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REDUCTION OF GHG EMISSIONS FROM SHIPS

Further details on the United States proposal to reduce greenhouse gas emissions from international shipping

Submitted by the United States

SUMMARY

Executive summary: This document, along with the supplementary information in document MEPC 61/INF.24, provides additional details on the proposal outlined in documents MEPC 59/4/48 and MEPC 60/4/12 (United States) which described a new approach to address international maritime GHG emissions by establishing efficiency index standards for existing ships and the trading of efficiency credits as an additional means for achieving compliance

Strategic direction: 7.3

High-level action: 7.3.2

Planned output: 7.3.2.1

Action to be taken: Paragraph 10

Related documents: MEPC 61/INF.24, MEPC 60/4/12, MEPC 59/4/48, MEPC 59/24, MEPC 59/24/Add.1, MEPC 59/INF.10 and GHG-WG 2/2/7

Introduction

1 The United States, in documents MEPC 59/4/48 and MEPC 60/4/12, put forward a proposal to reduce greenhouse gas emissions from international shipping by creating a system based on efficiency.

2 The United States is making this submittal to provide significant new information on the proposal, and how this proposal meets the criteria negotiated at MEPC 60 for evaluating the various market based measures proposed.

Summary and key elements of US proposal

3 The proposal, Ship Efficiency Credit Trading (SECT), builds on IMO's strengths as a technical agency, by creating energy efficiency requirements for existing ships. Some ships may not be able to comply easily and as such the proposal provides an alternative compliance mechanism, trading of ship efficiency credits.

4 The efficiency trading mechanism will provide a lower cost means of compliance than a traditional regulatory standard, allowing the sector to get reductions at the lowest possible cost. The SECT approach also provides a way to build on the political viability of efficiency approaches by implementing efficiency standards for the global fleet in a manner that minimizes the overall cost to industry. The Second IMO GHG Study 2009 suggests that even a very stringent standard could still result in a net cost savings of \$51/tonne of CO₂ reduced. Analyses conducted with data from the updated IMO GHG Study suggest a 10 to 30% direct reduction of greenhouse emissions in 2020 is possible and it could be as high as 40% (below business as usual) by implementing efficiency measures.

5 This would be a significant step forward in addressing the maritime sector's contribution to global climate change. A key advantage of SECT is that it focuses exclusively on efficiency and avoids politically difficult issues, allowing the MEPC to move forward.

6 SECT provides equitable treatment of different ship types and different ship sizes (based on capacity), while including a method to periodically measure ship technical and operational modifications. There are four key elements to the proposal:

- .1 Efficiency Index Standards for existing ships (EIR):
Under SECT, IMO would agree on efficiency index reference lines for existing ships, which could be the same as the ship-type and ship-size specific reference lines for new ships that IMO is currently developing through the EEDI. IMO would use these reference lines to derive Efficiency Index Standards (EIR) for existing ships, so that for any given compliance period, individual ships would have a specific efficiency index standard that reflects feasible efficiency improvements for that ship;
- .2 Attained Efficiency Index (EIA):
The most straightforward and preferred method for determining the Attained Efficiency Index of a ship (EIA) is to calculate it using the same equation that is used for the new ship EEDI, along with a ship performance test. One difference is that the EIA calculation would use actual parameters from the ship's operational data representing actual usage of technologies, while the EEDI uses predicted usage of technologies. The main advantages of using the same equation for the EIA as for the EEDI are that it creates a common metric for ships of a given type and size and that the EIA is comparable back to a reference line to which the ship was built. The United States also considered alternative methods in document MEPC 60/4/12, such as direct determination of the fuel consumed and cargo carried, similar to the Energy Efficiency Operational Indicator (EEOI), which accounts for operational performance as influenced by efficient technologies or operational measures. This document provides further discussion of these approaches;
- .3 Efficiency Credit (EC) trading for ships as one compliance option:
Under SECT, the fundamental requirement is that a ship's EIA be better (lower) than or equal to the applicable EIR. Recognizing that not all ships would be able to meet this requirement as built or through the cost-effective application of technological or operational measures, this proposal would establish an Efficiency Credit (EC) trading mechanism, whereby those ships that are more efficient may sell their EC surplus to ships whose EIA does not meet the applicable EIR. The actual efficiency credit value for a ship is determined by multiplying the difference between the required and attained efficiency and ship activity.

