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REDUCTION OF GHG EMISSIONS FROM SHIPS

Regulatory mechanisms for the effective uptake of sustainable low-carbon and zero-carbon fuels and meeting the ambitions for GHG emission reductions

Submitted by Norway

SUMMARY

Executive summary:	This document proposes a fuel GHG intensity limit and an emissions cap and trading as a package of mid- and long-term measures to be considered further. The package establishes a cap and a price on GHG emissions through trading of allowances, while the fuel GHG intensity limit sets a mandatory technical requirement. Both measures work together providing a robust framework to ensure the supply and uptake of sustainable low- and zero-carbon fuels. The proposal needs to be further developed, including the legal framework, and assess key issues, such as impacts on States and implications for various parts of the maritime industry.
Strategic direction, if applicable:	3
Output:	3.2
Action to be taken:	Paragraph 24
Related documents:	MEPC 76/7/2; ISWG-GHG 10/5/4, ISWG-GHG 10/5/5 and ISWG-GHG 10/5/6

Background

1 The *Initial IMO Strategy on reduction of GHG emissions from ships* establishes a pathway for emission reductions which will require the Organization to develop a comprehensive framework that provides climate action at a pace and scale that responds to the challenge. Norway is encouraged by the ongoing good cooperation within the Organization in the follow-up of the Initial Strategy with all its elements, mindful of the vision to reduce GHG emissions from international shipping and, as a matter of urgency, aim to phase them out as soon as possible in this century.

2 The levels of ambition of the Initial Strategy points towards elements which need to be considered in reviews (paragraph 3.1 of the Initial Strategy), such as updated emission estimates and reports of the International Panel on Climate Change (IPCC) as relevant. Although there are positive developments in improving energy efficiency in shipping, the *Fourth IMO GHG Study 2020* reported an increase in shipping emissions in the period 2012 to 2018. Further, the latest report from the IPCC, the sixth assessment report (AR6) published in August 2021, is highly relevant for the current process of establishing emission reduction measures in the context of the *Work plan for the development of mid- and long-term measures* approved by MEPC 76.

3 This document builds on documents MEPC 76/7/2 (Norway), ISWG-GHG 10/5/4 (Norway), ISWG-GHG 10/5/5 (Norway and United States) and ISWG-GHG 10/5/6 (Norway). It provides a summary of the main messages of the proposed road map for the uptake of alternative sustainable fuels, principles for carbon pricing, and the proposal for two regulatory measures for the effective uptake of sustainable low-carbon and zero-carbon fuels to meet the 2050 ambitions in the Initial Strategy.

Road map for the uptake of fuels

4 A significant volume of carbon-neutral fuels is needed in the shipping energy mix within the next decades to achieve IMO's decarbonization ambitions. Before widespread uptake of carbon-neutral fuels onboard ships is possible, a number of critical barriers must be lowered. These include technical maturity and feasibility of technology on board ships, including safety and rules, as well as barriers related to market demand including regulatory requirements. Figure 1 shows a timeline of expected availability of different alternative fuel technologies for onboard use on ships, based on technical maturity.

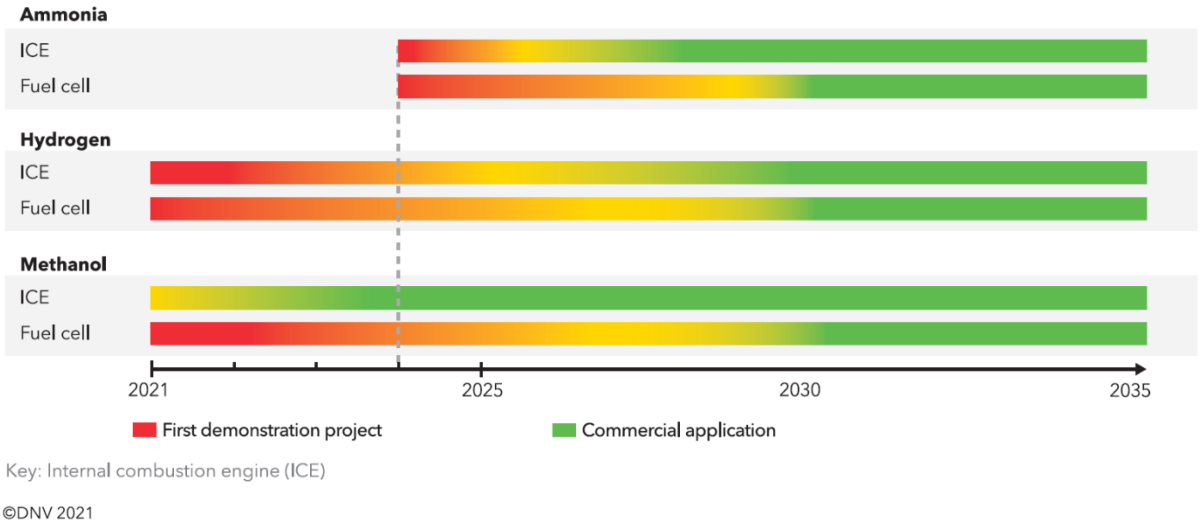

Figure 1: Timeline for expected availability of alternative fuel technologies for onboard use on ships.[*]

