



MARINE ENVIRONMENT PROTECTION
COMMITTEE
60th session
Agenda item 4

MEPC 60/4/26
15 January 2010
Original: ENGLISH

PREVENTION OF AIR POLLUTION FROM SHIPS

A global emissions trading system for greenhouse gas emissions from international shipping

Submitted by the United Kingdom

SUMMARY

<i>Executive summary:</i>	Building on the submissions of Germany, France and Norway to MEPC 59 (MEPC 59/4/25 and MEPC 59/4/26), which laid out the main elements of an emissions trading system for international shipping, this document sets out in more detail how an emissions trading system for international shipping might work in practice
<i>Strategic direction:</i>	7.3
<i>High-level action:</i>	7.3.1
<i>Planned output:</i>	7.3.1.3
<i>Action to be taken:</i>	Paragraph 41
<i>Related documents:</i>	MEPC 59/4/25 and MEPC 59/4/26

Introduction

1 At MEPC 59, the Committee agreed a work plan for further consideration of market-based measures which asked delegations to submit further detailed outlines of possible market-based measures to MEPC 60. This document is submitted in line with this work plan, in order to progress the debate on potential market-based instruments to address greenhouse gas emissions from international shipping.

2 This document supports the submissions of Germany, France and Norway to MEPC 59 (MEPC 59/4/25 and MEPC 59/4/26), which laid out the main elements of an emissions trading system for international shipping and identified the issues that needed further discussion. This document builds on these documents by setting out in more detail how an emissions trading system for international shipping could work in practice.

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3 This submission draws on the work of various industry bodies, and the Government of the United Kingdom would like to thank them for their useful and proactive contribution to the debate.

4 This document is laid out in the following sections:

- .1 Advantages of an emissions trading system for international shipping
- .2 Outline of the emissions trading system proposal. This includes sub-sections on:
 - .1 Coverage and Participation
 - .2 Allocation of Allowances to Industry
 - .3 Monitoring, Reporting and Verification (MRV)
 - .4 Compliance and Enforcement
 - .5 Linking with the Global Carbon Market.

Advantages of an emissions trading system for international shipping

5 The United Kingdom supports the introduction of a market-based measure to address greenhouse gas emissions from international shipping. This market-based measure should be based in a new legal instrument with global application so as to avoid carbon leakage and competitive distortions.

6 A cap-and-trade emissions trading system (ETS) has two principal benefits:

- .1 It defines a clear cap on net emissions from the sector¹, ensuring that the desired level of emissions from international shipping is achieved; and
- .2 It allows this cap to be met at least cost, in an economically efficient manner.

7 At its most basic level, an ETS operates through the allocation and trade of greenhouse gas emissions allowances – one allowance unit representing one tonne of carbon dioxide equivalent (CO₂e) emissions. An overall limit, or “cap”, is set on the total number of allowances issued or sold to system participants during a compliance period (e.g., one year). These allowances are then distributed to the participants in the system (e.g., ship operators).

8 After each compliance period participants are required to ensure they have enough allowances to account for their actual emissions. They have the flexibility to buy additional allowances or to sell any surplus allowances that they no longer require as a result of reducing their emissions. The buying and selling of allowances takes place between participants (e.g., at a company level).

¹ The “net” emissions from the sector are equal to the actual emissions from the sector during the compliance period minus the “net” quantity of allowances and credits that are purchased from other sectors during this period. In this way, actual emissions from the sector may exceed the cap, but the sector will pay for equivalent reductions elsewhere in the economy and *vice versa*.

9 The system therefore provides a flexible compliance regime for operators, whilst ensuring that emissions are reduced to the level of the cap. ETSs can also be linked to other carbon markets, allowing participants to trade allowances with other sectors or regions which may be able to reduce emissions more cheaply.

10 Abatement decisions (i.e. whether to undertake operational or technical measures to reduce emissions) are influenced by the price of allowances. Participants with high abatement costs should choose to buy more allowances from the market, while participants with low abatement costs should reduce their emissions and could sell any surplus allowances. Emissions should therefore be reduced where abatement costs are lowest, and the necessary emissions cuts achieved at the lowest cost.

