Navigating to 2050

A safe and sustainable maritime future

#NavigatingTo2050

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Commissioners of IRISH LIGHTS | Navigation and Maritime Services

Reality 2050
Meeting IMO targets, what does it look like – the industry perspective

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International Chamber of Shipping

Shaping the Future of Shipping

Who we are

International Chamber of Shipping

Shaping the Future of Shipping

- Represents national shipowner associations, and over 80% of the world merchant fleet.
- Promotes our members' interests at international forums including IMO, ILO, WTO, UNCTAD, UNFCC and WHO.
- Produces best practice publications for the industry.

ILO IMO World Trade Organization UNCTAD UNFCCC World Health Organization

Topics

- Rate of change for shipping
- IMO’s initial GHG strategy
- Short term GHG measures
- Mid and long term GHG measures
- Corridors and hubs
- Opportunities for shipping

Rate of change for shipping

Rate of industry change

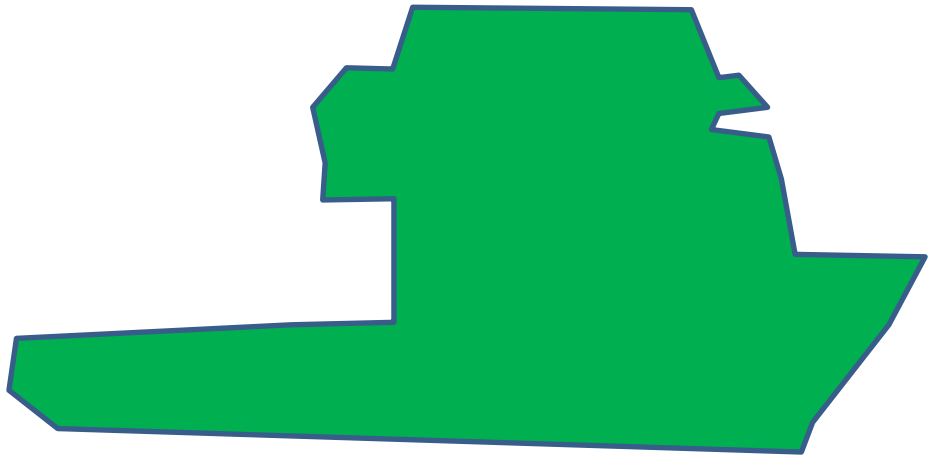
- ILV Granuaile - an innovative vessel, delivered in the year 2000,
- Through her lifetime the shipping industry has experienced significant changes including the entry into force of IMO's :
  - MARPOL Annex IV, relating to air pollution from ships (2005)
  - Emissions Design Index, EEDI (2013)
  - Ballast Water Management Convention (2017)
  - The sulphur cap (2020)
- Also:
  - Extensive digitalisation of design, shipbuilding and ship operation.
  - The establishment of China as one of the leading shipbuilding nations.
  - World fleet capacity increased from 800 million tonnes deadweight to over 2,000 million tonnes.
  - First steps towards autonomous ships.

