

Annex I - Carbon Reduction Policies for the International Shipping and Aviation Sectors

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This study looks at impacts of five market-based measures, two on the shipping, two on the aviation sectors and 1 unilateral policy. These are all proposals; there is still a lot of debate around the introduction and operation of such schemes, and all proposals lack information on design elements such as target and/or price level.

1.1 Policy proposals shipping

IMO member states have proposed ten market based measures to reduce CO₂ emissions from international shipping, including three variants of an emissions trading scheme. This study looks at the following two, which will raise significant revenue when implemented.

1.1.1 The International Fund for Greenhouse Gas emissions from ships

The GHG Fund collects revenues and uses these to offset GHG emissions of the shipping sector above a certain target line.

The GHG Fund collects contributions paid by either fuel suppliers of ship owners, based on the amount of bunkers sold or bought, to the International GHG Fund. Payment of the contribution is obligatory for all fuel suppliers or ships. The fund is administrated by the GHG Fund Administrator, which acts on behalf of the Parties to the convention that will implement the system. The Administrator will allocate the revenues according to the Parties' decisions.

Allocation of revenues should ensure that emissions above the target line are offset. To that end, a share of the revenues will be used to buy offsets. Fixed shares of the remainder will be used for adaptation projects; R&D projects aiming to reduce shipping CO₂ emissions; and technical co-operation under the UNFCCC (GHG-WG 3/3/4).

1.1.2 The Global Emission Trading System for International Shipping

The ETS for shipping would set a sector-wide cap on net emissions from international shipping and establish a trading mechanism. The use of out-of-sector credits allows for further growth of the shipping sector beyond the cap. In addition the auction revenue would be used to provide for adaptation and mitigation through UNFCCC processes and R&D of clean technologies within the maritime sector. A number of allowances (Ship Emission Units) corresponding to the cap would be released into the market each year. It is

proposed that the units would be released via a global auctioning process by an international entity established by the instrument. Ships would be required to surrender one Ship Emission Unit, or one recognized out-of-sector allowance or one recognized out-of-sector project credit, for each tonne of CO₂ they emit. A Fund would be established by the auctioning of emission allowances, where revenues would go directly. Proposals for an ETS have been submitted by Norway, France and Germany. The UK has proposed an ETS that differs from the Norwegian proposal in one important governance aspect. The UK proposal suggests that allowances could be allocated to national governments for auctioning. Funds collected through national auctioning would remain with the government to which the auction allowance was initially allocated.

1.2 Policy proposals aviation

ICAO has proposed three measures to reduce CO₂ emissions from international aviation, one of the options is global offsetting, which will not raise revenues, so this study looks at the following two options:

1.2.1 Global Emissions Trading System for International Aviation

In this proposal total international aviation emissions are capped at an agreed level for a specified compliance period. Aviation allowances (1 allowance = 1 tonne of CO₂) are created to cover CO₂ emissions under the cap and are distributed to participants (either States or aircraft operators). If states are the participants in the scheme then all individual states cover emissions from international flights departing from that state or cover emissions from international flights of operators registered in that state. If operators are the participants in the scheme then all individual operators cover emissions from their international flights.

Participants can trade the aviation allowances among themselves, and participants can acquire additional emissions units from other carbon markets. At the end of each compliance period, participants must surrender sufficient aviation allowances or other emissions units to cover all their emissions during that period and meet their compliance obligations. Other emissions units include: legislatively approved units (e.g. Kyoto Units, such as Assigned Amount Units and Certified Emissions Reductions, national and regional units), non-legislative units, such as Voluntary Emissions Reductions and have to meet an appropriate level of quality. Participants can bank and borrow allowances (rules will be established).

If there is auctioning of allowances by States or a central entity, revenues would be raised. Revenues generated by the scheme could be used for contribution to mitigating the environmental impact of aviation emissions, including those identified in States' action plans and/or for contribution to mitigation and adaptation, as well as assistance to and support for developing States. These uses of revenues should not cause market distortions for international aviation and these uses will be monitored and enforced.

1.2.2 Global Mandatory Offsetting complemented by a Revenue Generation Mechanism

This proposal differs from the above in that in principle this is an offsetting scheme and there are two possible options for offsetting: up to 100% of total annual emissions from international aviation or all emissions from international aviation above an agreed baseline level. It is assumed that participants will acquire emissions units from other existing carbon market systems (i.e. no new aviation-specific emissions allowances are created).

There are two mechanisms by which revenue may be generated:

- Transaction Fee that will be applied for each emissions unit surrendered. The fee could be either a flat fee or a percentage of the price per emissions unit.
- Emissions Price that will be applied for each tonne of emissions offset and will be established by applying a multiplier to the average emissions unit price. Emissions price will raise revenue for purchasing emissions units and other agreed purposes.

The transaction fee/emissions price needs to be fixed for the compliance period.

The raised revenue can be administered by States or a central entity and could be used for the following purposes:

- Purchase of emissions units to achieve additional climate mitigation.
- Contribution to mitigating the environmental impact of aviation emissions, including those identified in States' action plans.
- Contribution to mitigation and adaptation, as well as assistance to and support for developing States.

1.3 Unilateral policy for aviation and shipping

1.3.1 European Union Emission Trading System

Aviation is included in the study according to the current directive (Directive 2008/101/EC, 2009) and similar rules are used for international shipping.

Revenue usage is decided by the administrative member state. Part of the revenues shall be used for climate change mitigation and