

Uptake of Alternative Fuels vs. Meeting the Targets

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**Island Oil
Holdings**

About Us

Island Oil (Holdings) Limited is a diversified group of companies that primarily deals with the supply and trading of marine fuel oils and lubricants.

Founded in 1992, the Group has been embraced by the industry and is entrusted by the international shipping markets, having built a strong reputation as a reliable partner-supplier.

The Group has offices in Cyprus, Israel, Romania, Greece, United Kingdom, Singapore, Hong Kong and South Korea.

Most recently:

- The Group has started trading marine biofuels and is certified under International Sustainability & Carbon Certification (ISCC).
- Has established an EU Allowances (EUAs) Trading Desk supporting clients with EU ETS compliance.



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2022/2023 ESG Report**

Timeline of IMO GHG Emissions Work

1997 International Conference of Parties to the MARPOL Convention adopts Protocol of 1997 and resolution 8 on CO2 emissions from ships, inviting MEPC to explore CO2 reduction strategies and conduct a study on shipping CO2 emissions.

2000 First IMO GHG Study published, estimating ships in international trade contributed 1.8% of global anthropogenic CO2 emissions in 1996.

2003 IMO Assembly adopts resolution A.963(23), urging MEPC to develop mechanisms to limit GHG emissions from international shipping.

2009 Second IMO GHG Study published, estimating international shipping emissions at 880 million tonnes in 2007, or 2.7% of global anthropogenic CO2 emissions.

2011 IMO adopts resolution MEPC.203(62), establishing mandatory measures for energy efficiency in shipping, including the EEDI and SEEMP.

2012 Third IMO GHG Study published, estimating shipping emissions at 796 million tonnes in 2012, or 2.2% of global emissions; updates 2007 emissions estimate to 885 million tonnes (2.8%).

2013 EEDI and SEEMP requirements enter into force.

2016 MEPC 70 adopts a roadmap for a comprehensive strategy on GHG emissions, including mandatory fuel oil consumption data collection starting January 1, 2019.

2018 MEPC 72 adopts resolution MEPC.304(72) on the Initial IMO Strategy, aiming to reduce total GHG emissions from international shipping by at least 50% by 2050 compared to 2008.

2019 MEPC 74 brings forward EEDI Phase 3 entry into effect for certain ship types to 2022 and initiates Fourth IMO GHG Study.

2021 First IMO report analyzing fuel oil consumption data collected in 2019 to be presented at MEPC 77.

2023 Member States review and adopt updates to the Initial Strategy as needed adopting the revised Strategy.

2023 IMO Strategy on Reduction of GHG Emissions from Ships

Levels of ambition directive the 2023 IMO GHG Strategy

1. carbon intensity of the ship to decline through further improvement of the energy efficiency for new ships

to review with the aim of strengthening the energy efficiency design requirements for ships

2. carbon intensity of international shipping to decline

to reduce CO2 emissions per transport work, as an average across international shipping, by at least 40% by 2030, compared to 2008

3. uptake of zero or near-zero GHG emission technologies, fuels and/or energy sources

to increase uptake of zero or near-zero GHG emission technologies, fuels and/or energy sources to represent at least 5%, striving for 10%, of the energy used by international shipping by 2030

4. GHG emissions from international shipping to reach net zero

to peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to, 2050, taking into account different national circumstances, whilst pursuing efforts towards phasing them out as called for in the Vision consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement

Indicative checkpoints

1. to reduce the total annual GHG emissions from international shipping by at least 20%, striving for 30%, by 2030, compared to 2008
2. to reduce the total annual GHG emissions from international shipping by at least 70%, striving for 80%, by 2040, compared to 2008

Historical GHG Emissions Data (2008-2024)

2008 Baseline

International shipping emitted around **794 million metric tons (Mt) of CO₂** in 2008. This serves as the reference year for IMO's GHG reduction strategy.

2012-2018 Trends

Shipping emissions fluctuated between **780 and 810 Mt CO₂e** during this period, but there was little significant decline in total emissions.