ILV Granuaile

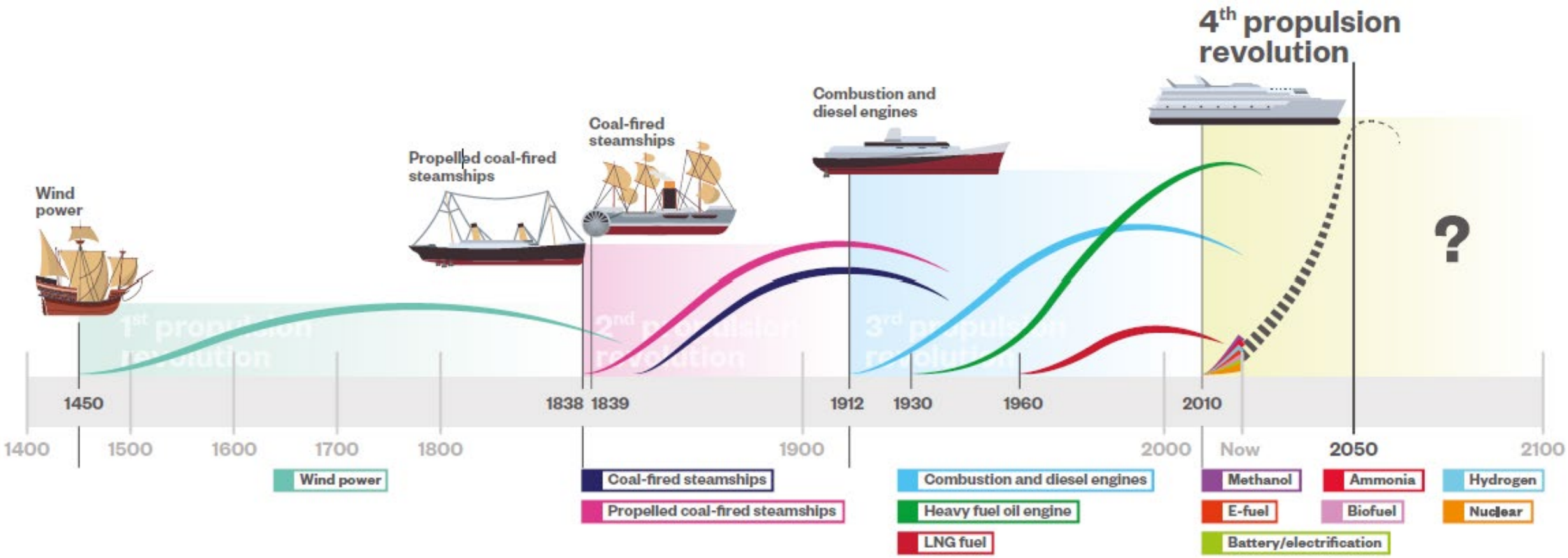
Future rate of change

- Assuming Granuaile's successor sees service through to 2050, what changes will she witness ?
- In terms of decarbonisation, we expect to see huge changes:
  - Widescale improvements in fuel efficiency, including the adoption of energy saving devices, e.g. Wind Assisted Propulsion (WAPs), air lubrication etc.
  - Dual fuel ships during the transition period.
  - Wide scale adoption of alternative fuels, e.g. hydrogen, ammonia, green methanol and biofuel, and associated bunkering infrastructure.
  - Possibly nuclear propelled vessels and on-board carbon capture and storage.
  - Replacement of a significant proportion of the world fleet with vessels capable of burning the alternative fuels (possibly the entire world fleet).
  - Global trading of alternative fuels.

What next for Granuaile's successor ?



The 4th Propulsion Revolution



IMO’s initial GHG strategy

Driver of change – IMO's Initial GHG Strategy

- Adopted in 2018, in response to the Paris Agreement on climate change.
- Includes short, mid and long term measures.
- IMO due to complete its strategy review in the first half of 2023
- Many IMO Member States now calling for the complete phase-out of most GHG emissions by 2050

Vision

Commitment to reduce GHG emissions from international shipping, with the aim to phase them out as soon as possible

Levels of ambition (with a 2008 baseline)

Further reduction of carbon intensity for new ships (EEDI)

Carbon intensity of international shipping: reduced by at least 40% by 2030; and efforts towards 70% by 2050

Reduce total annual GHG emissions from international shipping by at least 50% by 2050

Measures to meet the targets

Short term, 2018–2023: reduce carbon intensity of all ships by at least 40% by 2030 compared to 2008

Mid-term, 2023–2030: under discussion (market-based measures (MBM) such as contribution and reward systems; fuel lifecycle analysis, R&D funds...)

Long-term, beyond 2030: early discussion only (support to alternative fuels and technologies...)

