Achieving the goals of the Initial IMO Strategy on reduction of GHG emissions from ships

IMO policy context

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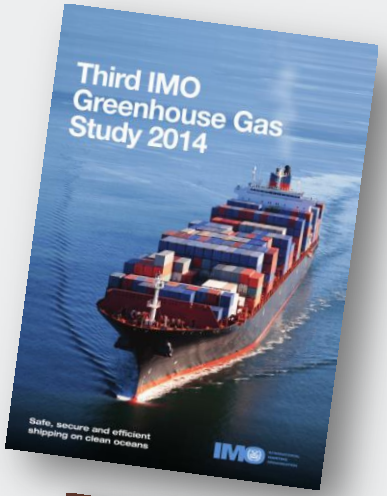
INTERNATIONAL MARITIME ORGANIZATION

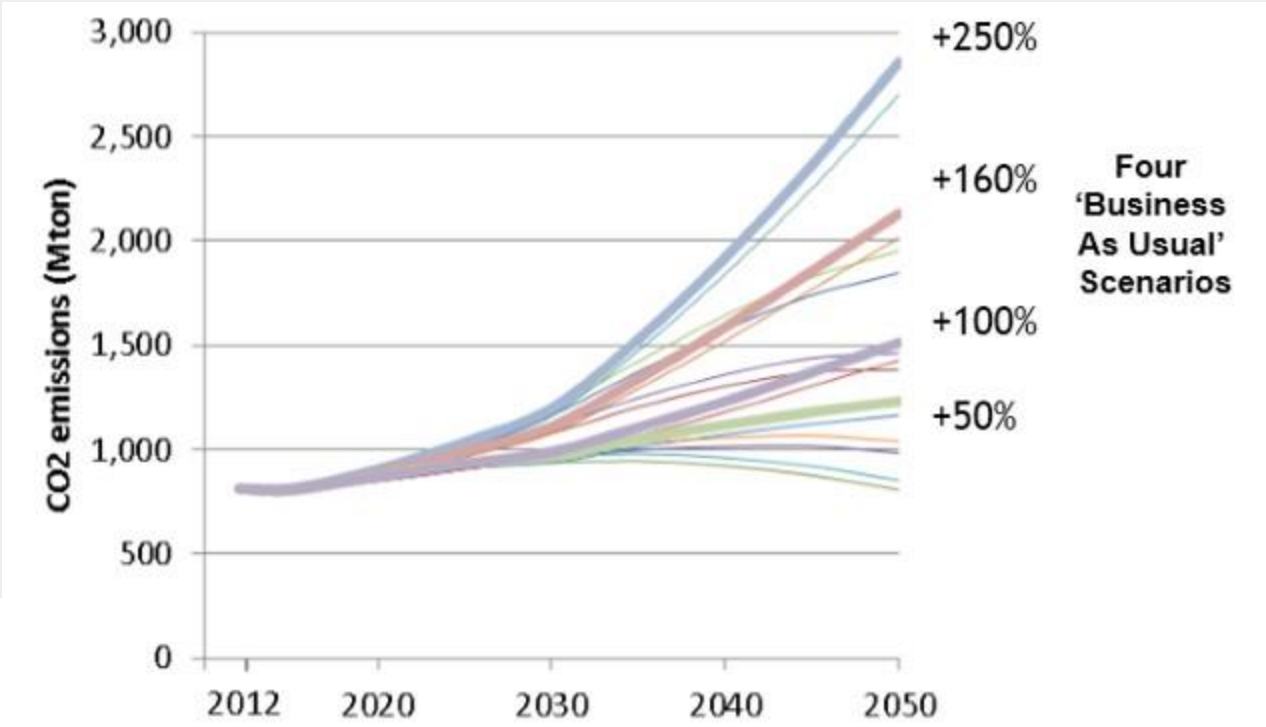
SUSTAINABLE SHIPPING FOR A SUSTAINABLE PLANET

Context: shipping GHG emissions



Fourth IMO GHG Study
expected in Autumn 2020

- In 2012, international shipping emitted approx. **800 million tonnes of CO_2** => around 2.5% of global CO_2 emissions
- Demand is the key driver for growth in emissions.
- Expected growth of maritime trade: **+3.4% annually** in the five following years
- **50-250% increase in GHG emissions predicted by 2050** in the absence of regulations



