

COMPARATIVE ANALYSIS OF CANDIDATE MID-TERM MEASURES**Fact sheet**

Name of the candidate measure:	Emission Cap-and-Trade System (ECTS). Please note the following: The Measures Norway proposes are described in ISWG-GHG 13/4/2. It is important to assess them in combination. However, for the purpose of this fact sheet, we address the ECTS only.
Reference document(s):	MEPC 77/7/16, MEPC 76/7/2, ISWG-GHG 13/4, ISWG-GHG 13/4/1, ISWG-GHG 13/4/2, ISWG-GHG 12/3/13, ISWG-GHG 12/3/14, ISWG-GHG 12/3/15, ISWG-GHG 10/5/4, ISWG-GHG 10/5/5 and ISWG-GHG 10/5/6 .

1 Feasibility of the proposed candidate measure

1.1 Scope and compliance options	
1.1.1 Substances covered (GHG/CO ₂)	CO ₂ , CH ₄ and N ₂ O
1.1.2 Phases of GHG emissions covered (WtT / TtW / WtW)	TtW as a starting point, but can be expanded to WtW based on the establishment of a robust framework for verification of Well-to-Wake emissions (the LCA Guidelines).
1.1.3 Acceptable approaches for compliance (e.g. in-sector/out-of-sector offsetting, CCS, etc.)	<p>In-sector, based on calculation of emissions as prescribed in the soon to be adopted Guidelines for Lifecycle assessment of fuels for the maritime sector.</p> <p>Ship board carbon capture and subsequent permanent storage should be included based on results of the proposed workstream to be initiated at MEPC 80.</p> <p>The main requirement for compliance would be for the ship to surrender Ship Emission Units (SEU) equal to the verified annual GHG emissions reported through the DCS.</p>
1.2 Likelihood to achieve a consistent implementation of the measure	
1.2.1 Provisions to ensure global availability of alternative fuels and technologies	<p>The ECTS will generate considerable revenues, estimated to around 130 to 140 billion per year from 2030 before gradually being reduced as the emission level is reduced. These revenues should be used based on the preciously agreed general preference, safeguarding the principles of a fair transition.</p> <p>Norway proposes to channel revenues to support climate actions in developing countries and accelerate the introduction of sustainable low- and zero-GHG fuels and technologies, in particular the development of production of sustainable climate friendly fuels and infrastructure capacity.</p>
1.2.2 Provisions to limit administrative burden for ships and Administrations	<p>Reporting: A monitoring, reporting and verification system of CO₂ is already in place for ships above 5,000 GT through the Data collection system for fuel oil consumption of ships (DCS), and the ECTS is relying on this data. In the case the application will be for vessels above 400 GT, the DCS will need to be amended to include those vessels.</p> <p>Revenues: Norway proposes that the auctioning of allowances and revenue handling is contracted to an external organisation. IMO is already doing such arrangements on other issues such as the IMO number on ships. Any MBM needs to handle revenues, and a benefit of the ECTS is that this can also be handled by the trading body under the same contract, limiting the additional administrative burden of the trading part. The costs of running this body can be covered by a registration fee established for the registration of an account or per transaction.</p> <p>Allocation of funds: Being aware of the significant task and potential administrative costs it is to establish and manage a large fund, it would be beneficial to use an existing structure</p>

within the UN family for the administration of a fund. Norway proposes to let the Green Climate Fund (GCF) - operating under the framework of the UNFCCC - handle and allocate the revenues from the auctioning of Ship Emission Units. Taking on board this task will of course also have implications for the GCF, but following up on the administrative and steering implications will be manageable for an organization such as GCF. Using an existing establishment means added benefit from lessons-learned from similar tasks from that fund.

1.3 Compatibility and consistency with existing regimes/regulations

1.3.1 Consistency with UNFCCC and the Paris Agreement

An ECTS for the global maritime sector could be considered as a market mechanism under article 6 of the Paris Agreement.

