ETS Aviation small emitters

Cost assessment of applying EU ETS on aviation small emitters and analysis of improvement potential by simplifications, alternative thresholds and alternative means of regulation.

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Version 1.0

The European Commission contracted PwC to carry out the project CLIMA.B.3/SER/2012/0028r with the support of CE Delft and SQ Consult. This report is prepared solely for European Commission for this project. The content of this report does not reflect the official opinion of the European Union. Responsibility for the information and views expressed therein lies entirely with the authors.

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0. Introduction

0.1. Background

The European Union Emission Trading System ("EU ETS") is considered the flagship of the European Union's climate policies. It is unique in its scale, covering around 45% of the EU's greenhouse gas (GHG) emissions[1]. Aviation is included in the system since 2010 and aircraft operators have been obliged to surrender allowances for their CO_2 emissions in the scope of EU ETS since 2012. The legal framework is provided by EU ETS Directive 2003/87/EC as amended by Directives 2008/101/EC and 2009/29/EC ("the Directive" [2]).

Article 54(1) of the Monitoring and Reporting Regulation ("MRR")[3] defines small emitters as aircraft operators operating fewer than 243 flights per period for three consecutive four-month periods or emitting fewer than 25,000 tCO_2 annually. Some simplified requirements apply on monitoring and reporting of emissions for small emitters. In addition, an exclusion threshold applies for commercial small emitters emitting less than 10,000 tCO_2 annually. A small emitter in the context of this project is an aircraft operator operating fewer than 243 flights per period for three consecutive four-month periods or emitting fewer than 10,000 tCO_2 annually.

EUROCONTROL's ETS Support Facility ("ETS-SF") data show 3,557 aircraft operators operated covered flights for EU ETS in 2012, emitting 234 $MtCO_2$ in total. Table 1 provides an overview of the number and type of aircraft operators that operated flights in the EU in 2012 and their total emissions.

Table 1: Overview of aviation activity data in 2012 (Source: EUROCONTROL's activity data from the ETS-SF sent to the project team on 19 April 2013)

Type	Size	# Operators	CO_2	Share CO_2	Exempted
Commercial	Large	309	227.3 Mt	97.1%	No
Commercial	Small	691	3.3 Mt	1,4%	Yes
Non-commercial	Large	24	1.5 Mt	0.7%	No
Non-commercial	Small	2,533	1.9 Mt	0.8%	No
Total		**3,557**	**234.0 Mt**	**100%**	
Total covered		**2,866**	**231 Mt**	**98.6%**	

Contrary to commercial aircraft operators, the EU ETS legislation applies to non-commercial aircraft operators without an exclusion threshold based on number of flights or CO_2 emissions. Consequently, 88% of the operators covered by the system are non-commercial small emitters, contributing in total to 0.8% of the aviation emissions in the EU. The European Commission ("the Commission") received feedback from small emitters directly and indirectly (via Competent Authorities ("CA") of EU Member States, consultants and verifiers) indicating that compliance with EU ETS is costly and challenging to achieve, despite various measures developed by the Commission to facilitate the contribution of small emitters to the system.

[1] European Commission EU ETS factsheet, January 2013
[2] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC; most recently amended by Directive 2009/29/EC, making it the so-called "revised EU ETS Directive".
[3] COMMISSION REGULATION (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council

The indicative registry data published by the Commission on 16 may 2013 show that 1,178 aircraft operators fulfilled their 2012 requirements in the Union Registry before 1 May 2013. Where, except from a few cases, all large emitters fulfilled their obligations, two thirds of the small emitters struggle with timely compliance with the EU ETS requirements.

In accordance with Article 30(4) of the Directive, the Commission shall, by 1 December 2014, review the functioning of the Directive in relation to aviation activities and may make proposals to the European Parliament and the Council as appropriate. The Commission shall give consideration in particular to a number of items, the implications of the exclusion thresholds as specified in Annex I in terms of certified maximum take-off mass ("MTOM) and number of flights per year performed by an aircraft operator and the impact of the exemption from the Community scheme of certain flights performed in the framework of public service [Art. 30(4(h) and (i))].