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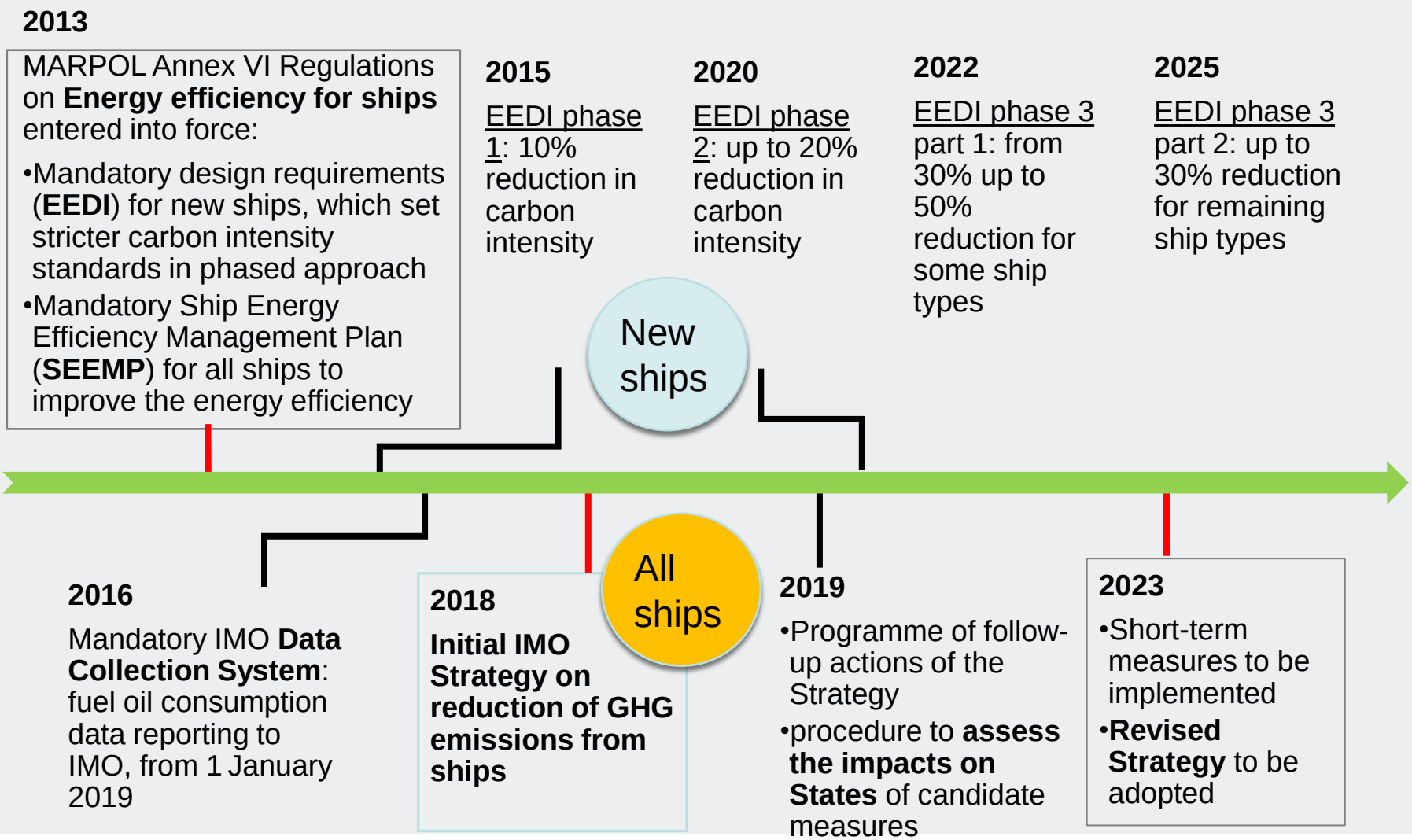
IMO action on reduction of GHG emissions from ships



Initial IMO Strategy on reduction of GHG from ships (2018)

Initial IMO Strategy on reduction of GHG from ships (2018)

Vision:

"IMO remains committed to reducing GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible in this century"

……..the Initial Strategy identifies levels of ambition for the international shipping sector noting that technological innovation and the global introduction of alternative fuels and/or energy sources for international shipping will be integral to achieve the overall ambition……..