Short Term Measures

- The short term measures are focused on improving the fuel efficiency of ships, both in terms of their design and operation.
- Existing measures include EEDI, SEEMP and DCS.
- Additionally in June 2021, MEPC 76 agreed to MARPOL amendments requiring compliance with:
  - Energy Efficiency Existing Ship Index (EEXI);
  - Carbon Intensity Indicator (CII);
  - Ship Energy Efficiency Management Plan (SEEMP), Part III.

Image by courtesy of Wightlink

Existing Short Term Measures

Energy Efficiency Design Index (EEDI)

- First introduced in January 2013 and is a design index applicable to new vessels of 400 GT and above. Vessels need to meet the reference level for their ship type, which is tightened every 5 years.

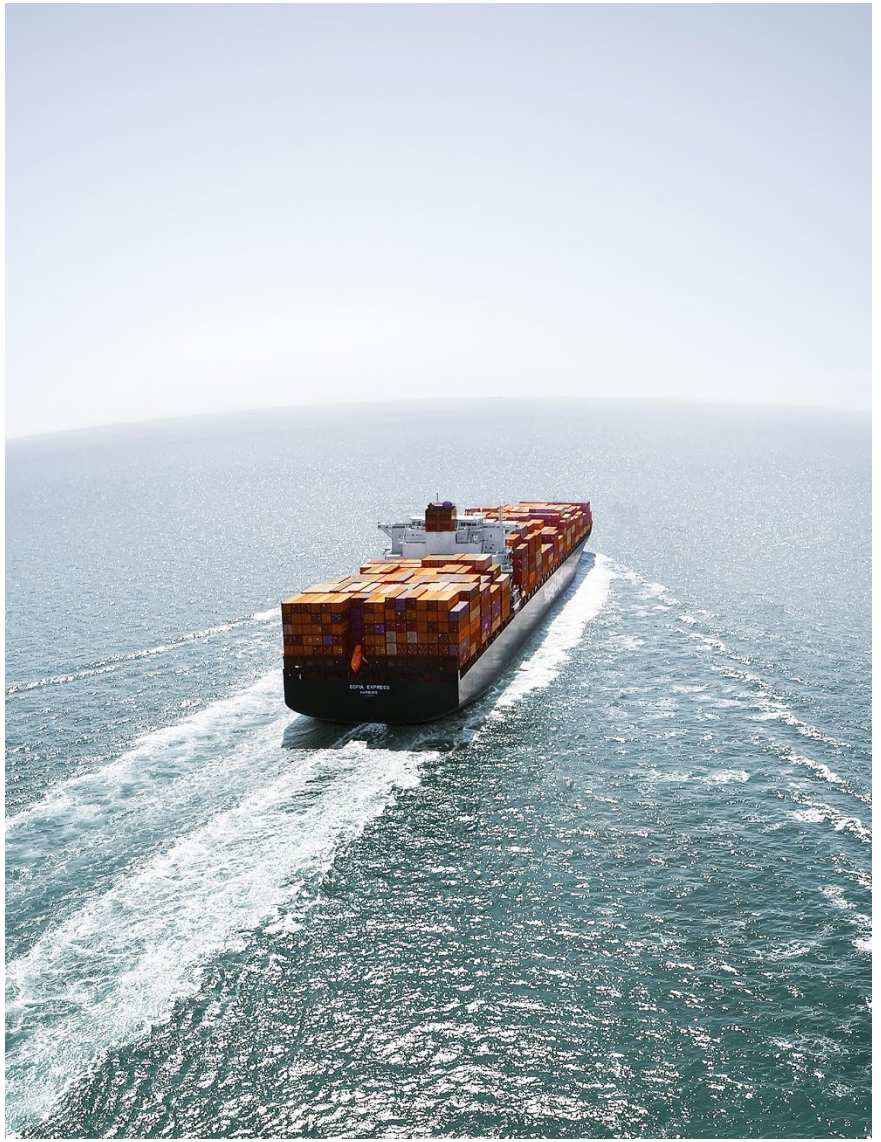
$$EEDI = \frac{CO_2 \text{ Emission}}{\text{Ship's Capacity x Reference Speed}}$$

Ship Energy Efficiency Management Plan (SEEMP)

- A ship specific Operational measure that is intended to promote greater fuel efficiency.
- Has been mandatory for all ships of 400 GT and above from 1st January 2013.