In preparation of the aforementioned review, the Commission requested PwC to assess the cost of the application of EU ETS on small emitters and to identify and analyse potential improvements. The Commission detailed its request in the following tasks related to EU ETS and small emitters:

1. Assess the costs for Member States' Competent Authorities and costs for operators;
2. Identify and assess potential simplifications;
3. Assess the impacts of current thresholds and analyse alternative thresholds;
4. Identify and analyse potential alternative means of regulating emissions.

In addition to the main tasks, the Commission requested the project team to assess a number of specific issues (Task 5 in the tender specifications). The sections for task 1 to 4 include the assessment of one or more of these issues.

0.2. Structure of this report

This section covers the overall objectives, scope and deliverables for this project, identified as CLIMA.B.3/SER/2012/0028r. Each following section (1 to 4) represents a separate task and details the:

- Objectives of the task;
- Overview of activities carried out;
- Reflection on the approach;
- Results.

We agreed the objectives for each task and the activities to be carried out formally with the Commission by means of an Inception Report dated 23 April 2013. The reflection on the approach taken to carry out the individual tasks provides information about the context of the tasks and how the activities contributed to the results. The results per section include an answer to the initial questions per task and detail additional observations and considerations identified by the project team during the project. The annexes include a list of abbreviations and detailed supporting documentation for the preparation of this report.

The table below lists the specific issues and where these are followed up.

Table 2: List of tasks

Nr	Specific issue	Task	Section
1	Analyse the costs of application for free allocation	Cost assessment	1
2	Explore delegation to small aviation memberships and industry associations	Simplifications	2
3	Summarise Member States administration fees	Cost assessment	1
4	Look at exemptions for small participants in other legislation	Exclusion thresholds	3
5	Analyse whether flexibility on the decision of who is the administering Member State for an aircraft operator might be useful.	Simplifications	2
6	Explore facilitation of the opening of the aircraft operator holding account	Simplifications	2
7	Compare the small emitters tool to method A and B	Cost assessment	1
8	Assess impact of domestic fuel tax	Alternative means	4
9	Assess if access to small quantities of allowances should be granted	Simplifications	2
10	Look at potential distortion, perverse incentives and evasion from upstream coverage	Alternative means	4

0.3. Overall objectives

This project entails four main objectives defined by the European Commission.

Insight in costs

Provide insight in the costs of the application of EU ETS on small emitters. The costs cover both the costs for Member States to administer small emitters and the costs of compliance for small emitters.

Understand improvement potential by simplifications

Identify options for simplifications to the EU ETS for small emitters and assess potential impacts. Options should not lead to significant compromises to the quality of the system.

Insight in the impacts of exclusion thresholds

Analyse the implications of the current exclusion thresholds mentioned in Annex I(h, i and j) of the Directive, namely the certified maximum take-off mass (MTOM), flights performed in the framework of public service obligations (PSO) and number of flights per year performed by commercial aircraft operators or CO_2 emissions. Provide insight in the impacts of options for potential alternative thresholds.

Understand the impacts of alternative means of regulating emissions

Identify and analyse options for other means for regulating emissions for small emitters based on examples in other regulations and other suggestions in case small emitters would be excluded from EU ETS.

0.4. Project scope

This project is not meant as a formal impact assessment. Information obtained for this project by various stakeholders form the basis for our assessments and analysis. The available time and budget are insufficient to validate all the information obtained in detail and to take statistically sound samples. Where needed, the project team interpreted the information based on experience and professional judgement, in accordance with the provisions made in the Inception Report. In addition, publicly available sources provided useful information for different tasks. The scope of the project fits the purpose to obtain insight in the order of magnitude and qualitative information about the impact of options for simplifications, alternative thresholds and alternative means of regulation.

