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Jack Kitowski
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California Air Resources Board
1001 "I" Street, Sacramento, CA 95814

RE: SoCalGas Comments to the Draft Proposed Innovative Clean Transit Regulation and its Regulation Summary

Mr. Kitowski:

Thank you for the opportunity to comment on the Draft Proposed Innovative Clean Transit Regulation and its Regulation Summary released June 11, 2018.

As a member of the California Natural Gas Vehicle Coalition (CNGVC), we support the comments made by CNGVC and would like to add the following additional insights to their comments.

Regulation start date and schedule
The regulation start date and schedule is far too aggressive for technologies that are not yet proven. While there have been purchases and deliveries of zero emission transit buses, there have yet to be any documented successes for large scale fleet conversions that would warrant such an aggressive schedule. Given your proposed timetable that requires a zero-emission bus (ZEB) rollout plan in 2020 for large transit agencies and 2023 for small transit agencies, large transit agencies would essentially have one year to decide on what type of ZEB pathway to take based on data that shows sub-par performance, uncertain capital costs (buses and infrastructure), and unstable electrical costs. It would not be prudent to force a technology on transit agencies without better results in the field and while competing ZEB technologies are being developed. In addition, the infrastructure issues attendant to Battery-Electric buses (e.g. charging equipment) have also proven to be less-than-ready. The ICT regulation should take this uncertainty into account and allow transit agencies more timeline flexibility.

Sunset on old diesel buses still in service
Under the proposed regulation, existing diesel users would only be required to upgrade their existing buses to 2010 diesel engines until they purchase ZEBs per their rollout schedule. This is not equitable and grossly counterproductive to the goals of the program. The most significant and fastest emission reductions available can be achieved by converting buses to "near zero" technologies as soon as possible. At a minimum, any buses being turned over should be treated similarly. Under the proposed regulation, natural gas users are required to upgrade to an engine certified to near-zero emissions. Additionally, all new fuel contracts must be for renewable fuel only. For a limited time, this should be applied to all buses being turned over by transit agencies, until they are able to move to ZEBs. This same standard should be applied to transit agencies that have diesel engine vehicles. They should upgrade to

buses with engine that are certified to the same CARB optional low NOX standard. The emissions savings would be significant and there would be no loss of reliability in terms of performance.

Create an off-ramp or deferral process for agencies that will have difficulty transitioning to zero-emission vehicles.

Not all transit agencies have the same operational needs. Transit agencies operate varying routes and duty cycles and there is not a one size fits all approach. Zero emission buses may work well for some transit agencies, but not for others depending on the routes, operations, and economic considerations. Even within transit agencies where electric buses have been deployed, performance varies based on the types of routes being driven as well as many other factors. Further, if range and other performance issues affect the ability to keep buses on the road reliably, a transit agency will either have to curtail service OR purchase more buses resulting in significant financial implications (increased costs). Off-ramps should be provided for transit agencies that will have difficulty using all ZEBs. Flexibility of integrating technologies should be afforded to transit agencies based on their specific needs.

Technology feasibility studies are needed

In order to help mitigate the issues mentioned above, CARB should collect more data from those agencies that ARE piloting ZEB technology. Technology feasibility studies should be conducted that realistically assess and document the performance capabilities of ZEBs. Then, based on the ongoing findings and undoubtedly improving performance, transit agencies could calibrate their purchase and integration of ZEB technology in a manner that is best for them. Feasibility studies that prove that the technology is viable should be required prior to enacting any requirements of the regulation.

In addition to the comments above, SoCalGas would also like to reiterate comments made in previous comments letters.

Emission reductions should be the focus of the regulation

The average carbon intensity of renewable natural gas (RNG) is 60-80 percent lower than diesel and can have a carbon intensity (CI) up to 400 percent lower than diesel - carbon negative values far below any other fuel/technology. This is possible because RNG mitigates emissions that would have escaped to atmosphere if not captured. ARB awarded AMP Americas, a renewable energy company, a CI score of -254.94 grams of carbon dioxide per megajoule (g CO_2e/MJ), which is the lowest ever issued by ARB. In comparison, the California electric grid has an energy efficiency ratio corrected CI value of approximately 20 g CO_2e/MJ.

Last year, Cummins Westport Inc. certified a 12-liter engine to the Optional Low Nitrogen Oxide (NOx) standard. A study commissioned by ARB and completed by Southwest Research Institute (SWRI) was recently released that showed that in some transit duty cycles, the natural gas 12 liter near zero engine showed 0.000 grams of NOx per brake horsepower/hour (g/bhp-hr). [1] The SWRI report concluded that 2010-compliant natural gas engines could be developed, using existing technology, that reduced NOx tailpipe emissions to undetectable levels. These technologies are available today and can cost-effectively achieve more emission reductions while also maintaining an expected level of service for the transit agencies purchasing the technology. Continued deployment of existing, proven, clean bus

[1] "Evaluating Technologies and Methods to Lower Nitrogen Oxide Emissions from Heavy-Duty Vehicles", Southwest Research Institute, April 2017

engines would achieve immediate emission reductions that would benefit the public and help to achieve the state's climate goals.

Additionally, LA Metro's recent study found that "…the use of RNG and transition to low NOx buses, will be more effective at reducing in-basin PM, total CO2, total GHGs, and total NOx from the LAMTA fleet over the next 40 years than transition to either electric or fuel cell buses…This approach will also be less expensive than transition to either electric or fuel cell buses." Existing natural gas technologies combined with the use of renewable natural gas achieve more emission reductions at a faster rate and at a lower cost than ZEBs. A long-term technology mandate for ZEBs leaves significant emission reductions on the table, while the technology is still being developed. ARB should focus on emission reductions rather than a technology mandate of ZEBs. This can be done by providing alternative compliance based on emission reductions.

Flexibility for transit agencies

As the technology is still being developed, transit agencies need flexibility in achieving emission reductions, particularly in the early years. The proposed regulation should be performance based to provide maximum flexibility to transit agencies. If CARB proceeds with a technology mandate, it should not be so aggressive until the technology is developed, particularly when Low NOx engines operating on RNG is available.

ICT can help to meet Short Lived Climate Pollutant (SLCP) goals

SLCPs, such as methane and black carbon, have a much higher global warming potential than other greenhouse gases. Reductions of these emissions are critical for curbing climate change. ARB's SLCP Strategy states, "While reducing CO2 emissions limits climate change over the long term, reducing emissions of SLCPs will effectively slow the rate of climate change in the near-term. Therefore, the best path forward is to emphasize parallel strategies for reducing SLCP and CO2 emissions."

In its SLCP Strategy, ARB has a goal to reduce methane emissions by 40 percent. The SLCP Strategy proposes the capture of biogas to be used as a transportation fuel, injected into natural gas pipelines, and used to generate on-site renewable electricity and heat. Increasing the use of renewable gas as a transportation fuel would not only reduce methane emissions from organic waste streams, but also reduce black carbon by displacing diesel in older, conventionally fueled heavy-duty vehicles. Renewable natural gas in transit buses, which in many cases already have natural gas infrastructure in place, is an effective way to quickly achieve methane reduction to meet the state's goal.

Thank you again for the opportunity to comment on the proposal. We look forward to working with you and your staff on the upcoming formal regulatory proceeding.

Respectfully submitted,

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