October 29, 2021

California Air Resources Board
1001 “I” Street, Sacramento, CA 95812

RE: Air Liquide Comments regarding the Proposed Advanced Clean Fleets Rulemaking

Dear CARB Staff:

On behalf of Air Liquide, thank you for the opportunity to submit our comments regarding the proposed Advanced Clean Fleets Rulemaking. We are strong supporters of the state’s portfolio of regulatory programs that will enable California to transition to a zero emission transportation future. As both a supplier of hydrogen to the transportation sector and as a fleet operator within the state, we anticipate that many aspects of our businesses will be directly impacted by the proposed regulations.

In order to make the program as effective as possible and in order to insure that the goals of the State of California with respect to implementation of zero emission vehicles and supporting infrastructure are met, we have the following recommendations:

Development a Comprehensive Zero Emission Truck Fueling Infrastructure

CARB has developed the country's leading portfolio of ZEV policies aimed broadly at reducing carbon emissions in the transportation sector. The Low-Carbon Fuels Standard, Advanced Clean Trucks Regulations, and now the Advanced Clean Fleets regulations are key elements in encouraging the adoption of vehicles in the MD/HD markets and in driving toward sources of low-carbon fuel.

A critical element in these policies is the balanced, technology neutral approach to zero-emission vehicles, enabling both battery electric and fuel cell electric vehicles options. This is particularly important in the commercial vehicle (trucking) sectors as the wide variety of use cases and applications will require multiple solutions to meet the consumer’s needs. We can anticipate that applications with high mileage, high utilization rates, high power requirements, and rapid refueling will drive fuel cell technologies over battery options.

As the regulatory portfolio for ZEV applications develops, we encourage the state to balance regulatory requirements and market incentives across the three critical elements of transition: 1) vehicle adoption, 2) fuel decarbonization, and 3) infrastructure development. Vehicle adoption is encouraged by the ZEV mandates and the ACT/ACF and fuel decarbonization is driven by LCFS policies, support of infrastructure development is lagging. In order for any vehicles to be adopted requires a combination of public and private investment in refueling stations (for FCEVs), charging stations (for BEVs), and the associated supply infrastructure for hydrogen fuel and electricity.

Vehicle operators cannot adopt vehicles if they do not have access to fuel. Commonly described as a chicken-and-egg-problem, it is clearly the case that stations and recharging access is required before vehicle adoption can occur. At best vehicles and refueling can be simultaneously developed but it must be in place before operation.

The ACT and ACF timelines for ZEV vehicle adoptions are very aggressive and, while we are encouraged by the state's urgency to make the transition, a simultaneously aggressive approach to infrastructure development is needed. As we have seen on the LDV side, a cooperative effort between the state and private industry partners can grow the needed refueling infrastructure but the time for projects to develop and refueling infrastructure to be developed takes time. A LDV hydrogen station, for example, can now be sited, constructed and opened for public access within 12-18 months of initial conception, typically following a 6-12 month process of state funding and award. Similar timelines would be expected for MD/HD stations. Given these long lead times, we must start to invest in infrastructure now or risk the ability to meet the regulatory targets.

Investment Risk - Forcing a Premature Technology Decision

As a fleet operator in the State of California, Air Liquide and our subsidiary AirGas are developing plans to transition our fleets to ZEV technologies. Falling under the ACF High Priority Fleets category, we are anticipating that we need to make significant investments in new vehicles and supporting infrastructure in the next few years and continue this adoption into the foreseeable future. While we are generally supportive of this transition, we are sensitive to regulatory impacts on our business and operations.

In particular, we are concerned that the aggressive vehicle adoption rates in the ACF will force fleet operators, like ourselves, to make long term technology choices without good knowledge of vehicle availability, performance, or economics. As discussed above, the timeline for infrastructure development, combined with the aggressive timeline of vehicle adoptions in the ACF will require decisions on vehicles, fuels, infrastructure, operations, and investments within the next year in order to meet the first adoption targets in the ACF.

In many vehicle classes ZEV options are not yet available and are at best under development or in technology demonstration phases. In other cases vehicle options and vehicle supply is extremely limited and will likely prevent us from placing orders for the few available options on the market today. While we are encouraged by the rapid rate at which vehicle manufacturers are corresponding to the market demands, we are concerned about selection options and availability.

Overall, the state of vehicle availability and timing of infrastructure development projects will force us to make decisions about fueling technologies (BEV vs FCEV vs NZEV) and vehicle suppliers before the market is able to provide sufficient information on the reliability, performance, and economics of the conversion. As such, our investments in this conversion are very high risk and potentially jeopardize our ability to meet state and customer demands for reliable, low-cost delivery while reducing our carbon footprint.

In anticipation of some of these concerns, we note that the regulations allow for purchase exemptions and NZEV alternatives for the early years of the program. We encourage the state to consider expanding this exemption eligibility and timing to help derisk our investments. Expanding the NZEV category to include renewable NG vehicles and other alternative fuel

options while true ZEV technologies mature would significantly improve our ability to meet the state's adoption requirements while enabling proven technologies to bridge the gap until alternatives are truly market ready.

Again, thank you for the opportunity to provide input to this critically important program and we look forward to future engagements on these subjects. If you have any questions or comments, please contact me at any time.

Sincerely,

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