11 A fundamental distinction between an ETS and any form of tax or levy is the presence of a definite cap on the net emissions from participants of the ETS. Emissions trading fixes the level of emissions as a constant and allows the carbon price to be defined by the market based on the actual cost of abatement. A tax or levy works in the opposite way, with governments defining the effective carbon price and letting emissions vary with the actual cost of abatement. While this latter approach offers a degree of certainty regarding the carbon price, and may be appropriate in certain circumstances, it does not offer certainty about the level of emissions reductions achieved.

12 Emissions trading systems have proven both effective and efficient in the past:

- .1 The 1990 US Clean Air Act established the Acid Rain Program to reduce SO₂ and NO_x emissions. Between 1990 and 2007, SO₂ emissions decreased by 43% and the 2010 emissions target was reached three years early. Cost savings estimates suggest that by 2010, the overall compliance cost to businesses and consumers will be \$1-2bn per year, which corresponds to a 25% saving compared to the original cost predictions.²
- .2 In the European Union's Emissions Trading Scheme, verified emissions decreased by around 3% in 2008. Analysis conducted by New Carbon Finance has shown that 40% of this reduction could be attributed to incentives created by the EU ETS, whereas only 30% could be attributed to the economic downturn.³

13 Although environmental effectiveness is the key advantage of emissions trading, there are two other critical elements that recommend it for international shipping. These are described in the ensuing paragraphs.

Emissions trading would not constrain the growth of international shipping

14 An "open" ETS, as proposed in this submission, would not limit the growth of international shipping. As described in paragraphs 40 to 43, the proposed ETS would be linked to the global carbon market, so that allowances (and credits) from other sectors of the economy could be bought in to account for international shipping emissions. In this way, the sector could continue to grow, provided that it made corresponding contributions to emission reductions in other sectors. These contributions would be cost-effective and allow the shipping industry to take advantage of lower cost abatement in those other sectors.

² Ellerman (2003).

³ New Carbon Finance (2009). Other contributing factors included a rise in renewable energy generation and nuclear availability.

Emissions trading would provide market flexibility

15 An ETS for international shipping would provide market flexibility for delivering the desired environmental outcome. No specific action or price would be prescribed. In effect, market forces would drive more efficient standards and behaviours through the introduction of a carbon price.

16 Firstly, the ETS would promote change within the international shipping sector by making low carbon innovation and technological development more financially beneficial. It would encourage and reward both carbon efficiency improvements on existing ships and the introduction of low carbon technology on new ships.

17 Secondly, the ETS would provide a financial incentive for the operation of ships to become more energy efficient, encouraging ship operators to pay more attention to the management of their fleets.

18 Thirdly, ship operators would also have the flexibility to comply by purchasing allowances (and credits) from the global carbon market where this is more cost-effective.

Outline of a potential emissions trading system

19 The design of an emissions trading scheme could take a variety of forms, all of which would need detailed discussion and negotiation. However, in order to demonstrate how a scheme could work and to provide an example for discussion, the following sets out one way that a scheme could be structured. This example is based on existing experience with ETSs covering land-based industries, whilst taking account of the unique characteristics of the international shipping sector.

20 Some of the key elements include:

- .1 ship operators would be responsible for complying with the system (they would be the legally responsible entity). The point of obligation would be individual vessels (as identified by their IMO number). Ship operators would be responsible for ensuring that each of their individual ships has a “Greenhouse Gas Certificate” on board at all times;
- .2 an overall global cap for international shipping would be agreed (either through the UNFCCC or the IMO or a combination of the two) and a fixed quantity of allowances would be created in line with the overall cap. These allowances would then be auctioned to ship operators;
- .3 in order to provide certainty to the shipping industry, the global cap must be set with a long-term declining emissions trajectory. The framework should map out future phases (of e.g., five or eight years), each of which should comprise a number of compliance periods (equivalent to one year). This structure would give the ETS greater flexibility (through features such as the ability to bank allowances between phases) as well as an opportunity for Parties to assess whether the cap has been set correctly and whether progress in reducing emissions is being made;

