailable for peer review and where the underlying data clearly is being misinterpreted over the range of in-use duty cycles. Specifically, Footnote 44⁴ cited in excerpt above directs you to a reference sheet on a study commonly referred to as the “200-Vehicle Project” but that document provides insufficient information to put the portable emissions measurement system (PEMS) results in context with the corresponding real-world engine operation.

The reference sheet shows graphical comparisons of brake-specific emissions over different in-field operation, compared to the emissions standard on the federal test procedure (FTP) cycle. It is well-known that comparing brake-specific emissions over different operation is scientifically invalid and that such misinterpretation misleads policymakers and the public into drawing false conclusions about the need for new regulatory measures. For the exact same reasons, CARB’s new Omnibus Low-Load Cycle has a brake-specific limit value four times higher than the

³ Draft 2022 State Strategy for the State Implementation Plan, Page 50

⁴ https://ww2.arb.ca.gov/sites/default/files/2021-04/Natural_Gas_HD_Engines_Fact_Sheet.pdf

corresponding FTP Cycle limit value. It is also why CARB's Clean Idle Standard is not brake-specific, but rather its limit value is in engineering units of grams per hour. Similarly, the limit value of the low-load (0-6% power) bin of CARB's new Omnibus 3-Bin Moving Average PEMS test requirement is in grams per hour. It is not brake-specific. Depicting brake-specific emissions under such low load operation shows high numeric values that are meaningless and misleading when compared to higher load operation, like the FTP.

The same is true for emissions expressed in grams per mile. For that reason, CARB's emissions inventory model, EMFAC, relies on an exponential "Speed Correction Factor" that reaches toward an infinitely high value at zero average vehicle speed. This is to *correct* for low vehicle speed operation resulting in meaninglessly high grams per *mile* numeric values, when in fact the grams per *hour* emissions rate remains relatively flat, when comparing low and high vehicle speed emissions.

Withholding the data that is needed to put the PEMS measurements into proper context with the underlying duty cycles, while referencing such a misleading and prejudicial reference sheet, undermines the credibility and validity in the science expected in the rest of the effort. There can be no context derived from the results shown in the reference sheet. How do other technologies perform given separate and unequal testing? How do the results compare to EMFAC model expectations, as a function of duty cycle average power and average vehicle speed?

The basic unit of measurement for certification and sale of a heavy-duty engine in California is grams per brake horsepower-hour [g/bhp-hr], in which the emissions rate in grams per hour is divided by average power. We are concerned that the data is out of context as different duty cycles inherently have different average power requirements when compared to the FTP, even if at the same emissions rate. Only the emissions *rate*, in grams per hour (or tons per day) matters with respect to air quality.

CARB should remove the above paragraph from the draft SIP and withhold other related public comments, including legislative testimony, until the full report and supporting data is released for public and peer review. This will ensure open and transparent data interpretation and scientifically valid discussion with the common end goal of well-informed policymaking.

Conclusion

The 2022 Draft SIP as drafted is akin to a pro-diesel strategy primarily focused on meeting attainment in 2037. It does not address near-term NOx emissions reductions. Instead, it relies on two long-term measures for the heavy-duty transportation sector that have yet to be adopted and still could change, and it relies on federal support that may not even come. Relying on uncertain promises and assistance while ignoring the certainty that comes with using low NOx trucks as a clean, immediately available solution places federal attainment goals needlessly in jeopardy.

The policy issue is not zero vs. low NOx but rather advanced clean truck alternatives (ZEV + Low NOx) vs. diesel. With the widespread commercialization of HD ZEVs not available for at least another decade or more, the Draft SIP will likely need to depend on measures from other sectors

to make up for the deficiencies now planned for HD transportation. We welcome the opportunity to discuss our position further. Feel free to contact me at nicolerice@cngvc.org if you have any questions.

Respectfully,

A handwritten signature in black ink that reads "Nicole Rice". The signature is written in a cursive style with a large, looped "N" and "R".

President
California Natural Gas Vehicle Coalition

cc: CARB Board Members
Ms. Lauren Sanchez, Senior Advisor for Climate, Office of the Governor
Ms. Hazel Miranda, Deputy Legislative Secretary, Office of the Governor