

Doc 9949



Scoping Study of Issues Related to Linking “Open” Emissions Trading Systems Involving International Aviation

Approved by the Secretary General
and published under his authority

First Edition — 2011

International Civil Aviation Organization

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EXECUTIVE SUMMARY

For international aviation, compliance with an ambitious target to reduce emissions from the sector may require the use of tradable compliance units from another sectoral, multi-sectoral or economy-wide national, regional or international emissions trading scheme. In addition, units from project-based or programme-based mechanisms such as the Clean Development Mechanism could also be considered for use.

Of interest in this study is the linking of schemes that will result in “open” emissions trading involving international aviation. Although in different definitions for open emissions trading can be found in literature, its use here is aligned with the way ICAO has used the concept in the past. Thus, a system is regarded as open when the international aviation sector has access to compliance units from outside the aviation sector. Although not part of the scope of this study, “closed” emissions trading system would be an international aviation-only system where only units from the international civil aviation sector could be traded and used for compliance purposes.

Schemes that include emissions from international aviation as well as other sectors could have unique aviation and non-aviation tradable units, and could restrict the type of tradable units that are accepted for achieving compliance by participants in the system. However, the key benefit of an open system for participants in the international aviation sector comes from their ability to use non-aviation tradable units for compliance purposes, which is likely to reduce compliance costs for the sector.

The administrator of a trading system can establish a unilateral link with another system by agreeing to accept tradable units issued by the other system for compliance purposes. Alternatively, the administrators of two systems can establish a bilateral link if each agrees to accept tradable units issued by the other system for compliance purposes. With a bilateral link, tradable units can be freely traded between the systems and are equally valid for compliance purposes in both systems.

When considering the creation of either a unilateral or bilateral link, the choice of the system(s) with which it might be possible to link will be assessed in terms of:

- a) the perceived quality of the tradable units of the target system;
- b) the ease of establishing a link with the target system; and
- c) the size of the target system relative to the projected demand for external tradable units by the international aviation sector.

The potential benefits of linking one or more systems involving international aviation emissions include:

- a) lower net cost of meeting emissions obligations in linked systems as a result of the flexibility to acquire and use, for compliance purposes, the lowest cost emissions reduction measures across all participants;
- b) increased incentives for entities to find cost-effective ways to reduce their emissions as the market for selling excess emissions reductions grows;
- c) reduced price volatility of tradable units due to the creation of a larger, more liquid market for these units; and

- d) reduced competitiveness concerns and a reduced likelihood of carbon leakage due to the convergence of tradable unit prices in the linked systems.

The main risks associated with linking are as follows:

- a) higher prices for the tradable units in the net supplier system (with unilateral or bilateral linking);
- b) higher total emissions if differences in system design, including provisions related to monitoring, verification, reporting and compliance penalties, result in the effective application of the least stringent requirements; and
- c) incentive to limit the requirement to achieve emissions reductions (for example, make smaller reductions to the emissions cap over time) so that participants can benefit from exporting tradable units to the linked system.

Many of the risks noted above can be reduced by harmonizing the relevant provisions enough to make the linked systems "compatible".

GLOSSARY

The terms contained herein are intended to clarify concepts as used in this document.

Accountable entity. The entity in a cap-and-trade emissions trading system that is responsible for measuring and reporting actual emissions and for submitting sufficient allowances to cover those emissions.

Additionality. To avoid giving credits for greenhouse gas emissions reductions that would have happened anyway, eligibility criteria have been developed to determine whether the reductions are “additional” — that is, are more than would have occurred in the absence of the project (environmental additionality) or in the absence of the incentive from the clean development mechanism (CDM) (project additionality).

Allocation. The initial distribution of allowances to accountable entities for a compliance period. This allocation could, for example, be based on historical emissions or a performance standard and level of production and could be made “gratis” or through an auction process.

Allowance (emissions allowance). An allowance is a tradable emissions permit that can be used for compliance purposes in a cap-and-trade system. Each allowance allows the holder to emit a specific quantity of a pollutant (e.g. one tonne of CO₂) one time.

Allowance life. The allowance life is the period during which an allowance can be used for compliance purposes.

Annex B Parties or Countries. Group of industrialized countries and economies in transition listed in Annex B of the Kyoto Protocol that have commitments to limit or reduce their greenhouse gas emissions over the 2008-2012 period.

Annex I Parties or Countries. Group of industrialized countries and economies in transition included in Annex I to the United Nations Framework Convention on Climate Change (UNFCCC) that committed individually or jointly to returning to their 1990 levels of greenhouse gas emissions by the year 2000.

Assigned amount units (AAUs). Emissions targets for industrialized countries that are Parties to the Kyoto Protocol are expressed as levels of allowed emissions or “assigned amounts” for the 2008–2012 commitment period. Such assigned amounts are denominated in tonnes of CO₂ equivalent emissions (CO₂e). The inventory on which this number is based is approved by the UNFCCC, and the Kyoto Party can (if needed) issue the AAUs.