Data Collection System (DCS)

- As of 1st January 2019, it has been mandatory for all ships of 5,000 GT and above to report annually to the flag administration, fuel consumption, distance travelled and time at sea.



New Short Term Measures - EEXI

- Energy Efficiency Existing Ship Index (EEXI) is a design index.
- One-off calculation that applies to existing ships above 400 GT from the first annual, intermediate or renewal IAPP survey after 1st January 2023.
- Required reduction rates are closely aligned to current EEDI new build requirements.

$$EEXI = \frac{CO2\ Emission}{Ship's\ Capacity \times Reference\ Speed}$$

- EEXI system to be reviewed by IMO no later than 1st January 2026.

Image by courtesy of Viking Line

New Short-Term Measures - CII

- The Carbon Intensity Indicator (CII), is an operational measure that applies to new and existing ships above 5,000 GT, and will take effect from 1st January 2023.
- Vessels will be allocated a banded rating A to E.
- Those placed in band D for 3 consecutive years, or band E for 1 year, will be required to submit a corrective action plan.
- Bandings will be progressively reduced by the following factors:

Year	Reduction from 2019 reference
2023	5%
2024	7%
2025	9%
2026	11%

$$CII = \frac{\text{Annual } CO_2 \text{ Emissions}}{\text{Capacity x Distance Travelled}}$$

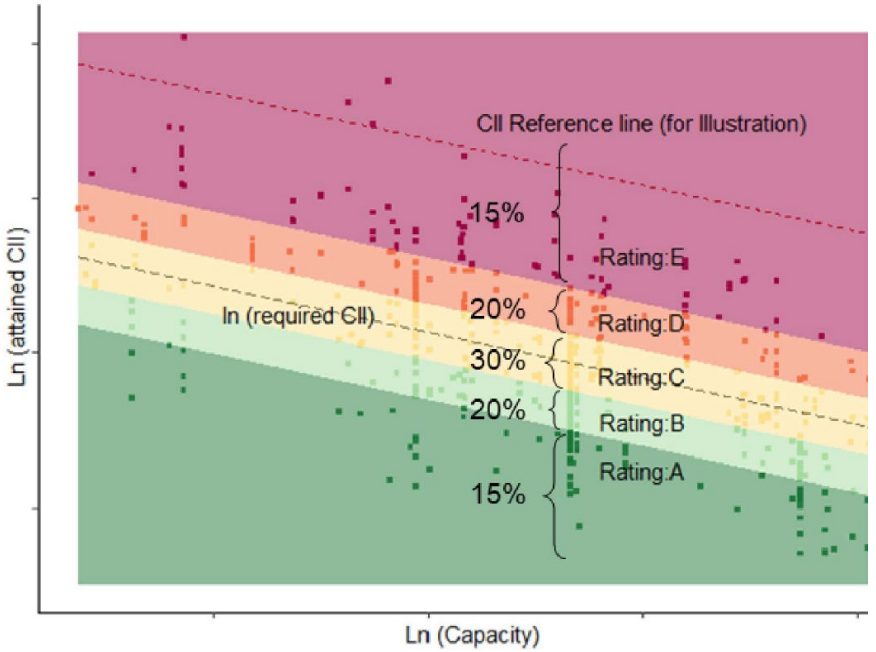


Image by courtesy of IMO

- CII system to be reviewed by IMO no later than 1st January 2026.
- The system includes a range of correction factors and voyage adjustments which are currently termed “interim”, and will also be subject to the 2026 review.