- .4 the first phase could be an introductory or transitional phase to allow for data gathering and the setting of more accurate emissions baselines. This would also allow shipping operators to become accustomed to the various obligations of the new system. This can be a shorter phase (of e.g., one or two years) but should also result in emissions reductions;
- .5 throughout each compliance period, ship operators would monitor their international shipping emissions by keeping records of their fuel purchases using the bunker delivery note mechanism, which is already a feature of MARPOL Annex VI. Participants would be free to buy and sell allowances and credits on the market throughout the compliance period; and
- .6 within a set time after the end of the compliance period (e.g., three months), participants would be required to report their fleet's verified international shipping emissions and surrender enough allowances (and/or credits) to account for these emissions. This is a condition for maintaining a valid "Greenhouse Gas Certificate" for the compliance period.

21 The rest of this submission sets out in more detail some of the key design elements of an ETS for international shipping:

- .1 Coverage – who would be covered by the system?
- .2 Allocation of allowances – how should these allowances initially be allocated?
- .3 Monitoring, Reporting and Verification (MRV) – what will ship operators have to do to record and report their emissions?
- .4 Compliance and Enforcement – what happens if a ship operator does not comply?
- .5 Linking to the Global Carbon Market – how does it relate to other emission trading systems?

Coverage

22 The ETS should have global coverage in order to limit the possible risks of carbon leakage and competitive distortion within the international shipping sector. If appropriate, the system could also be designed to include certain exemptions, for example voyages to and from the most vulnerable countries.

23 All ships above a certain size would be covered by the ETS and could be identified by their IMO Ship Identification Number, which would mean, for example, that the ETS covers all propelled, sea-going merchant ships of a certain size and above upon keel laying (with some exceptions). Further analysis will be needed to determine an appropriate minimum size for the inclusion of ships in the ETS, which would seek to maximize coverage of emissions while minimizing administrative burden. These *de minimis* criteria should be agreed internationally.

24 The ship operator would be the legally responsible entity. This means that ship operators would be held responsible for ensuring that their ships are compliant with the ETS and would have the legal obligation to fulfil the requirements of the ETS (or to ensure that the responsibility is transferred, if appropriate, under any contracts to lease the ship). “Ship operator” has the same meaning as in SOLAS regulation IX/1 (the company holding the Document of Compliance, or the DOC Company) and is the organization identified on the DOC, SMC or ISPS certificate – they may be identified by their IMO Company Identification Number (DOC number). In most cases, this would be the technical operator of the ship, but it could be the shipowner where a ship is directly operated by its owner.

Allocation of allowances to industry

25 For each compliance period, a set number of allowances would be created and would need to be distributed to ship operators. There are a variety of ways that this could happen, including free allocation (based on historical emissions or based on a benchmark) and auctioning.

26 The most straightforward and equitable way for a global ETS for shipping to allocate allowances is by auctioning them to participants (or through purchase on the secondary market) rather than by free allocation. In this case, participants could be required to purchase 100% of their allowances. A shipping emitter would have to buy an allowance (or credit) for every tonne of CO₂ emitted in the compliance period. Participants would themselves assess how many allowances (and credits) they need to buy based on their actual emissions, rather than be granted an allocation of international shipping allowances based on an external assessment.

27 Auctioning of international shipping allowances has the following advantages:

- .1 it is the most equitable way as ship operators purchase what they need. Auctioning delivers true transparency of the cost of carbon and ensures that this cost is met by those who produce emissions. Free allocation can lead to over- and under-allocation of allowances to ship operators, which could cause competitive distortion amongst sector participants. Auctioning avoids this unnecessary complication;
- .2 it rewards early action by ship operators to reduce emissions before the ETS starts (as their cost of compliance would be reduced);
- .3 it ensures that ship operators fully account for costs of meeting the emissions cap in their decision making;
- .4 it simplifies the allocation process as operators only buy the amount of allowances they need, and, makes it easier for new entrants to participate in the scheme;
- .5 it avoids the risk of windfall profits, where participants can pass on the “opportunity cost” of the allowances they receive for free (i.e. pass on the cost that they should have paid); and
- .6 auctioning allowances would generate revenues, which could be used for a variety of purposes.