1.3.2 Coordination / overlap with other international, regional and national initiatives

The EU already has an emission trading scheme in place, where the maritime sector is gradually included from 1 January 2024. The EU has stated in its regulations that the framework would be reviewed in the case of the establishment of a global emission trading scheme.

1.3.3 Compatibility with other IMO regulations

The ECTS would work well together with existing IMO regulations addressing emission reductions from ships, see illustration in the figure below, which can also be found in document ISWG-GHG 10/5/6:

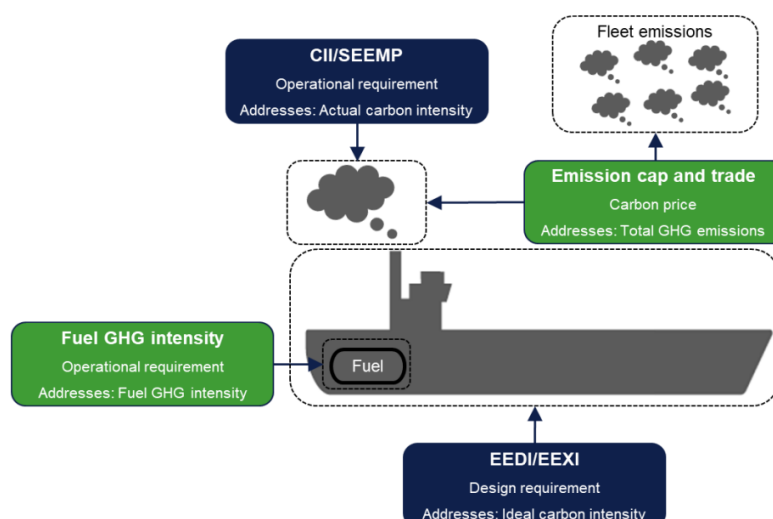


Figure 4: Long-term regulatory framework towards decarbonization of shipping.

2 Effectiveness of the proposed candidate measure

2.1 Expected reductions in GHG emissions	
2.1.1 Levels of GHG reduction with associated timeframe	Levels of GHG emission reductions obtained through an ECTS would be directly linked to the emission reduction ambition level of the revised IMO GHG Strategy to be adopted at MEPC 80. The emission reduction will be as defined in the framework. The IMO would need to agree on whether a phase in approach is wanted, if the reduction should follow a gradual reduction pathway towards the final emission reduction ambition level or whether the reduction in allowances should be adjusted stepwise at pre-defined intervals.
2.1.2 Provisions to avoid unintended outcomes that could increase GHG emissions	The periodical review will capture this issue and enable the IMO to respond and adjust for such effects.
2.2 Incentives for first movers	
2.2.1 Provisions for reducing/bridging the price gap between conventional and low-carbon solutions	The ECTS will, if set up to meet the 2050 level of ambition, provide an increasing price on conventional fuels, making low-carbon solutions more competitive. At some point, the low-carbon solutions will become the preferred option, as the SEU for fossil fuels will reach a high enough price and the infrastructure for low-carbon fuels is sufficiently available. The market will define a price which will trigger the needed action for emission reductions.
2.2.2 Provisions to ensure a level playing field	Strict compliance regime, based on flag and port state control. The Ship Emission Unit (SEU) should be valid for only one specific calendar year and ships should not be able to bank units between years. The cost of the SEUs will ensure that using fossil fuels does not provide a competitive advantage.
2.2.3 Provisions to ensure global access to technology	Both through the use of funds from the ECTS through GCF and through technical cooperation, funds and technological cooperation will be available in all relevant countries.
2.3 Compatibility of different elements within the basket of measures	
2.3.1 Identification where elements of the measure are complementary to each other without overlap or redundancy	Documents ISWG-GHG 13/4/1 (Norway) and ISWG-GHG 13/4/2 (Norway) discusses how the GFS and ECTS complements each other by providing both a market-based incentive and a technical requirement. Document ISWG-GHG 12/3/13 (Norway) considers the CII in relation to the proposed basket of measures. Further document ISWG-GHG 13/4/2 (paragraphs 17-21) identifies the importance and role of supporting measures.

