



August 29, 2022

South Coast Air Quality Management District Governing Board
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765

Email Submittal

Re: Pacific Environment urges South Coast AQMD to consider long term health and climate impact of alternative fuels, such as Liquefied Natural Gas (LNG).

SCAQMD Governing Board Members and staff:

On behalf of Pacific Environment, we are writing to urge you to take immediate actions to curb possible Liquid Natural Gas (LNG) expansion in the South Coast region.

Pacific Environment is a California headquartered non-governmental organization that has earned permanent consultative status at the International Maritime Organization (IMO), the United Nations' entity that sets international shipping law. We are committed to working on shipping decarbonization in the Pacific Rim, with a focus on the San Pedro Bay Ports. We are campaign partners on the Ship It Zero! corporate pressure campaign and led support for the Ship it Zero resolutions in Los Angeles and Long Beach, calling on major importers to transition to zero emission ships by 2030.

We have been actively engaged on the Port Indirect Source Rule process as well as the Long Beach Port Master Plan Update process and, as we have discussed with you previously, concerned by the recent LNG related activities at the Port of Long Beach and the SCAQMD's view towards LNG as a drop in fuel. Recent news of refueling of [PASHA Hawaii](#) LNG container ship at the Port of Long Beach have only exacerbated this concern.

We are strongly opposed to the use of liquefied natural gas (LNG) as a shipping fuel. LNG is not a clean fuel -- it is a climate-warming and air polluting fossil fuel. LNG produces methane emissions leakage along the entire production and supply chain, and methane(CH₄) is up to 86x more potent in terms of global warming potential -- in a 20 year period -- than carbon dioxide. This means more climate warming on a faster timeline -- which is the last thing we need at a time that we must be reducing our greenhouse gas emissions towards zero. The use of LNG in shipping will inevitably worsen the climate crisis.

Storing LNG, which is mostly methane (CH₄), near port communities also creates massive health risks, as we have seen at the [Aliso Canyon natural gas leak in Los Angeles](#). At this juncture, support for LNG is nothing short of continued support for the fossil fuel industry that has wreaked havoc on our climate, our communities, and our health.

Key Research Summary and Findings

- **University of Maritime Advisory Services at the University College London:** [*LNG as Marine Fuel in the EU*](#)
 - One of the aims of the study is to ascertain the cost/benefit of investing in LNG bunkering infrastructure from a GHG abatement perspective (invested \$/tonne CO₂ abated).
 - **The study found that there is no significant CO₂eq. reduction achieved through the use of LNG as marine fuel** relative to the reduction required to achieve the IMO's 2050 objectives.
 - Reaching Paris temperature goals is only possible with a switch to increased use of non-fossil fuel sources (non-fossil hydrogen, ammonia, battery electrification) from 2030 and with rapid growth thereafter.
 - There is a very uncertain future demand for LNG as a marine fuel over the next 10 years. On the one hand, it is an option for complying with the 2020 sulphur cap, but as it cannot enable the GHG reductions that have been committed to in the IMO's initial strategy for GHG reduction and the Paris temperature goals more generally, it is clear its role can only be transient and not transitional.
 - There is no development of a significant market for LNG as a marine fuel in scenarios modelled, as these new fuel sources require significant demand growth from 2030 at the latest to meet the GHG reduction objectives.

- **International Council on Clean Transportation (ICCT):** [*The Climate Implications of Using LNG as a Marine Fuel*](#)
 - This study compares the life-cycle GHG emissions from LNG, including upstream emissions from leakage during extraction, processing, and transport and downstream emissions from combustion and unburned methane (aka “methane slip”), to those of traditional marine fuels: heavy fuel oil, very low sulfur fuel oil, and marine gas oil (MGO).
 - LNG is mostly methane, a potent GHG that traps more than 80 times more heat in the atmosphere than the same amount of CO₂ over 20 years.
 - There is no climate benefit from using LNG, regardless of the engine technology, when evaluating its use over a 20-year time frame.
 - The most popular LNG marine engine—low-pressure dual fuel (LPDF), medium-speed, four-stroke—is also the leakiest. Using LNG, this technology emitted **70% to 82% more life-cycle GHGs than MGO.**
 - Continued investment in LNG infrastructure on ships and onshore risks making it harder to transition to zero-emission vessels in the future. Investments should instead be focused on technologies that reduce total life-cycle GHG emissions, including energy-saving technologies, wind-assisted propulsion, zero-emission fuels, batteries, and fuel cells.