The results should be treated with certain caution and potential extremes have not been filtered out. The results are a direct reflection of the input from survey participants with only limited data validation carried out. Options for simplifications for this project to assess include both these within and beyond the current legal framework. Options beyond the current legislations, alternative thresholds and alternative means of regulating emissions would require changes in the legal framework. The description of these options details which legal requirements would be subject to changes.

The Commission requested the project team to assess the following type of impacts of the identified improvement options:

- Environmental impact (amount of CO_2 regulated);
- Economic and Financial impact (costs for Member States and for small emitters);
- Distortion of competitive markets.

This project aims at providing insight in improvement potential, hence identifying and providing specific recommendations for next steps for the Commissions are not part of the activities carried out.

The European Parliament decided to temporarily derogate from enforcement of surrendering emissions originated from flights not within the EU-EFTA region for 2012, the so called “Stop the clock” decision. The Commission instructed PwC to disregard the potential implications of "Stop the clock" on this project. However we have agreed that any relevant observations regarding "Stop the clock" that have an effect on the estimation of small emitter’s costs may be mentioned in the report.

0.5. Deliverables

This project resulted in a number of formal deliverables, detailed in the table below.

Table 3: Overview of deliverables

Deliverable	Format	Date
Inception report	MS Word	23 April 2013
Progress presentation Stakeholder Meeting Member States	MS Powerpoint	26 February 2013
Progress presentation Stakeholder Meeting Industry	MS Powerpoint	6 March 2013
Progress presentation Task Force Aviation	MS Powerpoint	10 April 2013
Progress presentation Working Group 3	MS Powerpoint	17 April 2013
Progress report	MS Word	8 May 2013
Draft report	MS Word	30 May 2013
Final presentation Stakeholder Meeting	MS Powerpoint	30 July 2013
Final draft report	MS Word	13 September 2013
Final report	MS Word	25 March 2014

In addition to the documents mentioned above, the project team prepared sub-deliverables such as the online surveys to collect information about costs and improvement options and internal documents containing underlying calculations and complete details about the improvement options assessed.

0.6. Next steps

This project aims at providing the Commission insights in the costs of the application of EU ETS to aviation small emitters and to the competent authorities administering these small emitters. The results of this project will enable the Commission to assess how regulating of CO_2 emissions of aviation small emitters can be improved and will aid the Commission in performing its review pursuant to Article 30(4) of the EU ETS Directive.

1. Cost assessment

1.1. Objectives

Task 1 will set the baseline for the current cost of compliance for small emitters. This includes cost for both the aircraft operators and the competent authorities that are involved, including those of Norway, Iceland and Croatia. The purpose of the cost assessment is to obtain insights in how costs are built up and where differences exist between processes, types of operators and Member States. This information provides insights in the areas where cost savings would be most beneficial.

Key questions to be answered during this Task include:

- What are current costs for the different kinds of aircraft operators?
- What are historical and projected emissions for those different kinds of operators?
- What are current costs for Competent Authorities?

1.2. Activities

Table 4: Cost assessment activities

Nr	Subject	Activities
1.	Cost assessment survey	• Development of an online survey for aircraft operators and Member States separately
2.	Collect cost information aircraft operators and Member States	• Through our network we invited a number of aircraft operators directly to fill in the survey • We invited European aircraft operators via the EBAA, US based aircraft operators via Universal Weather and the NBAA, and middle east aircraft operators via Jetex • Other aircraft operators were invited during the Aviation Carbon Conference in London • We have also asked other verifiers and service companies about the cost of compliance for aircraft operators • Member States were invited to fill in the survey via the European Commission
3.	Collect information from EUROCONTROL	• We have requested specific data about emissions, number of flights and business orientation of the aircraft operators that flew in 2010, 2011 and 2012
4.	Consultation meetings	• Consultation meeting with Member States on 26 February 2013 • Consultation meeting with aircraft operators and the EBAA on 6 March 2013 • Bilateral telephone conversations with some Member States and aircraft operators
5.	Assessment of cost saving potential	• Assess cost for aircraft operators and Member States from different angles (per tCO_2, per MS, per process, difference between ETS-SF/SET/Method A-B, other)
6.	Identify emission trajectories	• Document study on trajectories • Identify information to be requested from EUROCONTROL and obtain relevant information
7.	Recommendations for reducing cost of compliance	• Provide insight in costs from different angles to identify differences between MS, types of emitters, use or non-use of ETS-SF • Validation of results

