

Report from the GH2 Maritime Decarbonisation Roundtable, 10 March 2025, London.

The **Green Hydrogen Organisation (GH2)** and the **Skies and Seas Hydrogen-fuels Accelerator Coalition (SASHA)** hosted the International Maritime Decarbonisation Roundtable & Visit Aboard the Green Pioneer on 10 March 2025 in London.

As the **International Maritime Organization (IMO)** prepares to make a crucial decision on greenhouse gas (GHG) pricing mechanisms for international shipping in April, the focus was on ensuring that the IMO creates a solid business case for green shipping and fuels. Without a clear and attractive business case, investment in the transition will be slow and will prioritize short term solutions like liquefied natural gas (LNG) or biofuels.

	Minimal fuel price distortion?	Stable revenues?	Sufficient revenues for energy transition to 2035?	Sufficient revenues also for JET?	Clarity for private sector decision making?
Credit trading inc. IMSF&F and J9	×	×	×	×	×
Low levy/ICS + GFS	✓	✓	✓	×	~
High levy/ISC + GFS	✓	✓	✓	✓	✓

Chart by Professor Tristan Smith on the architecture choice for IMO

Key Messages

The global maritime community is at a crossroads. In April the International Maritime Organization (IMO) will take some key decisions on how to decarbonise international shipping – and the stakes are high for the green hydrogen industry.

- A universal levy is the only option that can consistently generate the necessary revenue to support long-term investment in green fuel adoption and production. It will help develop supply chains at scale and create a positive feedback loop that lowers production costs, ultimately narrowing the price gap between green and higher-emitting fuels and facilitating a just and equitable transition.
- A credit trading centric solution, such as J9 or IMSF&F, would add administrative complexity and price instability, which would disincentivize long-term investment from the private sector. Fuel producers and shipowners would make short term decisions that would lock the sector into costly incremental fixes like transitional fuels that cannot be scaled to meet net zero targets. Furthermore, a credit trading mechanism would make it harder for vulnerable nations to get the stable funding that they need to mitigate disproportionately negative impacts and support for their just transition.

Green Fuels are available at scale

The Global Maritime Forum has forecast that the demand for green ammonia may hit as much as 530 million tonnes per annum in 2050 – requiring about 93 million tonnes of green H₂ annually. That is almost the same amount of mainly grey hydrogen currently used around the world every year.

For every tonne of green ammonia, 10 MWh of electricity is typically needed, of which about 90% is used for green hydrogen production (electrolysis). Producing 200 MTPA of green ammonia would require about 2 000 TWh of renewable electricity, around 6% of global renewable electricity production (and roughly equivalent to annual electricity production in India).

Put simply: the supply side of renewable energy producing green ammonia is challenging, but achievable. The key challenge remains securing sufficient demand for these fuels to underwrite a rapid increase in production capacity.

Quotes

"A universal levy on carbon emissions is the only option which will reliably raise sufficient revenues to support the business case for long-term investment in green fuel adoption and production." - **Jonas Moberg**, CEO, GH2

"The price gap between grey and green fuels can only be bridged with firm, long-term regulations. Without a revenue generating mechanism like a levy, relying solely on a fuel intensity limit or similar proposals could push the industry towards 'lower-quality, unscalable, decarbonisation solutions like LNG, low-quality blue ammonia, or lower-quality biofuels" - **Bobby Pecotic**, Chief of Product & Offtake, CWP

"The consequences of a credit trading solution are much worse, they reward LNG significantly and they postpone the investment you need into ammonia, whereas the consequence of a levy design is that you can bring the competitiveness of the long-run pathway, green ammonia, into the present, into 2027-28." - **Professor Tristan Smith**, University College London

"As a global leader in decarbonized energy, ReNew is committed to delivering green ammonia and green methanol at scale to accelerate shipping decarbonization. With India's abundant renewable resources and our deep expertise in clean energy production, we are building a cost-competitive supply chain that ensures shipping clients have access to sustainable, IMO-compliant fuels. The industry is ready, We are ready—what we need now is the right policy framework and economic incentives to shippers to drive early adoption of e-fuels and bridge the gap." - **Prabhat Mishra**, Chief International Business Officer, ReNew

Weighing the Options

During the Roundtable, Tristan Smith presented his analysis on weighing the different GHG pricing options under consideration in April. The chart below demonstrates how each of the proposed mechanisms measure against key assessment criteria related to the goals set out by the IMO 2023 GHG Strategy, including facilitating the energy transition and a just and equitable transition. The analysis clearly illustrates the insufficiency of the credit trading centric proposals in meeting the Strategy priorities and the opportunities different levy options provide.

The report from the UCL Energy Institute shows that only targeted subsidies for e-fuels, coupled with a GHG levy, would ensure e-fuel early adoption. The models show that a global fuel standard combined with a flexibility mechanism is unlikely to lead to competitive e-fuels before 2044. In contrast, a targeted reward (e.g. direct subsidy) for the use of e-fuels generated from a universal levy could facilitate the transition much earlier (between 2027-2035).