- **The World Bank:** [*The Role of LNG in the Transition Towards Low and Zero Carbon Shipping*](#)
 - Questions this report attempts to answer: What would the role of liquefied natural gas (LNG) as a bunker fuel in the years 2020–2050 look like? Offering significant air quality benefits, could LNG also contribute to the targets set by Initial IMO GHG Strategy and the sector's transition toward low- and zero-carbon shipping?

- The conclusions of this report have been developed through a logic that starts with the Paris Agreement’s temperature goals, considers shipping’s GHG emissions trajectory and the associated fuel mix that would be required to meet those goals, and assumes that appropriate policy would be introduced to achieve those outcomes. The Initial IMO GHG Strategy is consistent with this logic. Within this context, **there is consensus across the literature and industry that LNG cannot form a large proportion of the bunker fuel mix in 2050 due to its carbon intensity.**
- **International Energy Agency's [Net Zero by 2050 report](#):**
 - A key finding of the landmark report is that no new gas projects can be started if the world is to align with limiting warming to 1.5 degrees.
 - ‘Building on the IEA’s unrivaled energy modeling tools and expertise, the Roadmap sets out more than 400 milestones to guide the global journey to net zero by 2050. These include, from today, **no investment in new fossil fuel supply projects**, and no further final investment decisions for new unabated coal plants. By 2035, there are no sales of new internal combustion engine passenger cars, and by 2040, the global electricity sector has already reached net-zero emissions.’

As we look into future solutions, we must consider the short- and long-term impacts and we must focus on fuels that will enable us to achieve zero emissions as soon as possible. The South Coast AQMD **should prioritize electrification and zero carbon, zero emission fuels for the hardest to abate sectors like cargo shipping**, in order to reduce the air quality and climate impacts without opening the door to another fossil fuel that would have overall negative impact on our communities and ability to achieve our climate goals.

Wind propulsion

Wind propulsion is one of the most promising and cost-effective solutions for reducing greenhouse gas emissions from shipping. There are several, high-tech options for using wind to reduce shipping emissions, each with different deck space requirements and stability impacts:

- Retrofitted sails in combination with slow-steaming: reducing emissions from ships by up to 40% depending on weather conditions
- Rotor sails: reducing route-level fuel consumption and emissions on the order of 1% to 12% per rotor
- Kites: reducing emissions by up to 20%; suitable for container vessels.

Wind propulsive technologies have been predominantly been installed on large ships – mainly tankers, bulk carriers and large offshore support vessels.

Batteries:

Batteries are in widespread use already in ships with highly variable power demands where they can reduce the size of the main engines and enable them to operate at much higher efficiency. Batteries may still have a role to play within a hybrid system, optimising efficiency in auxiliary power systems, including in conjunction with power take-off and waste heat recovery systems.

Batteries can play a vital role in reducing or eliminating emissions within ports and highly sensitive ecological areas (no pollution/no combustion noise). Prolonged use of the electrified

solutions within in ports will require cold ironing facilities to charge batteries or power auxiliary equipment directly on ships.

The South Coast region has the opportunity to be a world leader in clean shipping by investing in clean shipping infrastructure such as shore power and zero carbon, zero emission alternative fuels. By investing in such options, the ports can send market signals to the shipping industry to move away from polluting fossil fuels.

There is record funding available for ports to combat transition port infrastructure to zero emission: in California, there's **\$1.2 billion for Port and Freight Infrastructure Program** under CalSTA, and **\$3 billion for EPA** to reduce air pollution at ports under the Inflation Reduction Act. We urge both South Coast AQMD and the Ports to utilize that funding to modernize berths for container ships and for shore power requirements and use it to clean up pollution from the ports.

Sincerely,



Mandeera Wijetunga
Climate Campaigner



State Climate Policy Director
Pacific Environment