1.3. Reflection on approach

The development and usage of the carefully designed online surveys for collection of information about costs have proven to be an effective and efficient means to obtain actual information from both aircraft operators and Member States. The surveys are included in Annex A.

1.3.1. Approach cost assessment Member States

The Member States survey distributed by the Commission resulted in responses with detailed information from 15 different Member States (48% response rate) as detailed in Table 5. The input from these Member States is used as a basis for the calculations for Member States costs in this report. Validation of information provided has been performed based on expert judgement. Given the dependence on the response rate and quality of the information provided by the respondents, the conclusions are not statistically sound.

Table 5: Member States that responded to the online survey

Member States responded to online survey	
1. Austria	9. Malta
2. Belgium	10. Netherlands
3. Bulgaria	11. Portugal
4. Cyprus	12. Slovenia
5. Finland	13. Spain
6. France	14. Sweden
7. Germany	15. United Kingdom
8. Ireland	

The information requested by Member States included information about number of operators as well as the share of small emitters that complied with EU ETS. In addition the information request included time spent and out of pocket expenses related to different processes in the compliance cycle for EU ETS for the reporting years 2010, 2011 and 2012.

Where cost information is provided, the amounts were presented in EUR. Where time spent is provided, we applied hourly rates for both internal staff and external consultants. The estimated total cost rates for hours have been based on applicable rates in the Member States which administer the largest share of aircraft operators (UK, DE and FR). The hourly rate for internal staff applied is EUR 55 and for external consultants EUR 100. These rates are based on expert judgement and include salaries and all other direct and indirect costs for staff.

Based on interviews and the information provided in the surveys, table 6 details the recurring cost items for Member States.

Table 6: Recurring cost items for Member States

Recurring costs for Member States	
Helpdesk function	Answering questions of operators on monitoring and reporting, online reporting tools, requirements etc.
Approval monitoring plans	Review of new monitoring plans of operators and updates of monitoring plans based on follow up verification reports and changes in aircraft operators' operations
Review verification statement	Review the verification report and assess need for follow up on misstatements, non-conformities, non-compliances and associated areas for improvement.
Registry handling	Managing registry accounts and updates to accounts, reviewing changes and confirmations.
Other costs	Preparing guidance documents, translations, meetings etc.

Member State fees are deducted from the total costs presented in the report for Member States. Most small emitters emit less CO_2 annually than the minimum quantity of allowances that can be purchased on auctions. Therefore, for the purpose of this project, we assume small emitter do not buy on auctions. In addition, we understand based on interviews that apart from the free allowances, small emitters surrendered mostly not Aviation EUA. Therefore we have assumed that auctioning revenues are not relevant for aviation small emitters.

1.3.2. Approach cost assessment operators

The aircraft operators survey was distributed via the PwC Network, EBAA, Universal Weather and Jetex and resulted in 65 valuable responses (including management/service companies), representing 133 small aircraft operators. Table 7 includes the number of responding aircraft operators per Member State.

Table 7: Number of responding operators per Member State

Member States responded to online survey			
United Kingdom	46	Cyprus	2
France	34	Austria	1
Germany	13	Belgium	1
Italy	9	Denmark	1
Spain	6	Finland	1
Ireland	6	Malta	1
Netherlands	4	Norway	1
Iceland	3	Poland	1
Portugal	2	Sweden	1
		Total	**133**

The number of responding operators per Member State does not reflect the actual spread of small emitters administered by the respective Member States. Our survey was distributed broadly without specifically targeting to obtain statistically sound information. The information of all 133 operators was taken into account our assessment to obtain an indication of the total costs and average costs per operator. In order to identify cost saving potential, information was requested from operators based on the different administering Member States, type of operator, methods for fuel calculation and different processes in the EU ETS compliance cycle.