2020 Impact

The COVID-19 pandemic temporarily reduced emissions, with a dip to **~650 Mt CO₂e** in 2020, reflecting the global slowdown in shipping activity.

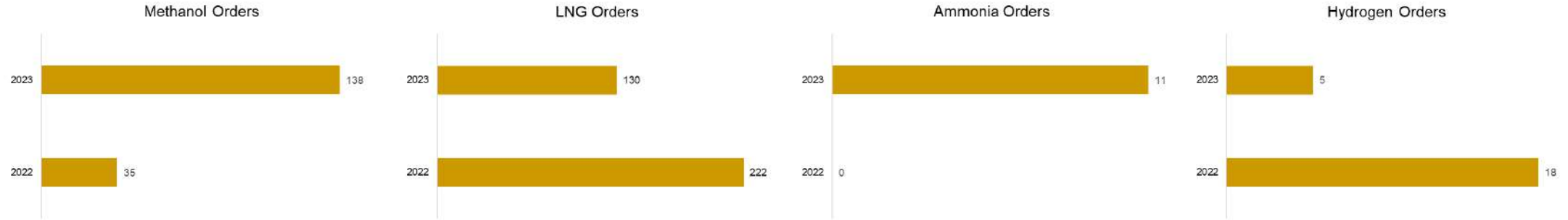
2021-2023 Growth

Post-pandemic recovery saw emissions rise back to pre-2017 levels, with an estimated **~680-700 Mt CO₂e** annually by 2023, due to increased demand for shipping services and a rebound in global trade.

2024 Projection

Current projections indicate emissions will remain steady at around **690 Mt CO₂e** unless there is a substantial uptake of zero- or low-GHG fuels.

Uptake of alternative fuels through ships with dual-fuel capability



GHG Reduction Potential (% vs HFO):
Up to 50% when using bio-methanol

Challengers/Barriers:
Limited availability of renewable methanol

GHG Reduction Potential (% vs HFO):
20-30% reduction in CO2 but issues with methane slip

Challengers/Barriers:
Infrastructure, methane leakage ("methane slip")

GHG Reduction Potential (% vs HFO):
Zero direct CO2 emissions

Challengers/Barriers:
Toxicity, infrastructure, safety concerns

GHG Reduction Potential (% vs HFO):
Zero direct CO2 emissions (if green hydrogen)

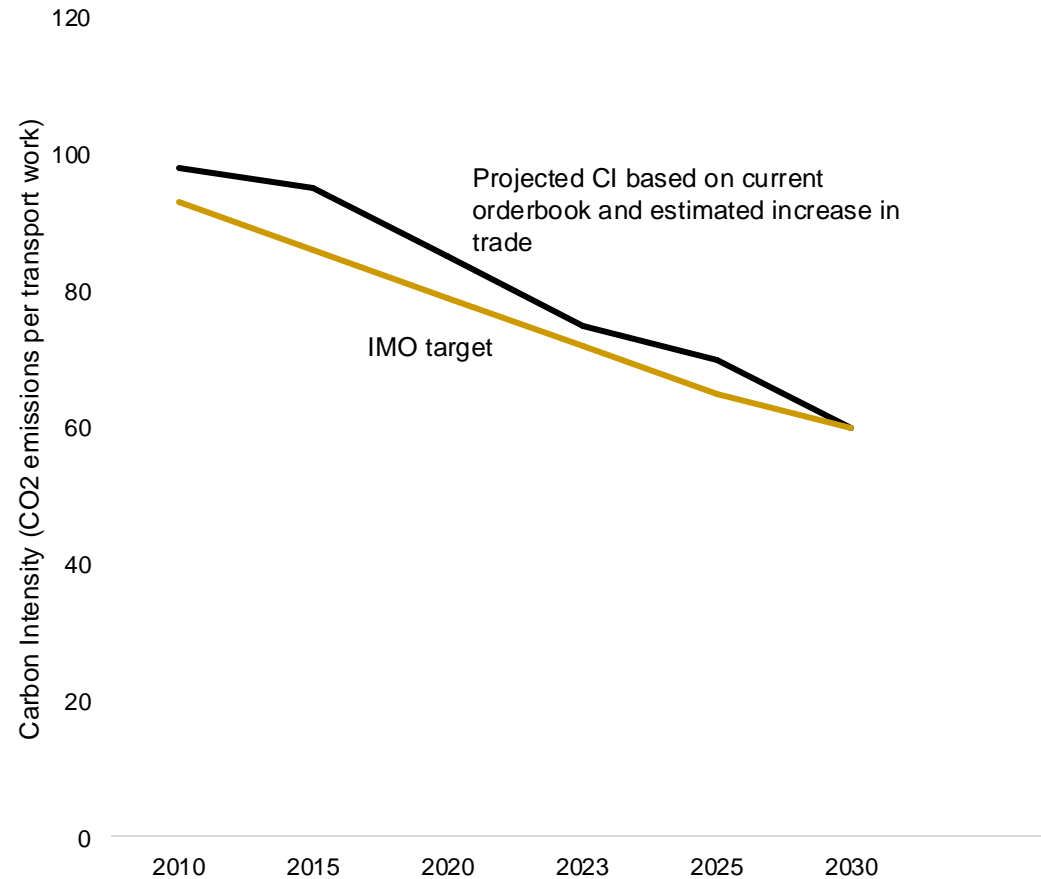
Challengers/Barriers:
Production cost, storage, infrastructure

