SWITCH MARITIME

November 15, 2021

Liane Randolph, Chair
California Air Resources Board
1001 I Street
Sacramento, California 95814
Via Electronic submittal
Evan.Kersnar@arb.ca.gov

RE: CARB's Commercial Harbor Craft Rule

Dear Chair Randolph,

SWITCH Maritime commends CARB for proposing legislation to reduce emissions and particulate matter from commercial harbor craft, making strides towards realizing a cleaner, healthier future in California. Informed by significant experience in working to commercialize zero-carbon, electric vessel(s) powered by hydrogen fuel cells and batteries, SWITCH believes zero-emissions vessels will be both technologically and economically viable for commercial harbor craft operators to adopt well before 2035. Accordingly, SWITCH writes to urge CARB to strengthen the proposed CHC regulation to move more rapidly toward full fleet decarbonization, achieving 100% zero-emissions across all CHC vessel types by 2035.

Supported by a CARB grant, SWITCH Maritime is nearing completion and commercialization of the *Sea Change*, a 70-foot, 75-passenger aluminum catamaran ferry powered by hydrogen fuel cell and battery. The *Sea Change* features 10 hydrogen storage tanks that store 246 kgs of compressed hydrogen gas at a pressure of 250 bar. This provides enough energy for the *Sea Change* to operate continuously for ~300 nautical miles at a cruising speed of approximately 15 knots (max speed 20 knots). When the Sea Change is idling or traveling at low speeds, excess electricity generated by the fuel cells is stored in the 100 kWh battery system onboard. When higher speeds are required, this energy is then discharged from the battery to boost the power to the electric propulsion system. Now undergoing system commissioning and sea trials at the shipyard in Bellingham, WA, the *Sea Change* is slated to start operations in the San Francisco Bay Area in Q1 of 2022.

The technology employed in the *Sea Change* is modular and scalable and can be applied to all vessel types and sizes. With zero-carbon powertrain technology costs rapidly declining, SWITCH believes price / performance parity will be achieved in the next 5-7 years with conventional diesel alternatives and even sooner once grants and incentives are considered. Further, the *Sea Change* project will establish the regulatory frameworks with the U.S. Coast Guard, both for vessel design as well as fueling, that can be leveraged for future zero-carbon vessel projects. Given this technology and regulatory backdrop, achieving zero-carbon CHC by 2035 is feasible and CARB can help send an important market signal and help realize this energy transition by advancing more stringent emissions regulations.

Given the climate emergency that we are facing, we need bold climate leadership. SWITCH is asking CARB to strengthen the Commercial Harbor Craft rule in the following specific ways:

1. Move forward with a strong rule now to advance zero-emissions and clean up the dirtiest engines in other commercial harbor craft categories.
2. Set all ferries, tugboats, dredges and barges on an electrification pathway right now and require full electrification by 2035.
3. Direct staff to revisit the rule with the Board as the zero-emissions boat market evolves to ensure the regulation achieves maximum emission reductions
4. Increase funding for zero-emissions boat pilots, retrofits and new vessels to spur innovation

Finally, SWITCH would be more than happy to support policy efforts by offering an industry and technology perspective, should that be valuable to CARB.

Sincerely,

Pace Ralli
SWITCH Maritime, CEO

cc:
CARB Board members
Secretary Jared Blumenfeld, CalEPA