.1 carbon intensity of the ship to decline through implementation of further phases of the energy efficiency design index (EEDI) for new ships

to review with the aim to strengthen the energy efficiency design requirements for ships with the percentage improvement for each phase to be determined for each ship type, as appropriate;

.2 carbon intensity of international shipping to decline (for all ships)

to reduce CO_2 emissions per transport work, as an average across international shipping, by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008; and

.3 GHG emissions from international shipping to peak and decline

to peak GHG emissions from international shipping as soon as possible and to reduce the total annual GHG emissions by at least 50% by 2050 compared to 2008 whilst pursuing efforts towards phasing them out as called for in the Vision as a point on a pathway of CO_2 emissions reduction consistent with the Paris Agreement temperature goals.

Initial IMO Strategy on reduction of GHG from ships (2018)

- List of "**candidate measures**" with the following timelines:

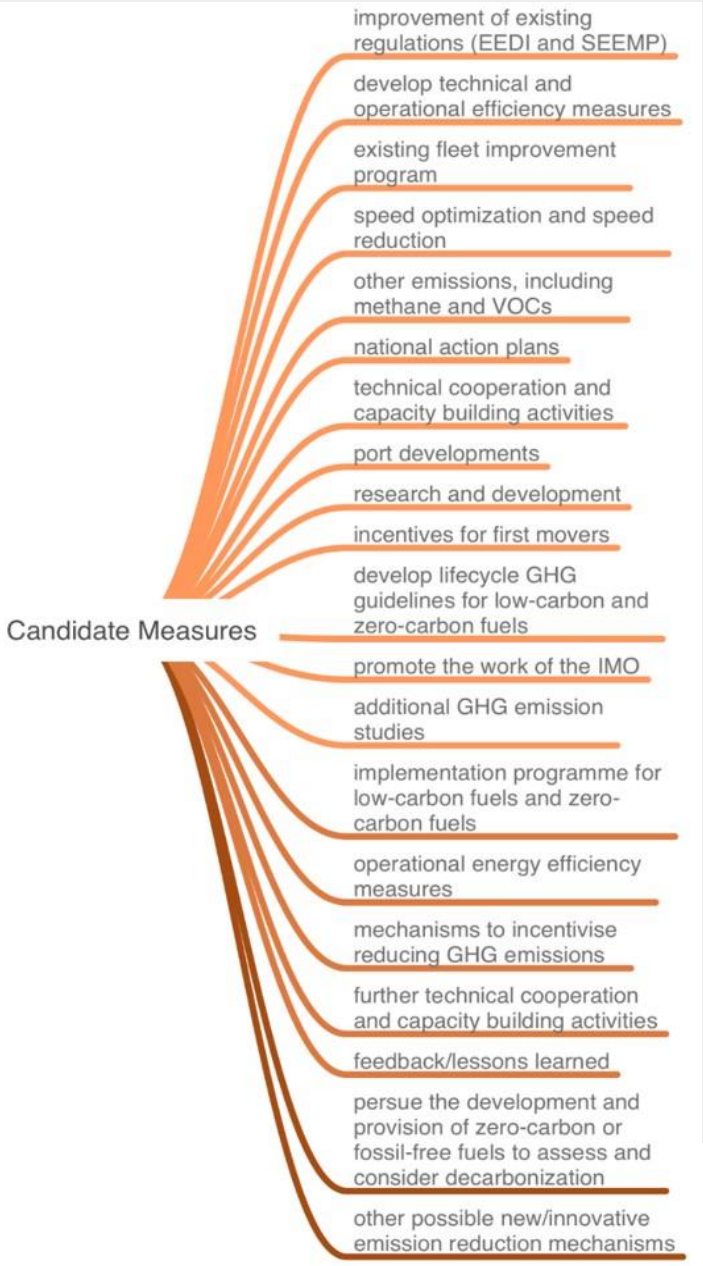
  - Short-term measures could be finalized and agreed between 2018 and 2023