5 Front runners within the maritime industry, charterers, finance, fuel producers, ports and others are taking a very important role to lower technical and financial barriers. Large-scale uptake of carbon-neutral fuels will require large investments, especially in infrastructure related to production and distribution of carbon-neutral fuels and onboard engine and fuel systems. Regulations will play a key role in mandating the uptake and ensuring a level playing field for

[*] Source: DNV *Maritime Forecast to 2050*, 2021 edition: https://eto.dnv.com/2021

ships that run on more expensive carbon-neutral fuels. Over time, the remaining technical, commercial, organizational and other barriers are further reduced or removed.

Purpose of regulatory measures

6 At present, sustainable low- and zero-carbon fuels are likely to be significantly more expensive and less available than current conventional fossil fuels. Figure 2 illustrates how a carbon price and a technical requirement can resolve the severe challenge these two factors pose. A carbon price makes low- and zero-carbon fuels competitive with fossil fuels and together with a technical requirement ensures that suppliers can build production capacity and infrastructure with the certainty that there is a demand.

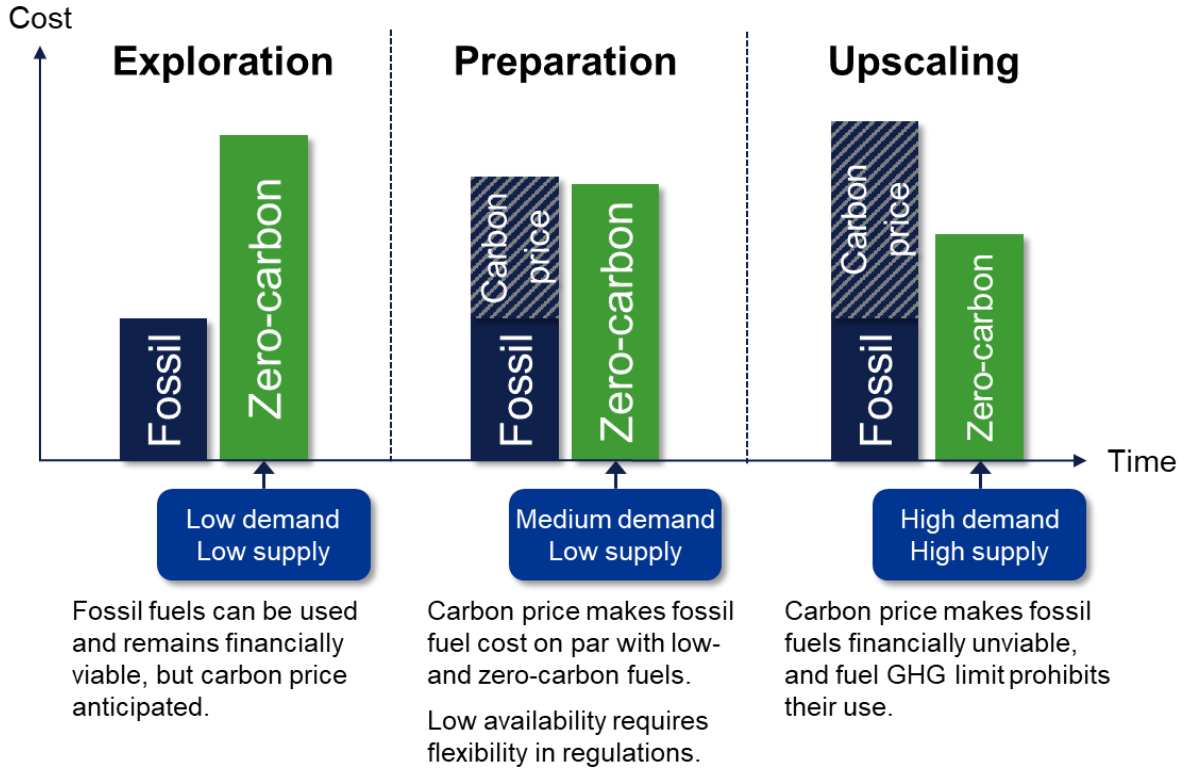

Figure 2: Main phases towards large-scale uptake of alternative fuels

7 The availability sustainable low- and zero-carbon fuels will gradually improve, but may not be readily available in all ports, in a transition period. Further, the costs of these fuels can be expected to be lowered as volumes and competition increase. Therefore, considering both the urgency for a fuel transition to decarbonize shipping and the present availability and uptake alternative low- and zero-carbon fuels, a careful phase-in of technical requirements including flexibility through an alternative method of compliance is needed.