New Short-Term Measures – SEEMP Part III

- Contains the ship's Operational Carbon Intensity Plan
- May contain the Corrective Action Plan (required if CII rated D for 3 consecutive years or E for 1 year).
- On satisfactory assessment of the SEEMP Part III, Administration or RO issue the Confirmation of Compliance (CoC).
- Approved copy must be on board with the CoC by end of 2022.
- Updated and verified every 3 years thereafter.
- Additional verification will be required for a Corrective Action Plan

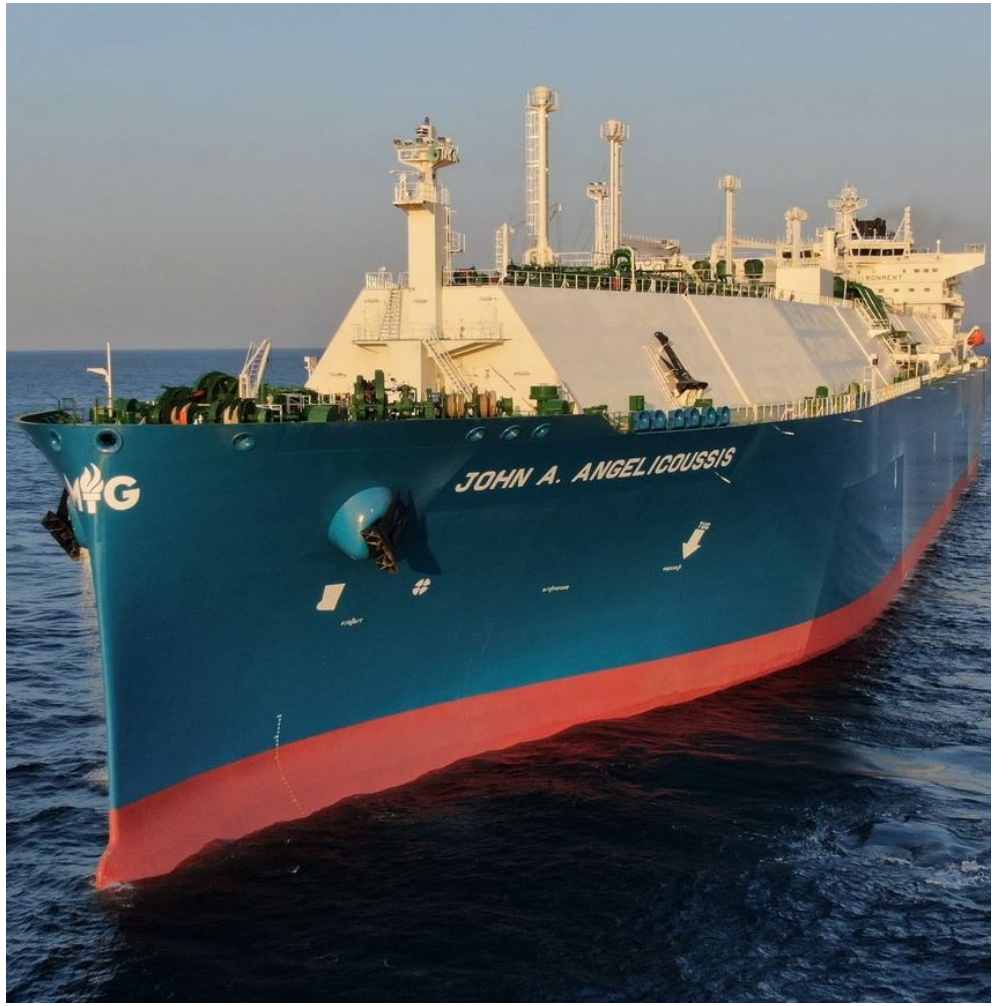


Image by courtesy of Maran Gas

Mid and long term GHG measures

Mid and Long-Term Measures

IMO has developed a work plan to support the implementation of mid and long-term measures.