Where cost information is provided, the amounts were presented in EUR. Where time spent is provided, we applied hourly rates for both internal staff and external consultants. The estimated total cost rates for internal hours have been based on the assumption that for small emitters, generally pilots of corporate aircrafts are responsible for EU ETS. For external consultants, we have based our estimated hourly rates on the expert judgement that many consultants are located in Western Europa and the USA. The hourly rate for internal staff applied is EUR 75 and for external consultants EUR 100. These rates are based on expert judgement and include salaries and all other direct and indirect costs for staff.

We have collected information from aircraft operators about time spent and out of pocket expenses, including Member State fees, for the different processes in the compliance cycle for the reporting years 2010, 2011 and 2012. The recurring cost components for aircraft operators are described in table 8.

Table 8: Overview of recurring cost items aircraft operators

Recurring cost components for aircraft operators	
Monitoring plan annual emissions	Preparing monitoring plan (for operators currently without approved monitoring plan), updating monitoring plan in case of changes to the EU ETS organisation and/or operations, updating monitoring plan based on non-conformities/areas for improvement identified by the verifier.
Implementation monitoring and reporting	Implementing the procedures described in the monitoring plan Time consumed by gathering the correct information, fill out the annual emissions report, verification visit. Member State administration fees are included in these costs as well.
Verification	Verification fees charged by the independent verifier for EU ETS
Registry costs	The costs for time spent to maintain the registry account, process changes to the accounts (including additional documentation requirements in case of changes in representatives), filling in confirmation forms and costs for time spent in preparing and executing transactions in the registry. Member State fees for the use of the registry are also included.
Costs of allowances	The out-of-pocket costs of the allowances purchased for compliance with the surrendering requirements. This is based on the amount of CO_2 emitted and the estimated market value of allowances.

The design of the surveys and the number and quality of responses enabled the project team to calculate the historical costs and estimate the future costs for aviation small emitters to comply with EU ETS and for Member States to administer these small emitters. Costs also include the cost of setting up registry accounts, application for free allocation (Other issues, subtask 1) and the difference between Method A/B and the SET (Other issues, subtask 7). These items are part of the non-recurring cost items which are separately presented in this section. In addition we have also summarised the Member State administration fees (Other issues, subtask 3).

1.3.3. Other aspects related to the methodology

Where the report presents the average cost per operator or Member States, these costs have been calculated based on the average of input of all operators, rather than the mean of the input provided. The averages have been calculated based on the non-representative sample and provide an indication of the costs. Consequently, the numbers are not statistically sound.

The costs for 2013 are estimated based on our expert judgement analysis of the quantitative input provided by aircraft operators and Member States for the years 2010, 2011 and 2012. In addition we considered the qualitative input of the respondents about the costs based on the survey and discussions during different stakeholder meetings. Expert judgement was necessary as the years 2010, 2011 and 2012 are not entirely comparable and the surveys were not always filled in correctly. The following developments had impact on the comparability between the first three reporting years for aviation:

- The entire system was new for everyone for 2010;
- 2010 entailed both time and costs for Annual Emissions and Tonne-Kilometres;
- Many small emitters started to comply in 2011;
- During 2012, operators had to update the Monitoring Plan for Phase III;
- 2012 was the first compliance year where allowances needed to be surrendered;

Information obtained from the Commission on indicative registry data for 2010 – 2012 and from EUROCONTROL on activity data from 2010 - 2012 is used to provide insight in the context of small emitters in EU ETS, to estimate (sub) totals and to identify emission trajectories.