2.3.2 Provisions to avoid double accounting, payment, reward or punishment	Both the GFS and ECTS should use existing framework with aligned requirements and penalties. We can't see that double accounting, etc. is relevant for the proposal.
2.4 Process for development and implementation	
2.4.1 Possible legal framework	Norway proposes to include the main requirements of the system in MARPOL Annex VI, and to establish an ECTS code further outlining the details of the system. There are several legal options for the inclusion of ECTS in MARPOL Annex VI. See document ISWG-GHG 13/4 (Norway) for the legal outline. The framework should build on existing framework to ensure compliance and enforcement, like Port State Control, the Data Collection System and the Bunker Delivery Note (BDN).
2.4.2 Expected timeframe for development and implementation	Document ISWG-GHG 13/4/2 contains an indicative timeline of both current and proposed work streams. It is expected that amendments necessary for the establishment of an ECTS can be adopted at MEPC 83 in 2025. This means that the measure could enter into force end 2026/beginning of 2027, after actions to address impacts as appropriate has been considered. We want to underline that this will require that several intersessional GHG WGs will be established, and it will require a willingness and constructive cooperation.
2.4.3 Mechanisms of accountability and adjustment	Norway proposes a periodical review for updating any regulations of MARPOL Annex VI or the ECTS Code to improve the ECTS. To ensure a predictable requirement, limitations are put on the changes that can be made to the cap after each review.

3 Potential impacts on States of the proposed candidate measure

3.1 Initial impact assessment	
3.1.1 Does the proposal provide a description of impacts on ships and emissions?	<p>Yes, document ISWG-GHG 12/3/14 (Norway) contains an initial impact assessment of the emission cap-and-trade proposal.</p> <p>The ECTS, if implemented on the 2019 fleet, would impact about 63,500 ships of 400 GT and above with an estimated CO₂ emissions of 762 million tonnes per year. These numbers also include ships that trades partly or fully domestic.</p> <p>The ECTS will lead to large reductions in GHG emissions as well as reductions in air pollution from the use of fossil fuels.</p> <p>From 2026 to 2030 the carbon price under the ETCS is assumed to be gradually phased in reaching \$ 200 and \$ 210/tonne CO₂ in 2030. In the “decarbonisation by 2050” scenario the carbon price slowly increases towards 2050, reaching \$ 300/tonne CO₂.</p> <p>See full assessment of impacts on ships and emissions in the document referred to above.</p>
3.1.2 8 Impact criteria assessed	<p>The initial impact assessment considers the following sections:</p> <ol style="list-style-type: none"> 1. Impacts on ships and emissions 2. Identification of positive and negative impacts 3. Analysis of the extent of the impacts 4. Assessment of whether the measure is likely to result in disproportionately negative impacts and possible mitigation actions
3.1.3 Potential positive and negative impacts	<p>The ECTS will lead to large reductions in GHG emissions as well as reductions in air pollution from the use of fossil fuels. This contributes to mitigating climate change and reduce negative welfare impacts from air pollution. The measures reduces negative impacts form fuel spills, but this effect and the reduction of air pollution depends on the alternative energy carriers used. Expected reduction in speed can also lead to reduced underwater noise and collision risk of whales.</p> <p>The fuel price is expected to be the element with the highest uncertainty when projecting costs. A higher growth in seaborne trade would increase the costs in 2030 and 2040, but in 2050 the relative cost increase is expected to be the same although absolute costs will be higher due to the high number of ships in operation.</p> <p>The ECTS is likely to create net negative economic impacts. Increased transport costs could reduce shipping activities, move and reduce economic activity and increase the prices on shipping services. In the short term, it is likely that shipowners will bear larger proportions of the costs. In the medium and long term, these costs will – to some extent – be transferred to the buyers of shipping services and users of the produced and transported goods. The cost distribution is uncertain, and will likely vary with industries and goods. Indications on price increases for end</p>