Auctioning. The distribution of allowances — either the initial distribution or from a set-aside. This is achieved through an auction in which system participants bid for the right to purchase allowances. Different auction models could be used. Auctions often complement other forms of allowance allocation.

Aviation bunker fuels. The international share of fuel sold to aircraft.

Banking. A banking provision permits allowances issued for one compliance period to be saved for use during a subsequent compliance period.

Baseline. A reference level of emissions. For example, a baseline can be used to calculate the total quantity of allowances to be distributed under a cap-and-trade system or the quantity of credits generated under a baseline-and-credit (emissions intensity) system. A baseline also sets the level of emissions that would occur without policy intervention in an offset programme.

Baseline-and-credit (emissions intensity) system. An emissions trading system that establishes an emissions performance standard and allows regulated participants to generate tradable credits (or “emissions performance credits/allowances”) by reducing their emissions intensity below that standard. Regulated participants that remain with an emissions intensity above the standard would need to submit credits to the regulating authority.

Benchmarking. A reference level, such as emissions per unit of output, that can be part of the formula for the free allocation of allowances under a cap-and-trade system or that can define the target in an emissions intensity system.

Bilateral link. A bilateral link is established if the administrators of two emissions trading systems agree to accept allowances issued by the other system for compliance purposes.

Borrowing. A borrowing provision permits an accountable entity to use allowances for a future period to achieve compliance in the current period.

Buyer. A legally recognized entity (individual, corporation, not-for-profit organization or government) that acquires allowances or other compliance units from another legally recognized entity (the seller) through a purchase, lease, trade or other means of transfer.

Cap-and-trade emissions trading system. A cap-and-trade system allows for the trading of emissions allowances that are limited or “capped” in quantity by a regulatory authority. Before each compliance period, the regulatory authority distributes the allowances through a free allocation, sale and/or auction. At the end of the compliance period each accountable entity must surrender sufficient allowances to cover its actual emissions during the period. The trading of allowances promotes cost-efficient emissions reductions because entities that can reduce emissions at lower cost have the incentive to pursue these emissions reductions and to then sell their surplus allowances to entities that face higher emissions reduction costs.

Certified emissions reductions (CERs). A compliance unit under the Kyoto Protocol issued for emissions reductions achieved from project activities in non-Annex I Parties that meet the requirements of the Clean Development Mechanism (CDM). One CER is equal to one metric tonne of CO₂ equivalent.

Cirrus cloud. A type of cloud composed of ice crystals and shaped like hair-like filaments. May be partly induced by aviation.

Clean development mechanism (CDM). A mechanism established by the Kyoto Protocol that enables emissions reduction projects in non-Annex I Parties to earn CERs that can be sold to entities in Annex I Parties for compliance with their emissions limitation or reduction commitments under the Kyoto Protocol.

Climate change. A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and is in addition to natural climate variability over comparable time periods.

Closed emissions trading. An emissions trading scheme that is designed to limit or reduce emissions within the boundaries of the scheme itself and thus does not allow for allowances or credits from outside the scheme to be used for compliance purposes.

Contrails. The condensation trail left behind jet aircraft. Contrails only form when hot humid air from jet exhaust mixes with ambient air of low vapour pressure temperature.

Credit or offset credit or offset. In this report the term “credit”, “offset credit” or “offset” is used to denote the compensating emissions reductions (product) that have been achieved and can be applied in the activity of offsetting. An offset credit could equate to a one-tonne reduction of carbon dioxide (CO₂) emissions or a one-kilogram reduction of nitrogen oxide (NO_x) emissions, for example. These credits can be tradable units.

Distribution. The allocation of allowances among accountable entities in a cap-and-trade system.

Domestic aviation emissions. Emissions from civil domestic passenger and freight traffic (commercial, private, agriculture, etc.) that departs and arrives in the same country, including take-offs and landings for these flight stages.

Emissions intensity target. An emissions target defined in terms of emissions per unit of output.

Emissions reduction units (ERUs). The Joint Implementation (JI) project- or programme-based credits created in Annex B countries under their own authority (Track 1) or under the authority of the Joint Implementation Supervisory Committee (Track 2) that are issued by the Kyoto Party. ERUs are issued by converting AAUs/RMUs into ERUs so as to avoid the double counting of reductions.

Emissions trading. Emissions trading is a market-based tool that provides entities the flexibility to select cost-effective solutions to achieve their environmental targets. With emissions trading, entities can meet these targets either by reducing their own emissions or by securing, through the market, compliance units that take account of emissions reductions achieved elsewhere.

Gateway. Instrument created to regulate the net flow of allowances between different groups of buyers and sellers.