The project team validated the cost calculations based on the input provided in various consultation meetings, both with the small emitter community and the Member States.

We believe that the agreed approach enabled the project team to create a high level of commitment from many stakeholders to provide detailed insight in the cost of the application of EU ETS on aviation small emitters.

1.4. Results

This subsection starts with an overview of the context of applying EU ETS on small emitters, including trajectories. Subsection 1.4.2 provides insight in the total recurring costs of EU ETS related to small emitters. Subsection 1.4.3 details the costs for Member States in administering small emitters and the Member State fees. 1.4.4 sets out the costs of compliance for small emitters and 1.4.5 details the non-recurring cost items. Finally, subsection 1.4.6 provides insight in the areas where cost savings could be beneficial.

1.4.1. Context of aviation small emitters in EU ETS

Before looking into costs, this subsection provides insight in the number of operators, type of operators and environmental impact. It also details the outcome of the analysis of trajectories on future developments in aircraft operators, flights and emissions.

1.4.1.1. 90% of the aircraft operators is small, contributing 2.2% to the environmental impact of aviation in the EU

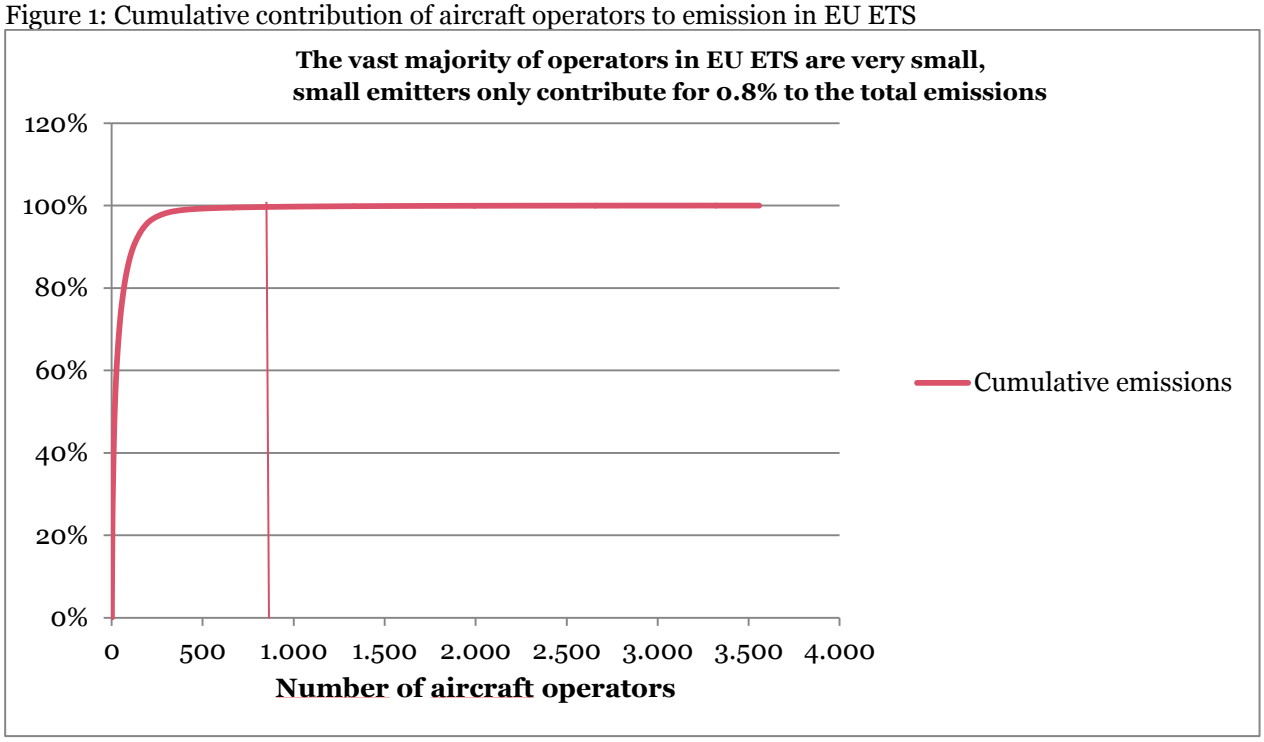
EUROCONTROL ETS Support Facility (ETS-SF) data show 3,557 aircraft operators operated flights during 2012 in the scope of EU ETS. 2,866 operators were obliged to comply with the requirements of the system and 691 commercial operators were exempted. 309 commercial large operators were eligible and 2,557 non-commercial operators, of which 24 operators are defined as large. Member States indicate that apart from a few exceptional cases, all large emitters covered by the EU ETS have fulfilled their obligations. 34% (approximately 870 operators) of the aviation small emitters have fulfilled their EU ETS obligations. Based on EUROCONTROL's estimations, the total CO_2 emissions in aviation in the scope of EU ETS for 2012 is 234 $MtCO_2$. Table 9 below shows the contribution based on types and size of operations.