The concept of efficiency credit trading is distinct from other types of emissions trading in that it does not directly cap maritime activity or emissions, yet it has the potential to achieve significant emissions reductions quickly from the maritime sector. It should be made clear that these credits are based on a difference between the required and attained energy efficiency for any given ship, and are not intended to represent total CO₂ emissions from that ship. As such, this proposal is not necessarily mutually exclusive of other MBM proposals under consideration by the MBM Expert Group; and

- .4 Certification and enforcement of each ship's compliance:
The ship's flag State, or its authorized recognized organizations, would validate reporting and certify compliance with the efficiency requirement, either by verifying that a ship's EIA is better (less) than or equal to EIR or by verifying that a ship has obtained necessary efficiency credits. Flag States and port States would enforce the efficiency requirement and compliance option(s) employed by any given ship, consistent with current obligations under MARPOL Annex VI.

Anticipated impacts of SECT

7 SECT provides incentives, beyond the business as usual case, for shipowners, operators and charterers to maximize the efficiency of their ships. This programme is intended to maximize in-sector efficiency improvements and does not attempt to cap net emissions through the use of offsetting credits from outside the maritime sector. Therefore, the costs associated with this programme are directed at technologies and methodologies that would improve the efficiency of the international maritime sector. These efficiency improvements are expected to result in cost savings due to lower fuel consumption, with commensurate decreases in vulnerability to fuel price volatility. As with any system involving trading, care would need to be taken, to ensure that the system provides appropriate levels of affordable efficiency credits to meet potential demand. It is not our view that there will be a lack of credits, as credit trading is one of several means to achieve compliance with the standard. Nonetheless, there are a number of mechanisms that could be used to ensure credit availability. One approach is to employ a safety-valve whereby if the price of efficiency credits temporarily rises above a certain level, the regulating authority is empowered to issue additional credits into the system. Another approach would be to allow for the efficiency standard to be relaxed if prices were to exceed a specified threshold. Further work would need to be undertaken to further design these elements.

8 By adopting SECT along with the EEDI standard for new ships, the IMO would be implementing a comprehensive and workable framework that will improve the efficiency of international maritime shipping. This effective, efficient and timely pathway to fuel consumption improvements for ships will directly result in reductions of CO₂, NO_x, SO_x and PM emissions.

Meeting the evaluation criteria for market based measures

9 The following are the 9 criteria agreed upon at the MEPC for evaluating the proposed Market-Based Measures and a short description of how the United States proposal meets these criteria. Document MEPC 61/INF.24 provides detailed information on the proposal and as well as more specific details on how this proposal meets the various criteria negotiated at MEPC 60 for evaluating market-based measures.

.1 The environmental effectiveness and reduction of greenhouse gas (GHG) emissions from international shipping:
the United States proposal, SECT is environmentally effective as it would decrease fuel use per tonne-mile. This would lead to reductions in a variety of air pollutants including greenhouse gas emissions. Analyses conducted with data from the updated IMO GHG study suggest a 10 to 30% direct reduction of greenhouse emissions in 2020 is highly possible and it could be as high as 40% (below business as usual);

.2 The cost-effectiveness of the proposed MBM; Potential impact(s) on trade and Sustainable development and impact on developing countries, in particular least developed countries (LDCs) and Small Island Developing States (SIDS):

the United States proposal, SECT calls for increased efficiency, with likely high cost effectiveness. SECT would create, for the first time, an incentive for shipowners to invest in efficiency measures with longer term payback periods. This is because a highly efficient ship will continue to generate efficiency credits for years, and the value of the future stream of fuel cost savings and efficiency credits can be factored into the price of a ship should the owner decide to sell or charter it. In addition, a focus on efficiency is inherently cost-effective for ship owners because they are lowering operating costs. SECT creates a robust, standardized and verifiable grading scheme for ship energy efficiency that can be utilized by the growing body of major maritime transport *users* (e.g., Wal-Mart) that seek to make their production, logistics and transportation supply chain greener and less carbon-intensive.