Monitoring, reporting and verification

28 Monitoring, reporting and verification (MRV) are the foundation of any economic or market-based instrument, as emissions reductions must be transparent, measurable and verifiable for the instrument to be environmentally effective.

29 Control and verification play a crucial role in maintaining the integrity of any ETS and ensure that the information and data in the annual emissions reports are free from significant omissions, misrepresentations and errors.

30 An ETS for international shipping could use a universal, standard monitoring plan setting out how ship operators should monitor and report their international shipping emissions. This could be developed by appropriate experts in the IMO, possibly in conjunction with the UNFCCC.

31 The CO₂ emissions of ships could be calculated based on type and quantity of fuel consumed. Primary data sources could be the engine logbook and the bunker delivery note mechanism which is already a feature of existing global legislation (MARPOL Annex VI). The information that must be recorded in the Bunker Delivery Note includes (among other data) the name and IMO number of the ship receiving the bunker fuel, the port of bunkering, the marine bunker supplier contact information, fuel quantity and density.

32 At the end of the compliance period, ship operators would be required to have their emissions report externally verified (similar to the auditing processes used for reporting of financial accounts) to ensure that the information and data in the annual emissions reports are free from material omissions, misrepresentations and errors.

33 Ship operators would have to report their verified emissions to a registry. A deadline would be set (e.g., three months) following the end of the compliance period by when the shipping company (or other operator) would have to submit the required information. This would allow for the completion of voyages which straddle the end of the compliance period.

Compliance and enforcement

34 Compliance with the ETS could be addressed in a number of ways. The legal framework would be developed by IMO, probably as part of a new convention establishing the ETS. The framework would be implemented at a national level through national legislation, with monitoring of vessels undertaken in port using flag State or port State powers as appropriate.

35 One possible approach would be to issue participants with a Greenhouse Gas Certificate once they have surrendered sufficient allowances (and credits) to correspond to emissions shown in their verified emissions report (as reported to the administrator of the registry) for the previous compliance period. This GHG Certificate could then be inspected as part of Port State Control requirements to demonstrate compliance.

36 If a ship operator is not compliant with its obligations under the ETS, there would need to be proportionate and effective measures aimed at bringing the non-compliant ship operator back into compliance in order for the system to work.

There are several ways that a ship operator could be non-compliant, including:

- .1 failure to submit a verified emission report (e.g., through failing to get a positive verification or failing to submit on time); and
- .2 failure to surrender sufficient allowances (or credits).

37 Penalties could be levied against the ship operator. In the first situation above, the penalty might take the form of a set fine. In the case of failure to surrender sufficient allowances (or credits), this might include a fine per tonne of CO₂, although ship operators would still be required to surrender allowances (or credits) to cover the shortfall.

38 Ensuring compliance globally would require a harmonized approach at national level through Parties to the treaty having responsibility for ensuring the compliance of vessels entering their waters (through port State control). Other sanctions, in cases of continual non-compliance, would need to be agreed by administering national authorities and implemented in a consistent manner.

Linking to the global carbon market

39 The ETS for international shipping should be linked to the global carbon market. There are two principal benefits that an international shipping ETS could draw from linking to other carbon markets:

- .1 Firstly, linking to other ETSs would reduce the cost of delivering emissions reductions. Ultimately the creation of a global carbon market could reduce the cost of meeting emission reduction targets by up to 70%⁴. When considering linking of systems, it will be necessary to ensure that the environmental integrity of the systems is not negatively affected, and that the systems have a similar level of ambition.
- .2 Secondly, the use of international credits (such as those from the Clean Development Mechanism (CDM) and other UN-approved crediting mechanisms) would provide the shipping sector with access to lower cost abatement options.

40 Further flexibility can be provided to the international shipping sector by designing a system in which allowances (and credits) can be banked and borrowed within and between phases.

Action requested of the Committee

41 The Committee is invited to:

- .1 agree that an emissions trading scheme such as that outlined in this submission could be an effective measure for controlling greenhouse gas emissions from international shipping at low cost; and
- .2 consider what additional analysis could be undertaken to further develop this proposal for MEPC 61.

⁴ Lazarowicz, “Global Carbon Trading: A framework for reducing emissions”, 2009.