Phase 1. Collection of proposals and initial consideration of those for development of mid-term and long-term measures (June 2021- June 2022).

Phase 2. Measures will be assessed and selected for further development (June 2022-June2023).

Phase 3. Measures will be developed to be finalised within a specified deadline (June 2023 onwards)

Image by courtesy of IMO

Mid and Long-Term Measures

Measures currently under consideration include:

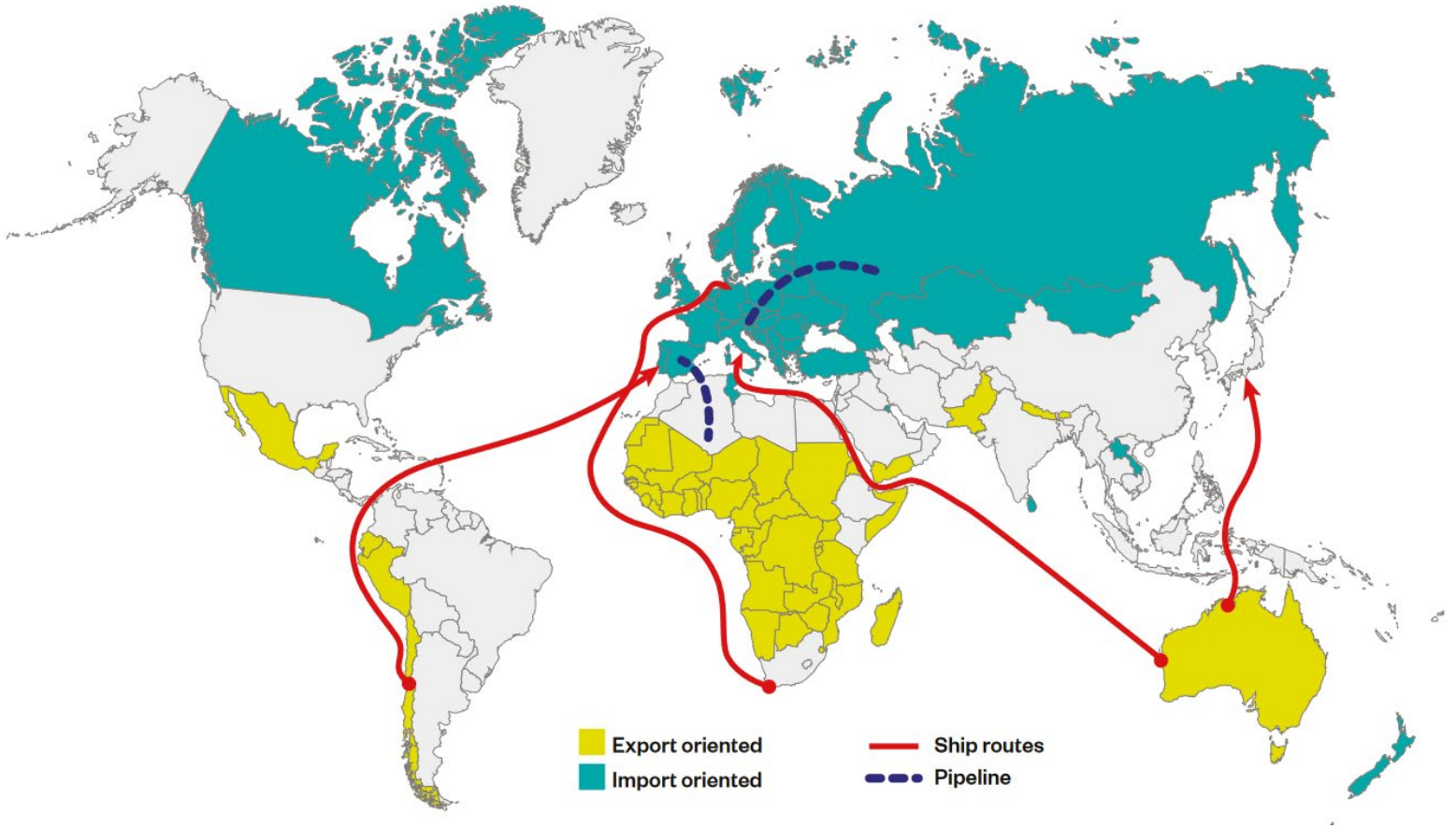
- Market Based Measure:
  - Levy;
  - Cap & Trade;
  - Fund and Reward or Feebate;
  - R&D funding;
  - Low GHG Fuel Standard (LGFS) – linked to an economic measure.
- Life Cycle Analysis of Fuels.
- Low GHG Fuel Standard (LGFS) .
- Detailed work is being performed intersessionally, with the next meeting (ISWG-GHG-13), scheduled for 5th to 9th December 2022.