Other Fuel Type	GHG Reduction Potential (% vs HFO)	Challenges/Barriers
Biofuels	Up to 90% reduction depending on the feedstock	Availability, scalability, competition with food crops
Synthetic Fuels (E-fuels)	Up to 100% reduction (if produced with renewable energy)	Very high production costs, energy-intensive

As a share of the orderbook zero emission fuels-capable tonnage has gone **from 3% at the end of 2022 to 6% at the end of 2023** (and stands at **9% for 2024 if the year is extrapolated using data up to August 2024**).

Zero emission fuels **ready tonnage** as a share of the orderbook stands at **15.3% at the end of August 2024**.

Carbon intensity of international shipping to decline



Source of data: UNCAT

Target 2:

to reduce CO2 emissions per transport work, as an average across international shipping, by at least 40% by 2030, compared to 2008.

Current Status:

Challenging. Feasible with increased adoption of energy efficiency technologies and acceleration on near-zero GHG emission fuels

Carbon intensity of international shipping to decline

Shipping Growth:

- The global fleet is expected to grow from **78,000 ships in 2023** to around **90,000 ships by 2030** due to rising demand for global trade.
- This increase in ships and shipping activities will raise fuel consumption and emissions, making it harder to achieve the 40% reduction target unless there are significant improvements in **energy efficiency** and **fuel technologies**.

Uptake of Alternative Fuels:

- Alternative fuels like **LNG, methanol**, and **ammonia** are gaining momentum but still account for less than **1% of the global fleet's energy use** by 2023.
- Even with expected policy measures like **GHG pricing** and a fuel standard by 2027, there is limited time to scale up alternative fuels to meet the 2030 target.

Conclusion:

Given the slow uptake of alternative fuels and growing fleet size, the **40% reduction target for 2030 is challenging to be met** without significant acceleration in new-zero GHG emission fuels adoption and energy efficiency technologies.