  - Mid-term measures could be finalized and agreed between 2023 and 2030

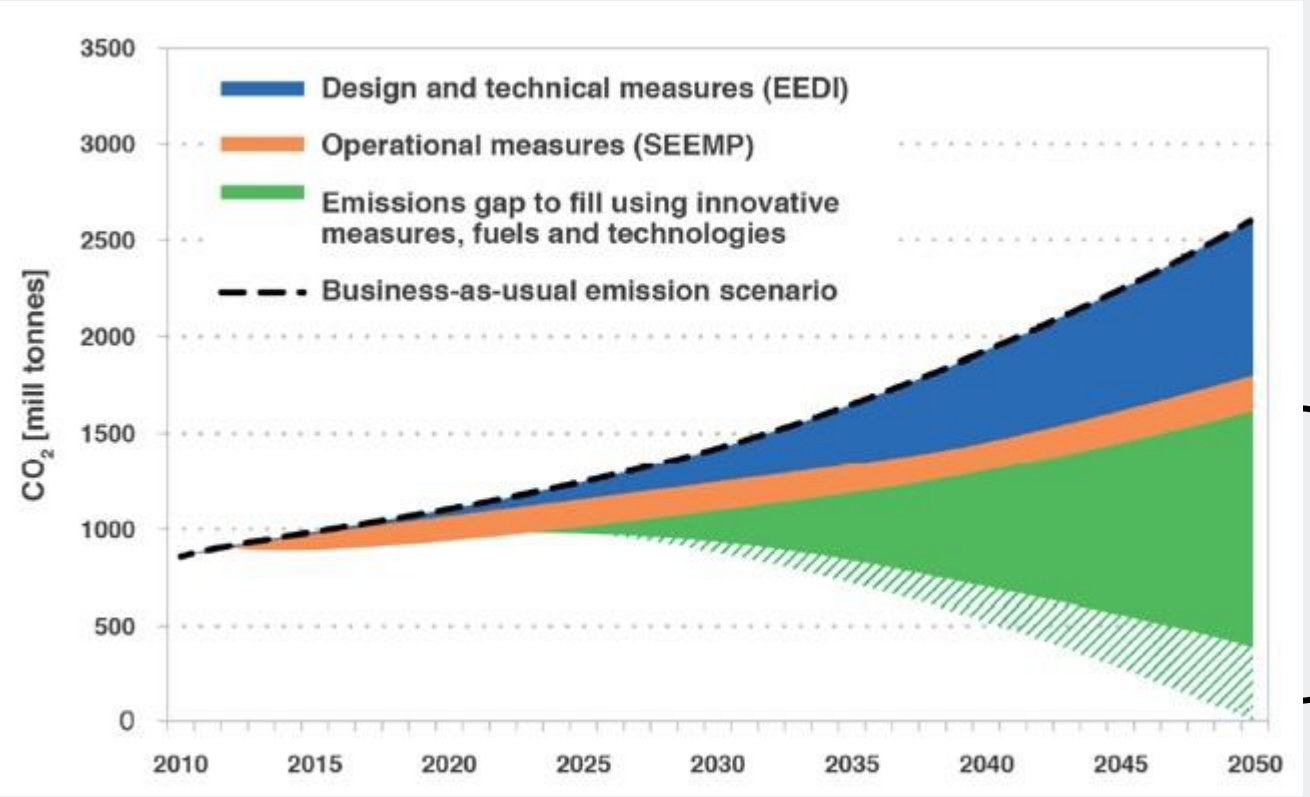
  - Long-term measures could be finalized and agreed beyond 2030

- **Assessment of impacts on States** through a dedicated procedure

- The **revised IMO strategy** is to be adopted in 2023.



How to achieve the levels of ambition?



Energy efficiency improvements through the current framework (EEDI and SEEMP) are important, but will not be enough to reach the 2050 ambition

Innovative measures, fuels and technologies represent at **least 50% of the overall reduction effort**

Reduction % are indicative estimate.
This is illustration purpose only and not approved by MEPC.