Table 9: Overview of types and size of operators

Type	Size	# Operators	CO_2	Share CO_2	Exempted
Commercial	Large	309	227.3 Mt	97.1%	No
Commercial	Small	691	3.3 Mt	1,4%	Yes
Non-commercial	Large	24	1.5 Mt	0.7%	No
Non-commercial	Small	2,533	1.9 Mt	0.8%	No
Total		**3,557**	**234.0 Mt**	**100%**	

Figure 1 shows the cumulative contribution of aircraft operators based on size of their environmental impact. While 69% of commercial operators are exempted at an environmental expense of 1.4%, 99% of the non-commercial operators (2,533 operators) are obliged to comply, accounting for 0.8% of the total emissions.

Figure 1: Cumulative contribution of aircraft operators to emission in EU ETS



Source: EUROCONTROLS' activity data 2012

EUROCONTROL activity data shows that around 80% of the small emitters are administered by seven large Member States for aviation, UK, France, Germany, Spain, Italy, Ireland, Iceland and Portugal. Italy and Iceland did not respond to the online survey. Table 10 shows the number of aircraft operators covered by the responding Member States, based on a comparison of the information providing by the respondents in the survey for 2011 and EUROCONTROL's activity data, we estimate that the 15 responding Member States represent around 85% of all compliant small emitters in 2012.

Table 10: overview of number of operators covered by responding Member States

Information about operators covered by responding Member States	2011
# Member States responded to online survey	15
# aircraft operators submitted a verified AER to these MS in 2011	1,125
# small emitters submitted a verified AER to these MS in 2011	872
# large emitters submitted a verified AER to these MS in 2011	253
Estimated share of aircraft operators (incl. small emitters) covered by these Member States	85%

Based on 2012 indicative registry data published by the Commission on 16 May 2013 (cut off registry status of 1 May 2013), 870 small emitters fulfilled their registry obligations for 2012. The 15 responding Member States indicated that 872 small emitters submitted a verified Annual Emissions Report for 2011. Extrapolating the number of small emitters that submitted a verified Annual Emissions Report in 2011 to all Member States would result in 1,026 operators. This would mean that knowing some aircraft operators submitted their verified Annual Emissions Report for 2012 for the first time, at least 156 operators would have a verified 2012 Annual Emissions Report but have not fulfilled their EU ETS requirements, or have been exempted from EU ETS compliance due to stop-the-clock, which reduces the scope of enforcement only to intra-EU flights.

1.4.1.2. Trajectories do not show significant change in scope of operators and emissions covered

The assessment of trajectories first focused on the scope of EU ETS requirements to obtain insight in the recurring costs for EU ETS for small emitters in the future. In addition, we also looked at the projected development on aviation and small emitters in the future in terms of number of operators, flights and emissions.