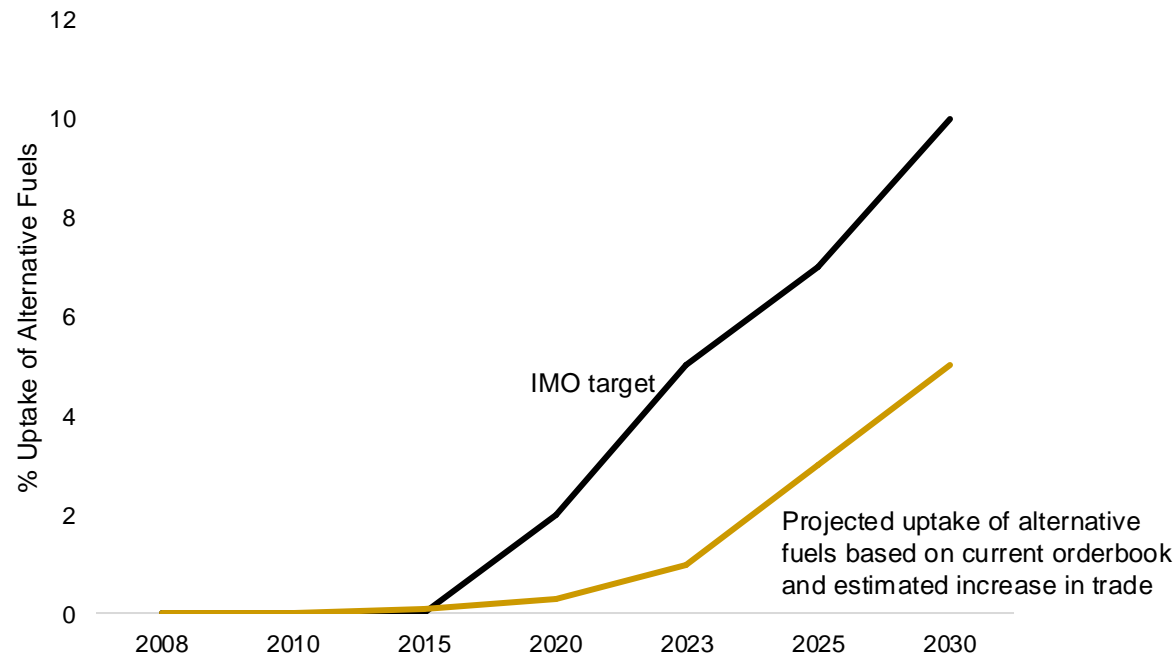
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Uptake of zero or near-zero GHG emission technologies, fuels and/or energy sources



Target 3:

to increase uptake of zero or near-zero GHG emission technologies, fuels and/or energy sources to represent at least 5%, striving for 10%, of the energy used by international shipping by 2030

Current Status:

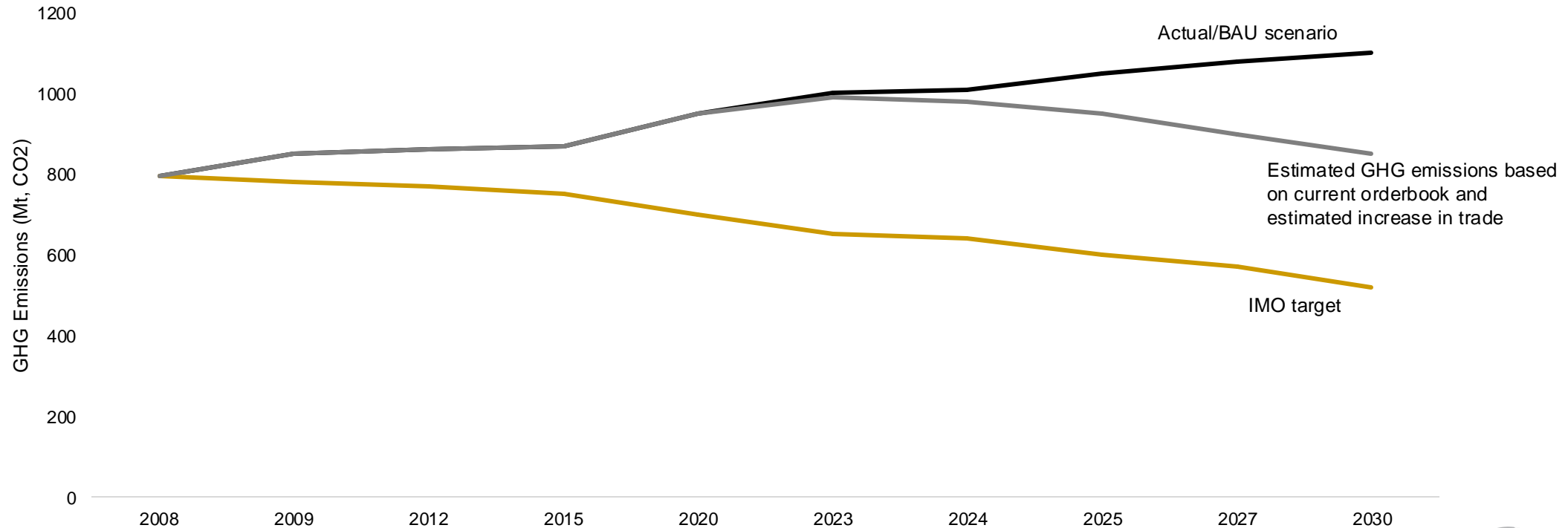
Challenging. Feasible with increased adoption of energy efficiency technologies and acceleration on near-zero GHG emission fuels

