

The Hidden Costs of “the Methane Pathway” for Maritime Shipping

Methane-based fuels (fossil, bio-, and e-LNG) have significant economic, social, and environmental risks.

What is LNG?

Liquefied Natural Gas (LNG) is primarily liquefied methane, a greenhouse gas (GHG) 80 times more potent than CO₂ in driving near-term climate change. In recent years, global LNG maritime fuel usage grew by 30% and shows no signs of slowing down. Between 2018 and 2023, methane emissions from just European LNG-fueled ships more than doubled.

What are the different LNG shipping fuels?

Fossil LNG

Produced from fossil fuel sources that often come from land-based extraction operations like hydraulic fracturing (fracking).



FRACKING

[Click here to learn more](#)

Bio-LNG

Produced from organic materials like crops and animal manure, linking to feedstock sustainability and land competition.

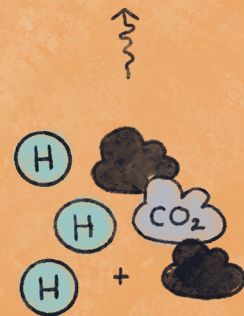


ORGANIC MATERIALS

[Click here to learn more](#)

e-LNG

Produced with substantial amounts of renewable and non-renewable energy that combines hydrogen with CO₂. 90% of energy is lost in the process.



HYDROGEN + CO₂

[Click here to learn more](#)



⚠ Methane leaks remain a major issue for all LNG fuel types. Continued use will significantly worsen global warming over the next 20 years.



Fossil LNG

Bio-LNG

e-LNG

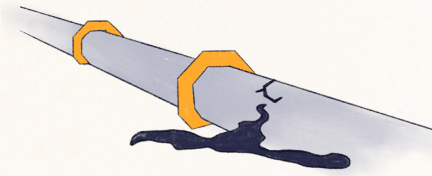


Greenhouse Gas Emissions

- Methane emissions from the shipping sector increased by 180% between 2016 and 2023. This is incompatible with the Global Methane Pledge and Paris Agreement
- Currently no regulations for methane emissions from shipping

Same as Fossil LNG, AND:

- Methane leakage during the bio-LNG lifecycle can actually emit more GHGs than fossil LNG



Same as Fossil LNG, AND:

- Even if 100% renewable electricity were used to produce e-LNG (which is unlikely), 2030 projections show emissions to be 6% higher than in 2019 due to methane leaks

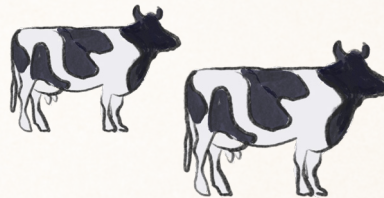


Economic Viability

- LNG ships require massive investments and risk financial losses up to USD\$850 billion in stranded assets by 2030
- Investments extremely vulnerable to volatile global markets, including energy sanctions and tariffs

Same as Fossil LNG, AND:

- Feedstock availability projections often overestimated. No ship will ever run fully on bio-LNG.



Same as Fossil LNG, AND:

- Path to technical maturity remains unclear
- For every 100 units of renewable energy input, only 14-17 units are usable at the propeller, compared to 33-50 units for conventional fuels

Environmental & Social Impacts

- Historical and ongoing violence against Indigenous communities throughout the LNG lifecycle
- Environmental racism burdens low-income and racialized communities with water and air pollution near LNG facilities
- High worker fatality risk in the oil and gas industry: 7 times higher than the average
- Methane emissions threaten vulnerable global communities (e.g., Pacific Islands)

Same as Fossil LNG, AND:

- Using waste-based materials locks in unsustainable practices like large-scale livestock farming
- Lock-in effects on agriculture and livestock production prevent systemic changes needed for climate mitigation



Same as Fossil LNG, AND:

- Validates continued investment and build-out of LNG infrastructure that delays and diverts resources from solutions for a Just and Equitable Transition



Methane-based fuels - fossil, bio-, and e-LNG - all fail to offer viable pathways to reduce greenhouse gas emissions in the maritime shipping sector. Guided by the principles of a Just and Equitable Transition, shipping stakeholders, policymakers, financiers, and civil society need to invest in real solutions that ensure no one is left behind.

Learn More: www.saynotolng.org