The impacts on trade are expected to be minimal as there is no cap on growth of the sector, the decreased fuel costs and lower vulnerability to fuel price spikes should enhance the ability of ship owners and operators to maintain or improve service levels even on marginally profitable routes (such as to/from SIDS, or in competition with trucking or other transport modes), and in some cases the price of transportation may go down due to decreased fuel costs. As such, the impact on LDCs and SIDS is also expected to be minimal. The United States would welcome further information on this subject;

.3 The proposed MBM's potential to provide incentives to technological change and innovation – and the accommodation of current emission reduction and energy efficiency technologies:

by setting efficiency standards and then allowing both the in-sector capture of fuel cost savings and the compliance cost savings associated with efficiency credit trading, there is a strong regulatory and financial incentive to increase ship efficiency. SECT does not prescribe what technologies to use or how to use them; instead it lets ship owners/operators decide what technologies work best for their ships. The ability to use credit trading motivates is only one of several ways to achieve compliance, but encourages owners/operators to make ships even more efficient than is required, to sell extra credits for positive financial gain.

Those ship owners/operators with less efficient ships have the option of choosing the most cost-effective route to becoming compliant with a required efficiency standard. Given that SECT would be exclusive to and self-contained within the maritime sector, it provides the highest possible

incentive to develop and employ a variety of efficient technologies. It also establishes market awareness and presence for the growing body of transport users (shippers such as Wal-Mart and final consumers) seeking to green and decarbonize the supply chain, which also reinforces the incentive to develop and employ even more energy efficient ships and technologies;

- .4 The practical feasibility of implementing the proposed MBM:
SECT would be relatively simple to implement as it builds on the significant work already undertaken by IMO on the EEDI, EEOI, and SEEMP. The administrative systems and procedures for efficiency credit trading would have to be created, but these would be a simplified version of what is needed to implement a full ETS;
- .5 The need for technology transfer to, and capacity building within, developing countries, in particular LDCs and SIDS, in relation to implementation and enforcement of the proposed MBM, including the potential to mobilize climate change finance for mitigation and adaptation actions:
as the updated IMO GHG study indicates, substantial negative cost efficiency measures are available for the global shipping sector using existing commercialized technologies. By and large, technology transfer required by a developing country ship builder or ship operator can therefore be acquired through commercial means.

In as much as SECT will require developing country administrations or ship owners to familiarize themselves with credit trading, the United States believes that support for capacity-building programmes would be appropriate and straightforward to arrange.

SECT is designed to reduce emissions within the sector at minimal cost and to the benefit of the sector only. The SECT system is self-contained in that all costs to industry are spent on investments in their own vessel efficiency. To the degree that in-sector advances in technology occur in developing countries, where most ship yards now exist, there will be a further ripple effect involving a number of related industry sectors that support the maritime sector directly and indirectly. This wave of new demand will present many opportunities for new climate-related investments in both mitigation and adaptation, and it will be the maritime sector that generated this;
- .6 The MBM proposal's relation with other relevant conventions such as UNFCCC, Kyoto Protocol and WTO, as well as its compatibility with customary international law, as depicted in UNCLOS:
the proposed SECT is fully compatible and consistent with international law;
- .7 The potential additional administrative burden, and the legal aspects for National Administrations by implementing and enforcing the proposed MBM:
the proposed SECT does create some additional work for owners/operators, flag States, and port States. However, the United States believes there is an additional burden for any market-based measure. The additional burden in the United States would be comparatively minor and

would complement what is currently being undertaken under current MARPOL Annex VI requirements;

- .8 The potential additional workload, economic burden and operational impact for individual ships, the shipping industry and the maritime sector as a whole, of implementing the proposed MBM:

the proposed SECT would require efficiency gains from ships. Although there would be additional workload to implement the efficiency measures, the efficiency gains would result in cost savings from reduced fuel consumption which would lead to positive market impacts for shipping. The credit trading programme results in decreased costs and provides ship owners and operators with flexibility on their compliance approach to the proposed requirements.

Implementation of the SECT would present minimal burden for individual ships, and it could bring a positive impact on international trade supported by marine shipping; and

- .9 The MBM's compatibility with the existing enforcement and control provisions under the IMO legal framework:

the proposed SECT is compatible with the existing enforcement and control provisions under the IMO legal framework as it builds on work undertaken in MARPOL Annex VI.

Action requested of the Committee

10 The Committee is invited to consider and further discuss this proposal as well as the supplementary information contained in document MEPC 61/INF.24, in the consideration of effective measures to reduce greenhouse gas emissions from international shipping.