Source of data: UNCAT, Clarksons Research and IMO

GHG emissions from international shipping to reach net zero

Indicative checkpoint 1: to reduce the total annual GHG emissions from international shipping by at least 20%, striving for 30%, by 2030, compared to 2008

Current Status: Not on track. Feasible with increased adoption of energy efficiency technologies and acceleration on near-zero GHG emission fuels

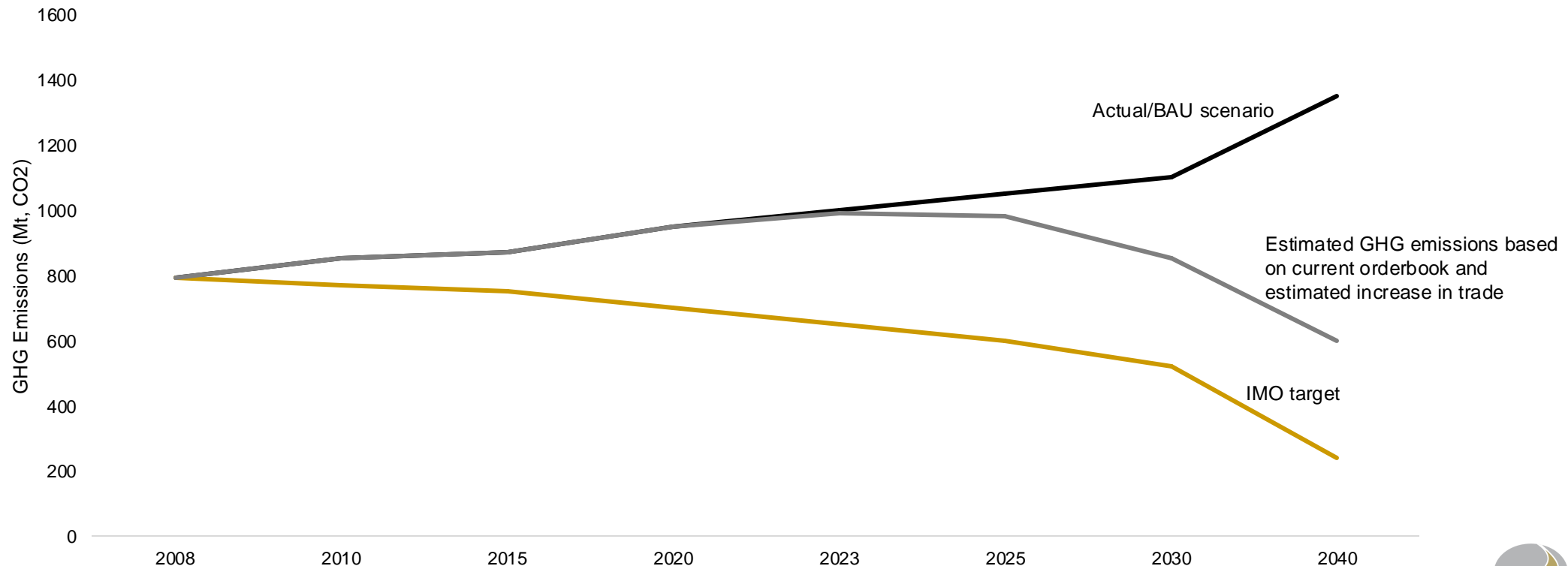


Source of data: Fourth IMO GHG Study, IMO and ICCT

GHG emissions from international shipping to reach net zero

Indicative checkpoint 2: to reduce the total annual GHG emissions from international shipping by at least 70%, striving for 80%, by 2040, compared to 2008.

Current Status: Not on track. Feasible with increased adoption of energy efficiency technologies and acceleration on zero GHG emission fuels



Source of data: Fourth IMO GHG Study, IMO, UNCTAD and ICCT

GHG emissions from international shipping to reach net zero

Shipping Growth:

- By 2040, the global fleet is projected to reach **100,000 ships**, increasing energy consumption unless alternative fuels are widely adopted.
