

Doc 9948



Scoping Study on the Application of Emissions Trading and Offsets for Local Air Quality in Aviation

Approved by the Secretary General
and published under his authority

First Edition — 2011

International Civil Aviation Organization

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TABLE OF CONTENTS

	<i>Page</i>
Executive summary	(vii)
Glossary	(ix)
List of acronyms and abbreviations	(xii)
Chapter 1. Introduction	1-1
1.1 Background	1-1
1.2 Outline	1-1
1.3 Emissions trading	1-2
1.4 Offsetting	1-2
1.5 Specific exclusions of this study	1-3
Chapter 2. Background and definitions.....	2-1
2.1 Airport local air quality	2-1
2.2 Establishing an airport local air quality management framework.....	2-2
2.3 Regulating local air quality in the vicinity of airports	2-5
2.4 Application of market-based measures by airport local air quality management frameworks.....	2-5
2.5 Emissions trading as a mechanism for airport local air quality management frameworks.....	2-6
2.6 Offsetting as a mechanism for airport local air quality management frameworks.....	2-7
2.7 Additionality	2-8
Chapter 3. Examples of the application of emissions trading and offsetting for local air quality management	3-1
Chapter 4. Lessons learned from existing and historical local air quality emissions trading and offsetting schemes	4-1
4.1 Essential features for the application of emissions trading and offsetting in addressing airport local air quality	4-1
4.2 Pitfalls to avoid	4-3
4.3 Important factors in the effectiveness of emissions trading or offsetting systems	4-3
Chapter 5. Airport-specific considerations	5-1
5.1 Emissions trading schemes.....	5-1
5.2 Offsetting	5-1

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EXECUTIVE SUMMARY

This study explores the scope for the application of emissions trading and offsetting to the mitigation of airport local air quality (LAQ).

The study starts by outlining airport issues including locally regulated requirements, relevant emissions species and airport sources and assessment of compliance with regulations. An airport LAQ management framework might be established to address a non-compliance issue, and market-based measures, including emissions trading and offsetting, might be incorporated.

Establishing an emissions trading scheme (ETS) requires defining its scope (sources included and geographic coverage), determining a cap on emissions, as well as the allocation of allowances and ongoing operation of the scheme.

Offsetting is a further option that can be permitted. Offset credits are generated by projects which reduce emissions and would not have otherwise been implemented. Parties in an ETS can buy offset credits in partial fulfilment of their ETS obligations.

The study provides a range of examples of ETS and offsetting implementation for local air quality situations, only one of which covers an airport. The lessons that were learned from these are discussed, and a set of principles for new schemes is recommended.

In closing, specific issues that ETS and offsetting present for airport LAQ are provided.



GLOSSARY

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

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.

Ambient air quality. The total effect of the range of sources of emissions affecting local air quality within a particular area. In contrast to an inventory, which quantifies the emissions from relevant sources, ambient air quality is quantified in terms of the concentrations (or levels) of pollutant species at any specific location.

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 can be used. Auctions often complement other forms of allowance allocation.

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. A baseline can be used, for example, to calculate the total quantity of allowances to be distributed under a cap-and-trade scheme 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.

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

(x)

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.

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.

Credit or offset credit. In this study the term “credit” or “offset credit” 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.

Emissions inventory. A database that lists, by source, the amount of emissions of pollutants, such as greenhouse gases, that were discharged into the atmosphere over a given period of time.

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.

Grandfathering. A method for the initial distribution of allowances to entities in an emissions trading scheme that is based on historical data (e.g. gross emissions, entity/industry performance standard multiplied by production) and distributed free of charge.

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.

Hot spots. Areas which have an unacceptably high accumulation of pollutant. Hot spots can result, in the context of emissions trading and offsetting, when air quality improvements in one area are achieved at the expense of the air quality in another area.

Kyoto Protocol. An international agreement reached in Kyoto in 1997 that is linked to the United Nations Framework Convention on Climate Change (UNFCCC) and inscribes, among other things, the emissions limitation and reduction commitments made by developed countries for the 2008–2012 First Commitment Period.

Local air quality (LAQ) management framework. A process to address an LAQ problem. An LAQ problem might be first recognized by the measured non-compliance of regulated pollutant concentration limits. An airport operator (or other authority) might set up an LAQ management framework to identify and make an inventory of the relevant emissions sources, calculate the resulting expected pollutant concentrations, take actions to achieve compliance and monitor and report results.

Marginal abatement cost. The financial cost of achieving an additional unit reduction in emissions.