Proposed measures

8 To ensure the required uptake of sustainable low- and zero-carbon fuels on a pathway to meet IMO's ambitions for GHG emission reductions, Norway proposes two measures: **a fuel GHG intensity limit** and **emissions cap and trading.** Either of the two measures can be implemented individually, but Norway considers that they will work best in combination for the effective uptake of sustainable low-carbon and zero-carbon fuels to meet the 2050 ambitions in the Initial Strategy. The proposed design of the measures assumes that both are

implemented. If implemented individually, the design of the selected measure needs to be adjusted.

9 A **fuel GHG intensity limit** will ensure that shipping is required to start using sustainable low-carbon and zero-carbon fuels and will provide for sufficient predictability for investments in fuel supply and in ship technologies to use such fuels. The measure will also ensure that international shipping meets the ambition on carbon intensity.

10 An **emissions cap and trading system** will ensure the reduction of total GHG emissions and that international shipping meets the ambition of halving emissions by 2050, by setting a cap on total emissions from shipping. An emission trading system will incentivize the uptake of sustainable low- and zero-carbon fuels by removing the price gap and the competitive advantage of existing fossil fuels. Further, channelling payment of a carbon price to a climate fund can support climate actions in developing countries and accelerate the introduction of sustainable low- and zero carbon fuels and technologies, in particular the development of fuel production and infrastructure capacity.

11 The requirements and phase in of the GHG intensity limit need to be carefully synchronized with the emission cap. The carbon price resulting from the cap needs to be high enough to ensure it is more attractive for ships to comply with the technical requirement. Ships that are not yet subject to a required GHG intensity limit (but will be phased in at a later stage) or ships that use the alternative compliance method, should not get a financial advantage.

12 Figure 3 illustrates how the two requirements work together. An emission cap for the whole fleet is phased in establishing a carbon price relevant for the individual ship. Over time the cap is reduced and the price increases. The GHG intensity limit is gradually phased in with increased stringency for existing ships. At some point, all new builds would be subject to a stringent GHG intensity limit and finally the limit for existing ships will be the same as for new builds.

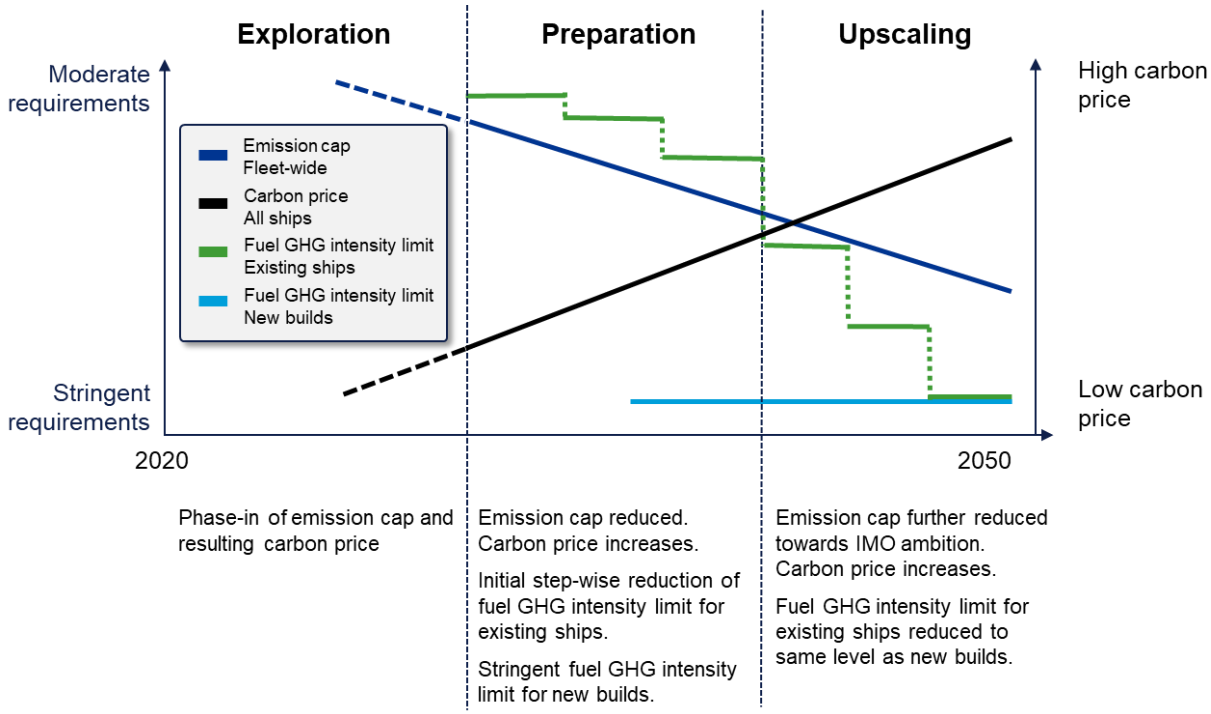

Figure 3: Fuel GHG intensity limit and emission cap and trading working together.