- **Without radical interventions**, the business-as-usual (BAU) scenario projects that GHG emissions could increase by 2040.

Uptake of Alternative Fuels:

- To meet the 2040 target, the IMO's strategy relies heavily on **scaling up zero-emission fuels**. However, these technologies are still in the early stages of development and face significant infrastructure challenges.
- The implementation of mid-term measures like **GHG pricing** and a **global fuel standard** will not be fully realized until 2027, making it difficult to achieve the drastic reductions needed by 2040.

Conclusion:

Achieving a **70-80% reduction** in GHG emissions by 2040 is challenging based on current trends. The slow commercialization of zero-emission fuels, energy efficiency technologies and the delayed impact of regulatory measures will **challenge progress toward this goal**.

Indicative checkpoint 1: to reduce the total annual GHG emissions from international shipping by at least 20%, striving for 30%, by 2030, compared to 2008

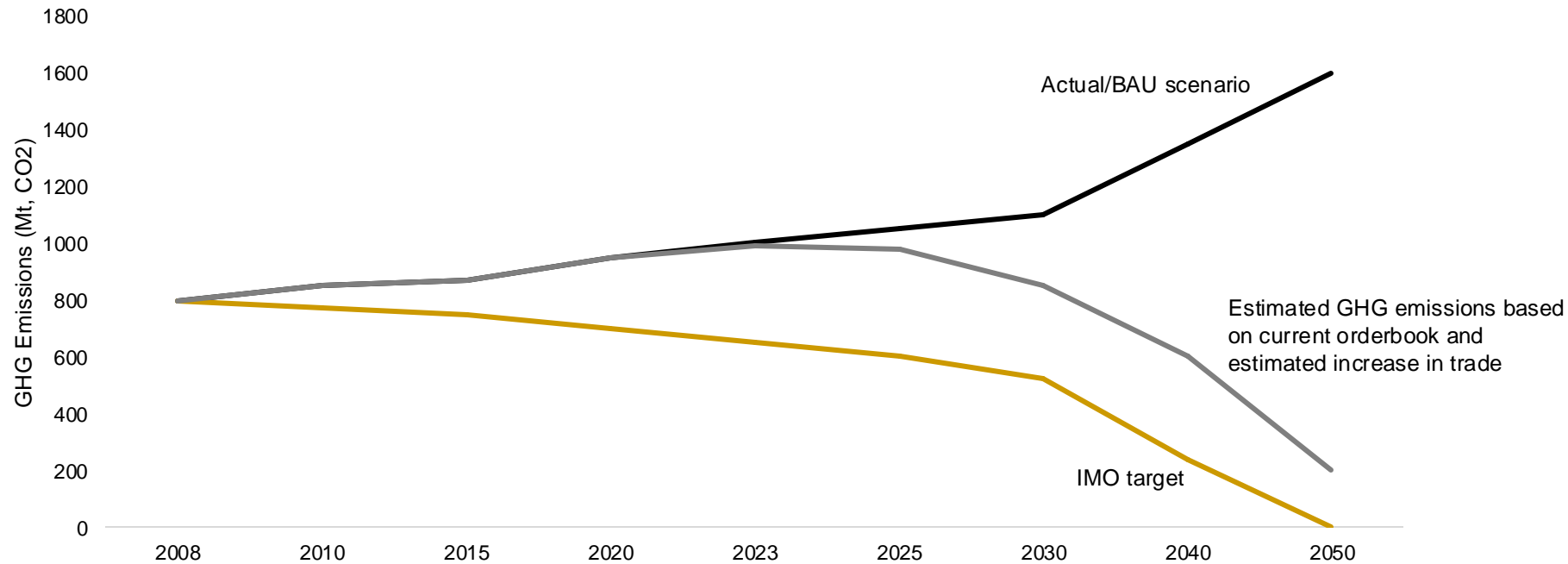
Indicative checkpoint 2: to reduce the total annual GHG emissions from international shipping by at least 70%, striving for 80%, by 2040, compared to 2008.

