

Who we are

Institute for Climate and Society (iCS) is a non-governmental organization that promotes prosperity, justice and low carbon development in Brazil.

Mission:

To strengthen conditions that leverage long-lasting climate change mitigation and resilience

Vision:

Brazil neutral carbon with economic growth and social justice, compatible to the 1,5° C scenario

Focus on medium and long term measures, such as zero/low emission fuels for shipping

Alternative fuels

LNG – Is LNG an option for Brazilian shipping?

No sulfur content

Competitive
prices

But...

Fugitive emissions from the engine

High GWP

Methane emissions

Low energy density – increase
storage requirements

Lack of infrastructure



Alternative fuels

Biofuels in Brazil

Highlights

High agricultural production and bioenergy potential

Know-how in producing biofuels

Most are drop-in alternatives

When associated to carbon capture, biofuels can result in negative emissions

High availability of sustainable biomass resources in Brazil

Shortcomes

May result in direct and indirect Land use impacts

May compete with food for land

High costs/prices compared with fossil fuels.

Water availability

Dispersed production is a logistic challenge

**Transition
fuels?**

Alternative fuels

Electrofuels in Brazil

Brazil:

Green hydrogen and ammonia

High global sustainability

Low applicability and safety

Low energy density

Low technological readiness

High H₂O consumption

High costs

Other electrofuels

Some are drop-in fuels

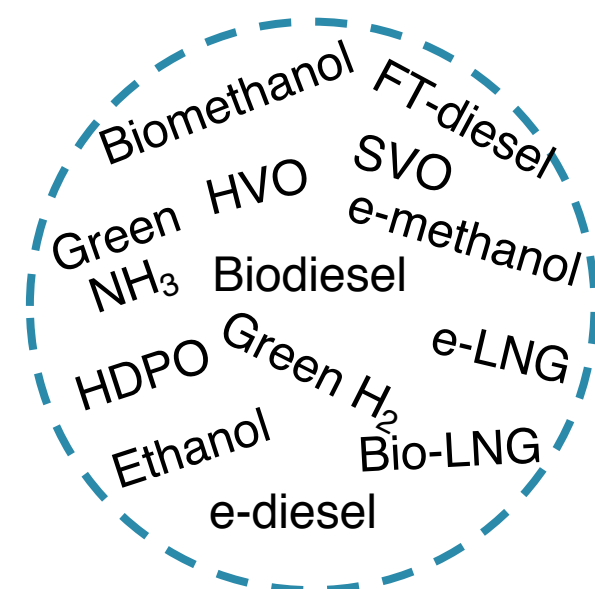
CO₂ consumption

Fuels of the future?

- Large installed capacity and new projects on renewables
- Highly interconnected electricity transmission system
- Lack of resources for research and development of new technologies
- Potential increased costs for being an early adopter of a new technology

Prospects for carbon-neutral maritime fuels production in Brazil

First phase:
(April 2020)



Selection of promising fuels

Second phase:
(June 2020)



Georeferenced Analysis



Life Cycle Assessment (LCA)

Third phase:
(August 2020)



Economic Study



Integrated Assessment

Take away messages

Prospects for carbon-neutral maritime fuels production in Brazil



There are multiple opportunities to achieve IMO goals

- Brazil has some advantages to kick off the production of low-emission alternative fuels due to considerable production potential and expressive reduction in GHG emissions
- However, they are not competitive without strong incentives or mandates



Integrated modelling identified trade-offs and spillover emissions

- Achieving IMO goals require an integrated mitigation response across sectors
- Production of carbon-neutral fuels should be aligned with national low-carbon strategies
- IAM results show a synergy between IMO2050 and national decarbonization efforts
- Alternative fuels need to be certified to guarantee low/zero life cycle emissions