Greenhouse gas (GHG). The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Less prevalent but very powerful GHGs include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Greenhouse gas reduction or emissions reduction. A reduction in emissions intended to slow down the process of global warming and climate change. GHG reductions are often measured in tonnes of carbon-dioxide-equivalent (CO₂e), which is calculated according to the global warming potential (GWP) of a gas.

Indirect link. A system that establishes a unilateral or bilateral link with another system also establishes an indirect link with any other system to which the partner system is linked. An indirect link occurs without any formal or informal agreement between systems.

Intergovernmental Panel on Climate Change (IPCC). The Intergovernmental Panel on Climate Change was established by the World Meteorological Organization (WMO) and the United Nations Environmental Programme (UNEP) to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation.

Joint Implementation (JI). Joint Implementation is a flexible mechanism established by Article 6 of the Kyoto Protocol for project-based emissions reduction activities in Annex B countries. Emissions reductions from JI projects earn ERUs.

Kyoto Protocol. An international agreement reached in Kyoto in 1997 that is linked to the UNFCCC and inscribes, among other things, the emissions limitation and reduction commitments made by developed countries for the 2008-2012 First Commitment Period.

Kyoto unit. A unit, representing one tonne of carbon dioxide equivalent emissions, that an Annex B Party to the Kyoto Protocol can surrender to meet its limitation or reduction commitment under the Kyoto Protocol. These units are tradable between Kyoto Parties and include assigned amount units (AAUs), certified emissions reductions (CERs), emissions reduction units (ERUs), and removal units (RMUs). In addition, under the second phase of the EU emissions trading scheme, EU allowances are specific Kyoto units which have been designated as being valid for trading under the scheme. Transactions in EU allowances are therefore recorded automatically as transactions under the Kyoto Protocol.

Leakage. Leakage is the indirect effect of emission reduction policies or activities that lead to a rise in emissions elsewhere (e.g. fossil fuel substitution leads to a decline in the price of fossil fuels and a rise in their use elsewhere).

Multilateral link. A multilateral link is established when more than two systems agree to accept allowances issued by the other system(s) for compliance purposes.

Offset or offset credit. See definition of credit or offset credit or offset.

Offsetting. In this study offsetting is the activity of “cancelling out” or “neutralizing” emissions from a sector like aviation using offset credits – compensating emissions reductions created in a different activity or location that have been rigorously quantified and verified. It is only when credits are acquired from outside the emissions trading scheme or linked schemes and used to meet commitments/obligations under the scheme that the activity is referred to as offsetting. On the other hand, if a regulated emitter acquires compliance units (allowances or credits) from another regulated emitter within the same emissions trading scheme, or from a linked scheme, this is referred to simply as emissions trading.

Open emissions trading. An emissions trading system where allowances or credits from outside the scheme can be used for achieving compliance with obligations under the scheme.

Removal units (RMUs). A tradable unit that will be issued by the UNFCCC to an Annex B Party for CO₂ removals from the atmosphere achieved from specified sequestration activities during the first commitment period of the Kyoto Protocol.

Retirement. The permanent surrender of offset credits (or allowances) to achieve compliance with a regulatory or voluntary obligation or a country’s international greenhouse gas commitment.

Seller. A legally recognized entity (individual, corporation, not-for-profit organization, government, etc.) that transfers allowances or credits to another legally recognized entity via a sale, lease or trade in return for a monetary or other consideration.

Surrender of allowances/credits. The submission of emissions allowances/credits by an accountable entity to fulfil its obligations under an emissions trading scheme.

Tradable unit. A generic term for compliance units that can be traded either domestically or internationally, including allowances from a cap-and-trade system, credits from a baseline-and-credit system, and offset credits created from either domestic or regional trading regimes or through the Kyoto flexibility mechanisms (from the Clean Development Mechanism and Joint Implementation projects).

Unilateral link. A unilateral link between two emissions trading systems occurs when the administrator of one system agrees to accept allowances issued by the other system for compliance purposes. This acceptance of units is “one-way”.

United Nations Framework Convention on Climate Change (UNFCCC). The United Nations Framework Convention on Climate Change has been ratified by 192 countries, and it sets an overall framework for intergovernmental efforts to tackle the challenge of climate change. Under the Convention, governments share information on greenhouse gas emissions, national policies and best practices, commit to GHG limitation/reduction activities/targets, and provide financial and technical support for the adaptation and mitigation activities of other countries.

Verification. Verification provides independent assurance that the emissions quantification and reporting have been accurately completed. The “level of assurance” provided depends on the system requirements. In most systems the verifiers must be accredited by a standard-setting organization.

Voluntary action or commitment. This is an action or commitment, undertaken by an entity, that reduces GHG emissions in the absence of any requirements to undertake such reductions.