Current Status: Not on track. Feasible with increased adoption of energy efficiency technologies and acceleration on zero GHG emission fuels

GHG emissions from international shipping to reach net zero

Target 4: to peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to, 2050, taking into account different national circumstances, whilst pursuing efforts towards phasing them out as called for in the Vision consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement

Current Status: Not on track. Feasible with accelerated zero GHG emission fuel adoption, robust regulatory frameworks, and significant investments in infrastructure



Source of data: Fourth IMO GHG Study, IMO, UNCTAD and ICCT

GHG emissions from international shipping to reach net zero

Shipping Growth:

Global trade and the shipping fleet are expected to **continue expanding, increasing demand for energy**. The industry could continue emitting more CO₂ by 2050 if no further measures are adopted.

Uptake of Alternative Fuels:

- Reaching net-zero by 2050 requires **widespread adoption of zero GHG emission fuels** like green hydrogen, ammonia, and methanol, alongside energy efficiency measures.
- While there is significant progress in pilot projects for these fuels, the timeline for full commercialization and global scaling remains **uncertain**.

Conclusion:

Reaching net-zero by 2050 is possible but will depend **on accelerated zero GHG emission fuels adoption, robust regulatory frameworks, and significant investments in infrastructure**. However, given the current pace of adoption, this target remains challenging.

Target 4: to peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to, 2050, taking into account different national circumstances, whilst pursuing efforts towards phasing them out as called for in the Vision consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement

Current Status: Not on track. Feasible with accelerated zero GHG emission fuels adoption, robust regulatory frameworks, and significant investments in infrastructure

Solving Maritime Challenges through Forward-Thinking & Ingenuity

Shipping Industry:

- **Shift to Carbon-Neutral Fuels:** Conduct feasibility studies and develop a strategy to start investing in low-emission technologies and future fuels, considering the high costs and uncertain availability.
- **Energy Efficiency:** Optimize ship designs, retrofitting, and operational practices (e.g., route optimization, slow steaming).
- **Carbon Capture & Storage:** Collaborate with ports and other stakeholders for on-board carbon capture and infrastructure support.
- **Embrace Digitalization:** Use advanced digital tools to monitor emissions and enhance efficiency as well as operations.
- **Innovative Technology:** Invest in emerging technologies such as fuel cells, batteries, and alternative propulsion systems.

Marine Fuel Suppliers:

- **Develop Infrastructure for New Fuels:** Cooperate with stakeholders to scale up production and supply chains for sustainable fuels.
- **Collaborate on Fuel Standards:** Work with the industry and regulators to establish global fuel quality and safety standards.

Regulators:

- **Global Regulatory Alignment:** Ensure consistent, global enforcement of emissions regulations to avoid regional fragmentation.
- **Support for Innovation:** Offer incentives for the development of new green technologies and support research on the reduction of maritime GHG emissions.

It's time to collaborate!



Thank you for your time

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