Image by courtesy of IMO

Opportunities for shipping

Supply of alternative fuels

- Developing economies are well placed to benefit economically by becoming fuel supply producers and exporters of (net) zero carbon fuels.
- Regions such as Latin America and Africa are expected to benefit from a 20%+ lower cost of production and transport of fuels due to the abundance of solar and wind in these regions.
- Countries such as Algeria, Argentina, Australia, Chile and Morocco have already begun this journey.
- Alternative fuels are less energy dense than fossil fuels, and therefore significantly greater volumes will need to be shipped.



Corridors and hubs

Green Corridors

- At COP 26, the signatories of the Clydebank Declaration committed to support the establishment of green shipping corridors – i.e. zero-emission maritime routes between 2 (or more) ports
- Corridors could be effective in supporting the decarbonisation of short sea routes and liner services where ships routinely trade between 2 designated ports.
- There are a total of 24 countries that have signed the declaration, including Ireland, UK, France and Netherlands.

Image by courtesy of The Scotsman

Clean Energy Marine Hubs

- Initially developed at an ICS summit of senior shipping representatives in June this year. The Clean Energy Marine Hubs initiative was officially launched at the Clean Energy Ministerial (CEM) in Pittsburgh in September.

- The initiative is a convening platform for public and private senior-level stakeholders from the ports, shipping, finance, and energy sectors across the energy-maritime value chain, with the objective of advancing the production, export and import of low-carbon fuels.

- Whereas Green Corridors are focused on supply of alternative fuel for ships, Clean Energy Marine Hubs also focus on the shipment and supply of clean fuels to society as a whole, i.e. a much greater amount of fuel.

- Already supported by Canada, Norway, Panama, Uruguay and UAE.

Conclusions

Conclusions

- To achieve IMO's GHG strategy through to 2050 will require huge changes to the shipping sector, and the driver for this is the IMO GHG regulations.
- IMO's latest additions to the Short Term GHG Measures are in place. Ships will need to have approved SEEMP Part III documentation on board by the end of 2022, together with the CoC. EEXI compliance is required by the first annual, intermediate or renewal IAPP survey after 1st January 2023. Next year is also the first annual reporting period for the CII system, and ships must submit their data between 1st January 2024 and 31st March 2024.
- IMO's mid and long term measures for GHG reduction, including a Market Based Measure are under development, and are expected to be finalised sometime after June 2023.
- The review of IMOs GHG strategy will complete in 2023. Many member states are in favour of higher ambition.
- The future fuels present opportunities for shipping with respect to playing a pivotal role in transporting the anticipated large volumes.
- The principle of Green Corridors may be adopted to decarbonise individual routes. The Clean Energy Marine Hubs, may play a more significant role in providing transportation and supply of alternative fuels, not only to shipping, but also to other sectors.

International Chamber of Shipping

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Thank you for your attention

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