Considerations for selecting a cap-and-trade system

13 Norway has thoroughly considered the need for, as well as the various approaches, to establishing a carbon price in a legally binding regime for international shipping. The recommended approach of this document is further substantiated in document ISWG-GHG 10/5/4 (Norway) addressing different principles behind carbon pricing models. There are several important reasons for moving forward with a cap-and-trade system compared to a levy-based system. This should be an important aspect for the Committee to consider in developing relevant GHG measures.

14 Meeting the emission targets is the main purpose of the mid- and long-term measures which the Organization needs to develop. A cap-and-trade system directly mandates an emission level designed to meet the absolute GHG emission reduction target in 2050, while it is difficult to know the implications on the emission level of a levy. For example, in Norway, the bunker levy for domestic shipping is approximately $200/tonne fuel. However, the levy has not yet triggered the desired actions for emission reductions.

15 A carbon price through a cap-and-trade system would, in Norway's view, to a larger extent incentivize emission reduction actions than a fuel levy. Under a cap-and-trade system it is the entity that normally decides actions to reduce emissions – the shipowner – that will also be the one required to pay the carbon price directly and explicitly. If the levy is placed on marine fuel it will in many cases be the charterer that pays the carbon price, and the shipowner will only see the cost indirectly. This effect is the split-incentives barrier where the cost and any cost savings are not experienced by the investment decision-maker.

16 Investment decisions to reduce emissions will take into account the existing carbon price at the time of decision, as well as expectations for the future price. In a cap-and-trade system with a meaningful cap trajectory, the expected cost increase due to the reduced number of allowances would be important to trigger action. A fixed carbon levy will not have the same implications. The Committee has the tradition of and experience with negotiating frameworks to reduce emissions, while direct negotiations on the level of a carbon levy is new ground. A prudent question would be whether it will be possible to negotiate and update a carbon levy to a meaningful level that incentivizes emission reductions.

17 In a cap-and-trade system the legal requirement will be directed towards ship emissions, i.e. the requirement to surrender emission allowances. This may pose less legal obstacles for some Member States compared to a levy on a product, marine fuel.

18 There is already international experience with the operation of an international cap-and-trade system, the EU ETS. It will be beneficial for the Organization to establish a system which can build upon lessons learned from existing systems.

Initial assessment of impact on States

19 A transition to decarbonize shipping will require extensive investments and actions, impacting the industry, the energy sector, ports, technology providers and others. But not least, this will have impacts on all States, which will need to be assessed and taken into account as appropriate before adoption of the measure, and where particular attention should be paid to the needs of developing countries, especially small island developing States (SIDS) and least developed countries (LDCs). The transition is unavoidable, and its effects must be assessed and addressed as appropriate. However, it is of outmost importance to note that lack of sufficient action to respond to climate changes will, in Norway's view, have substantially greater implications for States.

20 Also, in assessing impacts on States, it should be noted that funds generated through the proposed emission cap and trading system will be channeled to developing countries, especially SIDS and LDCs. In the further design and assessment of this proposal, it is in the interest of Norway to design the measures in a way that will ensure a fair global transition.

21 Due to time constraints and the preliminary state of the details of the measures, not all required elements of the initial assessment have been analysed. It will be important to develop the proposal in collaboration with other Member States and international organizations before doing meaningful analyses in accordance with the full scope of MEPC.1/Circ.885.

Proposal and further process

22 Norway suggests that the Committee, taking into account the *Work plan for the development of mid- and long-term measures*, agrees in principle to establishing a fuel GHG intensity limit and an emissions cap and trading as a package of mid- and long-term measures to be considered further. The package establishes a cap and a price on GHG emissions through trading of allowances, while the fuel GHG intensity limit sets a mandatory technical requirement. Both measures work together providing a robust framework to ensure the supply and uptake of sustainable low- and zero-carbon fuels.

23 The proposed measures presented in this document need to be further developed. Although stressing the urgency, Norway thinks it is of utmost importance to progress effectively together. The process identified in the *Work plan for the development of mid- and long-term measures* provides for that. Following consideration of its proposal by the Working Group and Committee, Norway is prepared to work together with interested Member States and international organizations to further develop the proposal, including the legal framework, and assess key issues, such as impacts on States and implications for various parts of the maritime industry.

Action requested of the Committee

24 The Committee is invited to consider the proposals in this document, especially in paragraphs 22 and 23 above, and to take action as appropriate.