March 4, 2022

Ariel Fideldy, Manager
Austin Hicks, Air Pollution Specialist
California Air Resources Board
1001 I Street
Sacramento, California 95814
Via Electronic submittal

**Re: Comments on the California Air Resources Board 2022 Draft State Implementation Plan**

Dear Ms. Fideldy and Mr. Hicks,

We thank the California Air Resources Board for soliciting stakeholder comments on the Draft 2022 State Strategy for the State Implementation Plan released on January 31, 2022.

On behalf of the undersigned organizations, and given the urgent need to act more quickly (especially in the next decade) and more aggressively to tackle climate change through the reduction of greenhouse gases in order to keep global warming to 1.5°C as established by the Paris Agreement, we take this opportunity to urge CARB to include in its SIP an increased and more aggressive focus on reducing climate and air pollution from marine vessels, and to identify specific actions that can rapidly phase out short-lived climate pollutants, which not only will help leverage and accelerate climate mitigation, but which also will have significant health benefits for local populations.

As was extremely clear from the recently released IPCC AR6 report, rapidly reducing short-lived climate pollutants is the only pathway to keep to 1.5°C of global warming by mid-century.

California continues to experience some of the worst air quality in the nation. We echo the words of the Governor of California, that has very recently asked all of California's agencies to accelerate their climate mitigation strategies. We must do more, we must do it better and we must do it faster. Unfortunately, many of California's port communities continue to suffer poor air quality standards, and some remain in extreme non-attainment of NOx reduction goals under the federal Clean Air Act.

One of the main culprits contributing to the poor air quality are marine vessels. CARB's own emissions analysis report found that fossil fuel pollution from 2021 cargo ship congestion at San Pedro ports has caused:

- An increase in NOx emissions equivalent to **5.8 million passenger cars in South Coast**
- An increase in particulate matter (PM) emissions equivalent to ***100,000 big rig trucks (or "Class 8 diesel trucks") *per day***

California continues to be a beacon for many jurisdictions on climate and air quality standards. With a view to help California increase emissions reduction efforts while improving the protection of public health, especially in port communities, we urge CARB to include the following new measures in the *2022 State Implementation Plan Strategy*:

## A. Expand and Strengthen At-Berth Regulation

We urge CARB to consider measures to include bulk carrier vessels into existing At-Berth emissions regulations. While bulk carrier vessels account for only 9% and 7% of DPM and NOx Ocean Going Vessels (OGVs) emissions in California, respectively, these vessels comprise the majority of ship calls to smaller ports, which are often located adjacent to communities that already bear the brunt of air pollution. The Ports of Stockton and Richmond, for example, see much of their annual throughput in dry and liquid bulk, which is transported by bulk carrier ships. At the Port of Stockton, over 50% of shipping throughput in 2020 comprised of dry and liquid bulk cargo. Portside communities in Stockton and Richmond, furthermore, reside in CalEnviroScreen 92$^{nd}$ and 98$^{th}$ percentiles for air pollution burden in the state, respectively. It is critical for CARB to recognize that, by excluding bulk carrier vessels from At-Berth requirements, the state is failing to address the major DPM, NOx, and PM pollution concerns of some of California's most pollution-burdened communities that are experiencing prolonged nonattainment with the Clean Air Act.

While we do recognize the economic issues associated with shore power retrofits for bulk carrier vessels, there are a number of other, more cost-effective solutions to reduce emissions from bulk carrier vessels. For example, bonnet emissions-capture technologies offer a promising, revenue-generating solution for capturing emissions from bulk carrier ships. The early adoption of these technologies, which are already CARB-approved for compliance with the At-Berth rule, should prioritize smaller ports like Stockton and Richmond where communities are already at risk and ports see a majority of their traffic from unregulated bulk carrier vessels.

## B. Expand and Strengthen the OGV Fuel Standards or Develop New Standards As Needed

CARB's very own analysis shows that without any additional measures, by 2037, Statewide NOx Emissions from OGVs will be 27%, surpassing all other categories. CARB must act quickly and more ambitiously to protect Californians from OGV pollution. Specifically, we urge CARB to expand its existing OGV Fuel Standard by adding NOx, PM, and CO2e pollutants to the standard to protect Californians from all forms of OGV ship pollutants.

Since the adoption of Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels in 2008, this regulation has help reduce particulate matter, oxides of nitrogen, and sulfur oxide emissions from ocean-going vessels and helped spur the adoption of a global standard through the International Maritime Organization.

In the development of this standard, we urge CARB to evaluate all fuels on a "lifecycle" basis i.e. from production (could be extraction, growing crops, generating electricity, using industrial feedstocks) to processing (e.g. electrolysis, refining) to the emissions from its use on board. This must include any leakage, slips and venting along the way (e.g. methane). All Greenhouse Gases (GHGs) and co-pollutants like Black Carbon must be accounted for, not just CO2.

