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2022-2023 Investment Plan Update for the Clean Transportation Program

Additional submitted attachment is included below.

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October 25, 2022

Mr. Patrick Brecht
Project Manager for the Clean Transportation Program Investment Plan
Fuels and Transportation Division
California Energy Commission
715 P Street
Sacramento, CA 95814

Re: Comments on the CEC Clean Transportation Program 2022-2023 Investment Plan Update - Docket 22-ALT-01

Dear Mr. Brecht:

Air Products is pleased to provide comments on the California Energy Commission (CEC) Clean Transportation Program 2022-2023 Investment Plan Update. We strongly support California's clean air and climate goals and believe that Air Products can help with the energy transition needed to meet these goals in the transportation sector.

Air Products is the only U.S.-based global industrial gas company and is the world's leading supplier of hydrogen and hydrogen mobility solutions with over 60 years of experience. The Company's technologies are used in over 1.5 million refueling operations annually, across 20 countries and over 250 projects. In California, Air Products operates nine hydrogen production plants across five locations – Sacramento, Wilmington, Carson, Martinez and Torrance – and approximately 27 miles of hydrogen pipeline, as well as a network of retail light-duty hydrogen refueling stations and one heavy-duty transit bus refueling station for the Orange County Transportation Authority.

We are committed to rapidly scaling and decarbonizing global hydrogen supplies to support decarbonization efforts internationally. On July 25th, 2022, Air Products announced that it will spend or commit at least \$4 billion in additional new capital for the transition to clean energy over the next five years. In the two years preceding this announcement, Air Products had announced approximately \$11 billion in clean energy investments, including zero and low-carbon hydrogen production facilities in the US Southwest, the US Gulf Coast, Canada and overseas to support decarbonization initiatives in numerous industrial sectors.

Air Products is confident hydrogen mobility will play a critical role in the decarbonization of transportation. Because of its fast-fueling capabilities and vehicles offering longer ranges and larger sizes without a loss in efficiency or capacity, fuel cell electric vehicles (FCEV) offer an essentially 1:1 replacement for gasoline and diesel vehicles. This, combined with hydrogen's role in the power and industrial sectors, is why more than 30 countries including France, Germany, Chile, Japan, and China have announced robust hydrogen programs in the last two years. As California moves toward its zero-emission car, truck, bus and fleet requirements, a self-sufficient, convenient, and broadly accessible fossil fuel alternative will be necessary.

Questions for Consideration

- 1. Given the prescriptive nature of the General Fund allocations from the State Budget Acts of 2021 and 2022, should the Investment Plan shift fungible Clean Transportation Program dollars to other categories? (e.g., low-carbon fuel production; ZEV manufacturing; workforce training and development?)**

As substantial General Fund allocations in the Investment Plan are dedicated to zero emission vehicle (ZEV) infrastructure, this would enable the Energy Commission to shift fungible Clean Transportation Program funds to

focus on incentivizing the production of clean fuel for other transportation modes, such as sustainable aviation fuels, low- and zero-carbon hydrogen fuel production and ammonia, among others. The proliferation of zero emission fuels into non-road applications will no doubt require further research, development and demonstration of technologies, equipment and fuel delivery systems to overcome challenges presented by these new mobility applications.

2. Does the timing and allocations between light-duty and medium-duty/heavy-duty infrastructure investments in the Investment Plan strike the right balance for ZEV acceleration? If not, where should adjustments be made and why?

With the enactment of the Advanced Clean Truck regulation and the anticipated promulgation of the Advanced Clean Fleet regulation by the Air Resources Board, the Energy Commission's new funding emphasis on medium/heavy-duty ZEV infrastructure is justified, especially for hydrogen fuel cell vehicles. Having said that, there is still a need for state support in continuing to build out light-duty hydrogen refueling station infrastructure to support the growing light-duty FCEV market. Rather than trying to identify the correct balance between light-duty and medium/heavy-duty infrastructure, the Energy Commission may want to structure its funding opportunities to incentivize multi-modal hydrogen fueling stations that provide fueling for both light- and medium/heavy-duty stations. This would potentially help the economics and throughput of hydrogen refueling stations to allow utilization of stations by light-duty FCEVs in the near-term until such time as the population of hydrogen fuel cell trucks increases in the coming years.

3. What should the Investment Plan include within each funding allocation to improve equitable access and benefits from that allocation?

Hydrogen fuel cell vehicles are for everyone, not just for those who own their own home where they have the ability to charge their vehicle overnight in a garage. Hydrogen FCEVs are the most amenable ZEVs for those who live in multi-unit residences or whose vehicle use includes towing trailers or other heavy tools to and from a job site each day.

In an April 2022 New York Times [article](#), Daniel Sperling, a member of the California Air Resources Board and the director of the Institute of Transportation Studies at the University of California, Davis, indicated that regarding adoption of ZEVs by the general public

...that several challenges remained, including building charging stations for vehicles and persuading consumers to buy electric vehicles. He said the final 20 to 30 percent would be the hardest part of the transition and would very likely require new policies and incentives. "...What that means is, we're going to have to get creative about making these vehicles attractive and compelling to consumers even beyond and above its inherent attributes."

It is this final 20-30 percent of consumers that may be well served by hydrogen fuel cell vehicles. These vehicles can provide most consumers, regardless of where they live, with the convenience and range they need from a zero-emission vehicle while also saving on the potential costs and complexity of installation for home charging equipment.

Equal Playing Field

We strongly recommend that the Energy Commission not bias the ZEV market by favoring one technology over another. As is quite clear in the Funding Allocations Table on slide 74 of the Investment Plan presentation, the majority of funds, both from the General Fund and Program funds, are available to battery electric vehicle infrastructure. Either funds are specifically dedicated to electric vehicle charging infrastructure or are part of funding categories (such as Drayage Truck, Transit Bus and Port ZEV Infrastructure) that are structured in such a way that hydrogen refueling station projects must compete directly with EV charging projects for the same pot of funds. Even the EnergIIZE Program funding allocations are weighted 70 percent to 30 percent in favor of battery

electric vehicle charging. Going forward, the mobility market in all vehicle classes will contain a mix of fuel cell and battery electric vehicle technologies. The Energy Commission funding programs should strive to actively support both technologies on an equal basis to ensure that fleets have access to the technology that best serves their needs.

Air Products appreciates the opportunity to provide our feedback on the Clean Transportation Program 2022-2023 Investment Plan Update. Please feel free to contact me by phone at 225-716-2991 or by email at hawkina@airproducts.com.

Respectfully,

A handwritten signature in black ink, appearing to read "Alison E. Hawkins". The signature is fluid and cursive, with a long horizontal stroke at the end.

Alison E. Hawkins
General Manager – H2fM Americas
Air Products and Chemicals, Inc.