Recent progress on the EEDI framework (for new ships)

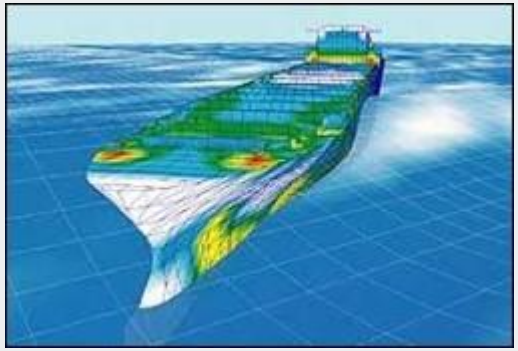
- MEPC 74 approved, for adoption in April 2020, draft amendments to MARPOL Annex VI to **strengthen the EEDI phase 3** requirements:

  → bring forward the entry into effect date of phase 3 to 2022 (from 2025) for several ship types, including gas carriers, general cargo ships and LNG carriers;

  → enhance the EEDI reduction rates for containerships (35%, 40%, 45%, 50%).

  Example: for a containership of 200,000 GT, the EEDI reduction rate is expected to be set at 50% from 2022, instead of 30% from 2025

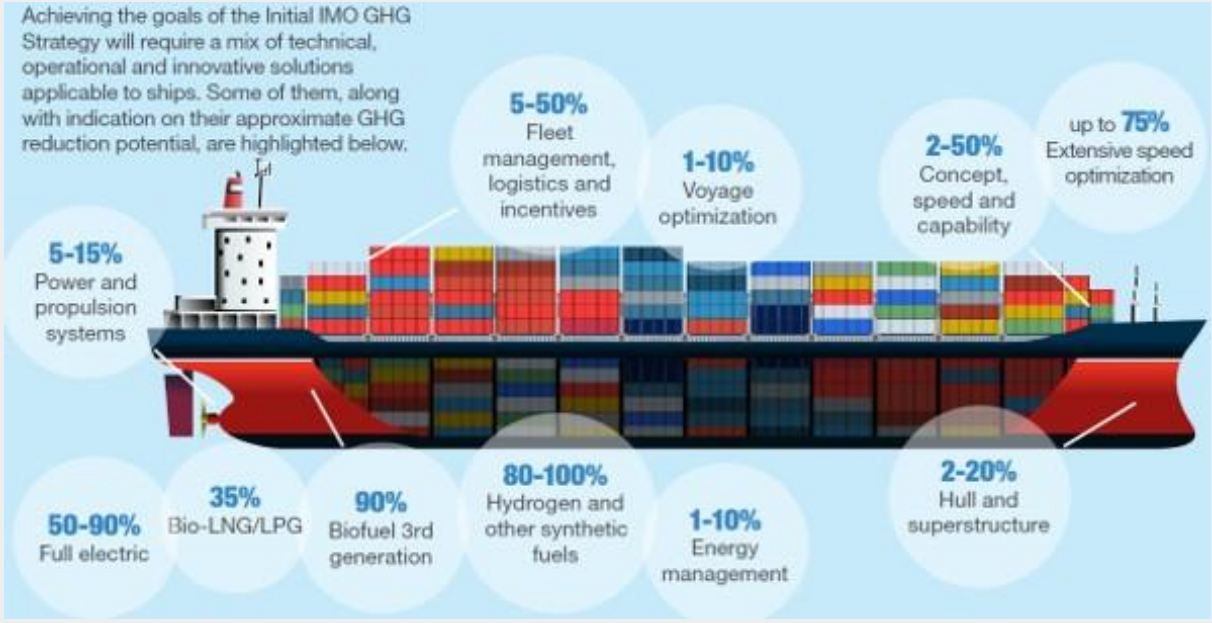
- Establishment of a Correspondence Group to look into the introduction of a **possible EEDI phase 4**.



Discussion on short term measures for existing ships

- Outcome of ISWG-GHG 6: agreement on a need for a short-term (i.e. 2023 max) **mandatory goal-based measure for existing ships**, possibly including:
  - a technical approach and/or
  - an operational approach
  - a combination of both?