	<p>users, given they take all costs and that the price surge on freights is representative for the measure discussed here, point to relatively modest price increases globally in 2050, relative to the “current regulations” pathway; on average 3 and 0.4% for imported goods and consumer goods respectively. Given that such cost increases will likely be shared by shipowners, cargo owners and others in the supply chain, the cost increases, once distributed in the supply chain, are expected to be relatively modest.</p> <p>A risk of the ECTS is that there are not enough emission units to buy for the total amount of emissions from the shipping industry. However, by combining the ECTS with remedial action under the GFS, the ships can pay their way out of such a situation. The cost of remedial action should be based on a price above the average market price of an emission unit.</p> <p>Depending on the design of the ECTS, there could be substantial revenues from ship emission unit sales. There could be a revenue stream at around 130 to 140 billion in 2030, before gradually being reduced as the emission level reduces. In the “Decarbonisation by 2050” pathway, the revenue stream stops in 2050 as shipping will have achieved zero emissions. If the revenue stream is controlled, for instance through yearly auctions, and with limited administrative costs, there is substantial funds available e.g. to compensate for disproportionately negative impacts.</p>
<p>3.1.4 Extent of the impacts on States</p>	<p>Administrative burden. Effects of increased transport costs, see above.</p>
<p>3.1.5 Description of methodological tools and data sources used</p>	<p>The initial impact assessment analyses the impacts of an ECTS following two possible decarbonisation pathways:</p> <ul style="list-style-type: none"> i) “IMO ambitions”: in line with the current ambitions set out in the Initial IMO Strategy of at least 50% reduction in GHG emissions and 70% reduction in carbon intensity by 2050, relative to 2008 ii) “Decarbonisation by 2050”: complete decarbonisation of international shipping by 2050, anticipating that the ambitions of the IMO GHG Strategy may be strengthened in the 2023 review. <p>The impacts are considered relative to a “current regulations” reference pathway that takes into consideration already adopted IMO GHG policy measures. In this way, additional costs due to decarbonisation requirements of the ECTS can be calculated.</p> <p>Impacts on ships and emissions are analysed using the same method and data sources as applied in the comprehensive impact assessment (document MEPC 76/INF.68/Add.1), including using marginal abatement cost curves (MACC) to estimate the carbon prices due to a cap.</p>
<p>3.2 Possible disproportionately negative impacts</p>	

<p>3.2.1 Is the measure likely to result in disproportionately negative impacts on States?</p>	<p>Smaller States with high reliance on shipping for importing goods, including SIDS, are likely to be more affected relative to other States. This could be most particular in the measure's effect on imported prices and consumer prices, where indications give import price increases of up to 6% for SIDS and 2 to 3% for LDCs, relative to the "Current regulations" pathway. For consumer prices these price increases are indicated at around 2% for SIDS and about 0.6% for LDCs. These are again based on the hypothetical assumptions that end users bear all cost increases and that the price surge on freights is representative for the measure discussed here. States with industries reliant on ships for importing inputs are also likely more affected. But also, for these, the impacts are likely relatively modest, compared to other larger economic, political and other trends, such as the surge in container rates, bottle necks in ports and supply chain disturbances in the aftermath of the pandemic.</p> <p>The significant funds generated through the mechanism also have the potential to alleviate negative impacts for the most vulnerable states.</p>
<p>3.2.2 Description of how these impacts could be addressed (e.g.: avoided, remedied, mitigated), as appropriate</p>	<p>The revenues from the ECTS are proposed to be channelled into the GCF, supporting investments developing states to reduce emissions. This should be used to develop necessary infrastructure for low carbon solutions in the maritime sector, as well as in other relevant sectors for the decarbonisation of the maritime sector, for instance the energy sector.</p>