The report explains that a “lack of a clear business case for e-fuels will undermine investment and prevent cost reduction through learning effects and supply chain development. This creates a risk that e-fuels will remain scarce and expensive, depriving the sector of its long-term transition pathway. Conversely clear signals from the IMO’s mid-term measures can unlock long-run investment, stabilise returns and asset values, and unlock a myriad of co-benefits, including in the context of a just and equitable transition.”

Visit Aboard the Green Pioneer



“We have brought the Fortescue Green Pioneer to the UK to deliver a simple message: the technology for green ammonia powered shipping engines exists now. This vessel encapsulates the innovation and character that has defined Fortescue’s mission to lead the world beyond fossil fuels. Over the coming months, global shipping regulators at the International Maritime Organization have the chance to fast-track shipping’s move away from dirty bunker fuel and embrace Real Zero fuel standards. With the right character and leadership, they can chart a course towards a more sustainable future for the planet and advance a dramatic reduction in shipping costs through the widespread adoption and scaling of renewable sources. This opportunity cannot be missed.”

Dr Andrew Forrest, Executive Chairman and Founder, Fortescue

Background

In the 2023 GHG Strategy, the IMO committed “to reducing GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible, while promoting...a just and equitable transition.” This dual mandate of achieving an energy transition from fossil fuels to zero or near zero (ZNZ) fuels and ensuring that the most climate and economically vulnerable states do not experience disproportionately negative impacts.

In order to achieve these two goals, the Strategy calls for the development of a global fuel standard, which will mandate reducing the GHG intensity of shipping over time, and an economic measure that will put a price on GHG emissions and distribute revenues.

In April, the IMO is set to decide on which pricing mechanism it will adopt at the upcoming Marine Environment Protection Committee (MEPC 83) meeting. The proposals under discussion include a wide variety of potential prices, levy and flexibility mechanisms, and revenue distribution options, which include:

- A universal GHG levy imposed on every ship based on the carbon content of their fuel. Proponents of a levy point to its ability to reach mitigation targets, simplicity to administer, and generation of stable, predictable and sufficient revenues to facilitate the energy transition and just and equitable transition. This option has received the highest level of support from over 50 IMO member states, including a number of OECD countries, flag states, Small Island Developing States (SIDS), and Least Developed Countries (LDCs).
- A credit trading (or flexibility mechanism/IMSF&F) where a ship that doesn't have sufficient greenhouse gas intensity reduction to meet the set fuel standard (known as an underperforming ship) would comply with the standard through purchasing credits from an overperforming ship. This option has support from several countries, including Brazil, China, Norway and the United Arab Emirates.
- A “bridge” proposal (also known as J9) was brought forward by the chair of the IMO intersessional working group on GHG (ISWG 18) in February to respond to the lack of consensus between the levy and flexible mechanism coalitions. It is most similar to the flexibility mechanism proposal as it would have a global fuel standard and credit trading scheme, with the addition of a fund to provide more revenue needed for incentivising the energy transition and just and equitable transition. It would add greater complexity to the flexibility mechanism proposal, with a two tier fuel intensity standard: a base emissions standard and a stricter threshold, called direct compliance target. While the proposal was intended to find common ground, it is still premised on a credit trading centric system and does not include language that built strong consensus among over 50 countries.

Just and Equitable Transition

A credit trading centric mechanism could worsen regional inequities. In a system where underperforming ships pay overperforming vessels, economic transfers would flow from older ships in areas with limited access to new fuels or additional GHG regulation to newer ships operating in areas with green fuel availability and local GHG regulations. For example, ships operating on routes to the European Union would have a stronger business case for achieving overperformance, as these routes are subject to both EU

GHG pricing (EU ETS) and IMO regulations, making it more viable to invest in zero and near-zero (ZNZ) emitting fuels. This incentive structure would lead to more ZNZ vessels and green fuel production in certain regions, while capital would flow away from underperforming ships in low-income countries, as they would need to purchase credits to offset their emissions. These credits would benefit early adopters in regions with structural advantages. In contrast, a universal levy would apply equally across all regions, generating revenue that could be used to both incentivize the energy transition and address the needs of a just and equitable transition.

Another key consideration for a pricing mechanism is its impact on food security. During the IMO Food Security workshop last month, researchers and UN agencies presented on the impacts higher transport costs from a GHG pricing mechanism could have on the availability and price volatility of food, particularly for SIDS and LDCs.

To address the issue, the IMO could either exclude vulnerable countries from the mechanism or use some of the revenues generated to remediate the disproportionate burden. Excluding countries would minimize the impact on food security in the short term but would not provide the same incentives to facilitate the energy transition in those regions and risk leaving countries behind. Additionally, exclusions could disrupt trade routes and create loopholes for carbon leakage. In contrast, utilizing revenues from a stable, sufficient pricing mechanism could provide targeted assistance to SIDS and LDCs that require protection against disproportionately negative impacts and support for their energy transition, while avoiding potential loopholes.