=> Would provide **flexibility** and **incentive for innovations** to shipowners



Discussion on short term measures for existing ships

- Discussion to continue at ISWG-GHG 7 (and MEPC 75)

- Chair proposed a **draft legal framework** to facilitate discussions
- Different submissions proposing **amendments to MARPOL Annex VI**, for example:
  - technical approach such as the Energy Efficiency Existing Ship Index (EEXI)
  - strengthening of the SEEMP with mandatory audits
  - operational carbon intensity rating mechanism
  - an operational approach such as the strengthening of the SEEMP based on mandatory carbon intensity indicators and annual reduction factors

- Various other submissions covering:
  - impact assessments of proposed measures;
  - specific needs of SIDS
  - proposals to reduce methane slip

Other recent achievements

Ports

- *Resolution MEPC.323(74) on Invitation to Member States to encourage voluntary cooperation between the port and shipping sectors to contribute to reducing GHG emissions from ships*
- GIA work on a *Just-in-time arrival Guide* (for MEPC 75)

Technical cooperation

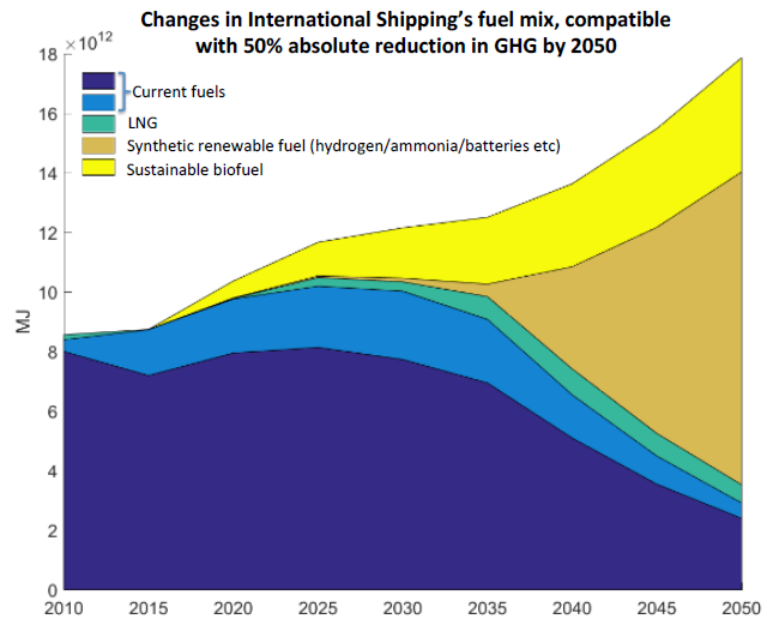
- Establishment of the "GHG TC-Trust Fund"
- New international project “GreenVoyage2050”

Encouraging actions at national level

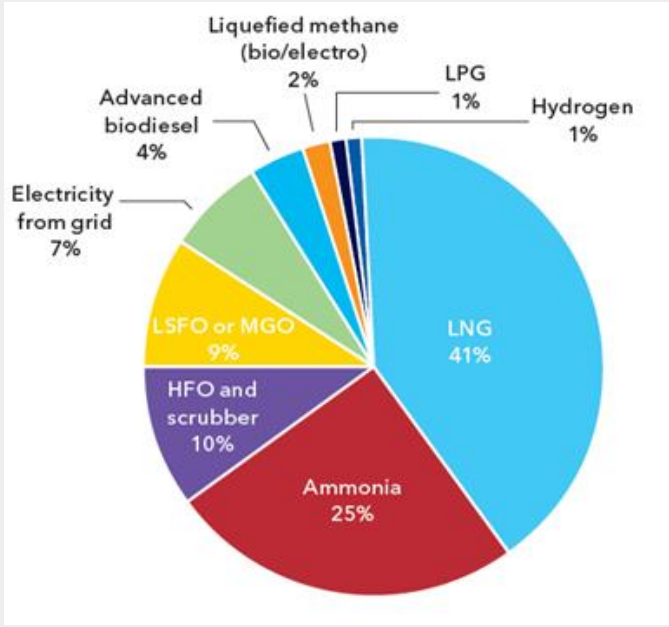
- Draft *MEPC resolution to encourage the development and submission to IMO of National Action Plans by Member States related to reduction of GHG emissions from international ships* to be considered by MEPC 75

Mid-long term perspectives: how to decarbonize shipping?