Of note, we have concerns over the use of liquefied natural gas (LNG) maritime fuels. Many of today's LNG ships are worse even than the traditional ships they replace. According to recent data from the International Council on Clean Transportation, when accounting for both upstream and downstream emissions factors and methane leaks, an LNG-powered ship is likely to release GHGs with up to 80% more warming potential than diesel-powered ships, when analyzed over 20-year GWP framework.

We note that following the conclusions of the IPCC AR6 report, global policy directions are steering towards a strong push to strive for accelerated methane emissions reductions. If California is to meet the SB 1383 methane emissions reduction goal of 40% by 2030, and to align with evolving global policy to reduce methane emissions, it is crucial that CARB **act early to prevent added methane emissions from the shipping industry's adoption of LNG fuels.**

While LNG today accounts for just 3% of fuel consumption in the maritime industry, the population of LNG-powered ships has increased by 101% from 2012 to 2019. The Fourth IMO GHG Study estimated a 150% increase in methane emissions from ships between 2012 and 2018. The trend is troubling as shipping companies are already adding LNG-powered ships into Asia-Pacific trade fleets. This increase is projected to rise further due to LNG's compliance with both California and international low sulfur fuel requirements and its low cost compared to diesel.

**C. Ban Fossil Fuel Powered Ships by 2040**

Ultimately, CARB should phase out fossil fuel powered ships by 2040 from cruising CA waters or using CA ports through regulatory market forcing mechanism. CARB should start promulgating standards that achieve zero criteria air pollutants and possibly greenhouse gas pollutants from marine vessel in regulated California waters by 2040.

This is critical to ensure the protection of port communities air quality and public health and accelerate shipping's zero-emission transition. Fossil-fueled OGVs are massive climate polluters

that cause significant air pollution globally and acutely in port communities. So long as OGVs run on fossil-fueled internal combustion engines, port communities will suffer from NOx and PM pollution. Strong market signals are needed now to force OGVs off of fossil fuel propulsion, and CA could be the first in the nation to set this landmark policy.

Through Pacific Environment and Stand.Earth corporate campaign efforts via Ship It Zero, cargo owners like Amazon, Unilever, IKEA, and Patagonia have committed to 100% zero-carbon shipping by 2040. Container companies including Maersk, Hapag Lloyd, and HHM responded that they can meet this 2040 zero-carbon timeline. We know that c**ompliance is possible,** and that the commercial Zero-Emission vessel market is maturing.

**D. Adopt the Commercial Harbor Craft (CHC) Regulation as soon as possible**

Harbor boats are **one of the top three cancer risks** for Californians living near the ports of Los Angeles, Long Beach, San Diego and Oakland. We urge CARB to adopt the Commercial Harbor Craft regulation as soon as possible and **include a resolution that allows for a contingency measure for areas that are in non-attainment that they must get on a pathway to on zero emission tugboats and ferries.**

We believe that all commercial harbor craft can feasibly achieve 100% zero emissions by 2035, in line with California Executive Order N-79-20, and we urge CARB to regulate them accordingly and provide state investment to support the uptake.

In the face of climate emergency, CARB should not allow an entire new generation of harbor craft vessels to be designed for diesel powered. New zero emission technologies are being developed every day:

- e1 Marine | News | World's First Methanol-Fuelled Towboat To Launch In 2023
- New battery hybrid tugboat design developed for U.S. market - Marine Log
- TECO 2030 Is Leading A Project Group That Will Build A Hydrogen-Powered High-Speed Vessel For The Port Of Narvik (fuelcellsworks.com)

**E. Update Spark-Ignition Marine Engine Standard Regulation next year**

We urge CARB to revisit the Sparks Ignition Marine Engine standard and require that all recreational boats go electric by 2023 instead of by a phase in date of 2029-2035.

Without any action, CARB projects that by 2031, **smog forming emissions from an average recreational boat in California is equivalent to 20 passenger cars**. At the same time, the electrification for marine vessels has now been considered as a proven technology contributing to a decarbonized sustainable maritime sector. Electric marine propulsion technologies are already commercially available, and viable solutions will be widespread by 2023. Examples include Pure Watercraft, Flux Marine, Navier Boat, and others cited in this article. What we need now to drive uptake are strong market accelerating policies, including incentives and funding mechanisms.

Furthermore, we strongly support CARB exploring an indirect source rule (ISR). An ISR will allow the Air District to target pollution more holistically by addressing a keystone of goods movement in the region and accelerate emissions reduction by tackling some of the largest sources of toxic air pollution such as ships.

Thank you for your consideration of these comments.

Sincerely,

Teresa Bui
State Climate Policy Director
**Pacific Environment**

Raj Dhillon
Senior Manager, Advocacy & Public Policy
**Breathe Southern California**

Eli Lipmen
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