- Uncertainty on the decarbonization pathways => examples of different scenarios possible for the fuel mix towards 2050 (50% total GHG reduction):



Source: UCL. *IMO's 2018 climate agreement explained*



Source: DNV-GL. *Maritime Forecast to 2050*

- ISWG-GHG 6 agreed on the establishment of a workstream for the development of **life cycle GHG/carbon intensity guidelines** for all relevant types of fuels.
- Further work expected on **mid- and long-term candidate measures** in the Initial GHG Strategy, possible including **market-based measures**.

Need for a clearer picture of all energy options

Energy source	Fossil (without CCS)					Bio	Renewable[3]		
Fuel	HFO + scrubber	Low sulphur fuels	LNG	Methanol	LPG	HVO (Advanced biodiesel)	Ammonia	Hydrogen	Fully-electric
High priority parameters									
• Energy density									
• Technological maturity									
• Local emissions									
• GHG emissions			[2]						
• Energy cost									[4]
• Capital cost — Converter									
• Capital cost — Storage									
• Bunkering availability									
Commercial readiness [1]									[5]
Other key parameters									
• Flammability									
• Toxicity									
• Regulations and guidelines									
• Global production capacity and locations									

Source: DNV-GL, *Comparison of alternative fuels*, 2019

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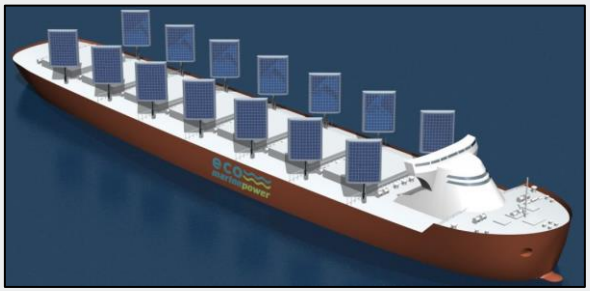
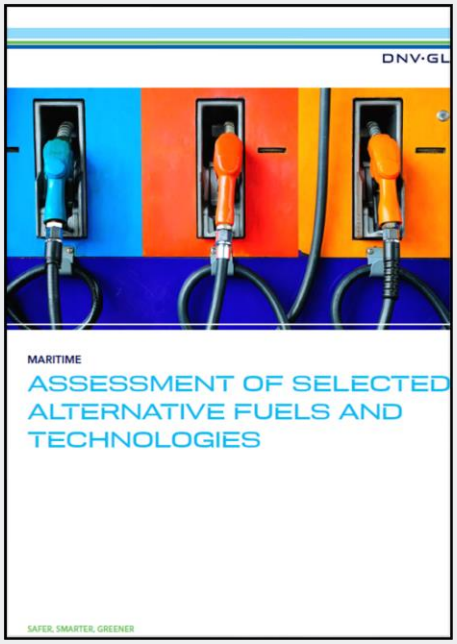
- There is no “silver bullet” or perfect fuel.
- Each fuel has its own challenges (production, energy density, storage, safety, economic feasibility, etc.
- Future fuel mix expected to be more diversified than it is today

The "4th propulsion revolution"?





IMO provides a global forum for discussions on zero-carbon shipping

Conclusion

- IMO's 2018 GHG Strategy sets out an ambitious and realistic pathway to zero-carbon global shipping
- Amendments to MARPOL Annex VI defining short-term measure(s) to achieve the 2030 level of ambition are expected to be agreed by the end of 2020
- Decarbonization of shipping requires the development, widespread availability and affordability of zero-carbon marine fuels
- IMO's 2018 GHG Strategy will drive R&D and boost mobilization of funds to support development and uptake of low/zero carbon-technology and fuels
- IMO, being part of the UN-family, ensures a truly global framework for cooperation and inclusion of all regions, countries and stakeholders worldwide

Thank you for your attention

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