Cost projections

We have based the projections for the year 2013 and further on the scenario where no structural changes to the monitoring and reporting requirements for EU ETS occur in comparison to 2011 and 2012. In estimating the projected costs for 2013 and further, we applied a number of considerations.

The first reporting year, 2010, is not representative for cost projections

The first year of EU ETS and aviation was 2010. The results show that this was an exceptional year in terms of costs. Everything was new for all stakeholders resulting in relatively high costs for all processes in the compliance cycle compared to 2011 and 2012. Therefore, the recurring cost items in 2010 were not deemed representative and therefore disregarded for calculating cost projections.

Projections are only based on recurring cost items

Non-recurring cost items in 2010 were related to preparations for EU ETS, such as identification of operators and workshops and costs related to the calculation of free allowances (Tonne-Kilometre monitoring, reporting and verification). In 2012, one-off costs have been incurred for setting up registry accounts. These costs have been disregarded for projections for 2013 and further. An overview of these non-recurring costs can be found in subsection 1.4.5.

Member State fees are included in the operators' costs and excluded from the Member States' costs
Several Member States charge aircraft operators, including small emitters, fees for different services. Fees can consist of annual subsistence, administration costs, registry usage, review Monitoring Plans etc. As these fees are charged to the operators, they will serve as a compensation for the costs of Member States. Therefore, for the purpose of this project, Member State fees are deducted from the total costs of Member States. The UK has mentioned to operate cost neutral, therefore the costs of the UK for administering aircraft operators and small emitters have not been taken into account when calculating the total costs for Member States.

Auctioning revenues are not deemed relevant for aviation small emitters
We understand from small emitters that it is not likely that they buy allowances on auctions. The minimum quantities of allowance to be bought on auctions (1,000 tCO_2 is often mentioned) exceeds the actual emissions for most small emitters. In addition, we understand based on the input provided that small emitters buy on markets mostly not themselves and that the allowances purchased differ and are not bound to aviation EUA's. As it was not possible to identify a direct relation between the allowances purchased big aviation small emitters and the related auctioning revenues of Member States, auctioning revenues related to aviation small emitters are not taken into account for the purpose of this project.

2011 was most stable year and provides a good basis for most recurring cost items
In 2012 there generally is an increase in the time spent and the costs incurred in comparison to 2011. This might be caused by dealing with 'stop-the-clock' at the time of monitoring and reporting. The quantity of the costs related to the 'stop-the-clock' could not be determined and at the time of writing this report, it is uncertain whether this type of additional costs will be recurring, depending on whether changes will be processed in the scope of EU ETS in the near future. In addition, we have indications that the reported time and costs for Monitoring Plans for the reporting year 2012 could in fact partly be attributed to updating the Monitoring Plans during 2012 for Phase III of EU ETS. Therefore, 2011 seems to be the most stable year so far for EU ETS and therefore, in projecting the recurring costs for EU ETS for 2013 and further, we believe 2011 provides a good basis.

Trajectories in operators, flights and emissions
EUOCONTROL 2010 – 2012 activity data does not show a pattern in growth of number of operators. Figure 2 below shows that the development of business aviation (non-commercial aviation) has developed quite similarly with commercial passenger aviation in 2011 and 2012. EUROCONTROL expects that business aviation would grow slightly higher than passenger aviation in the future. Based on the developments of the past few years and the very slow recovery of the global economic crisis, we found it very difficult to predict future numbers of operators, flights and emissions. Based on the information obtained, we believe it will be unlikely that the impact of small emitters will change significantly in terms of size of number of operators, size of operations and CO_2 emissions, compared to large emitters. Therefore, in our projected cost impacts of the options for simplifications, alternative thresholds and alternative means of regulating emissions, we assume the number and share of small emitters and environmental impact will not change compared to 2012.

Figure 2: EUROCONTROLS' trajectories of aviation based on departures

Source: EUROCONTROL, 2012, Briefing: Business Aviation in Europe in 2011

1.4.2. Total recurring costs of the inclusion of small emitters in EU ETS

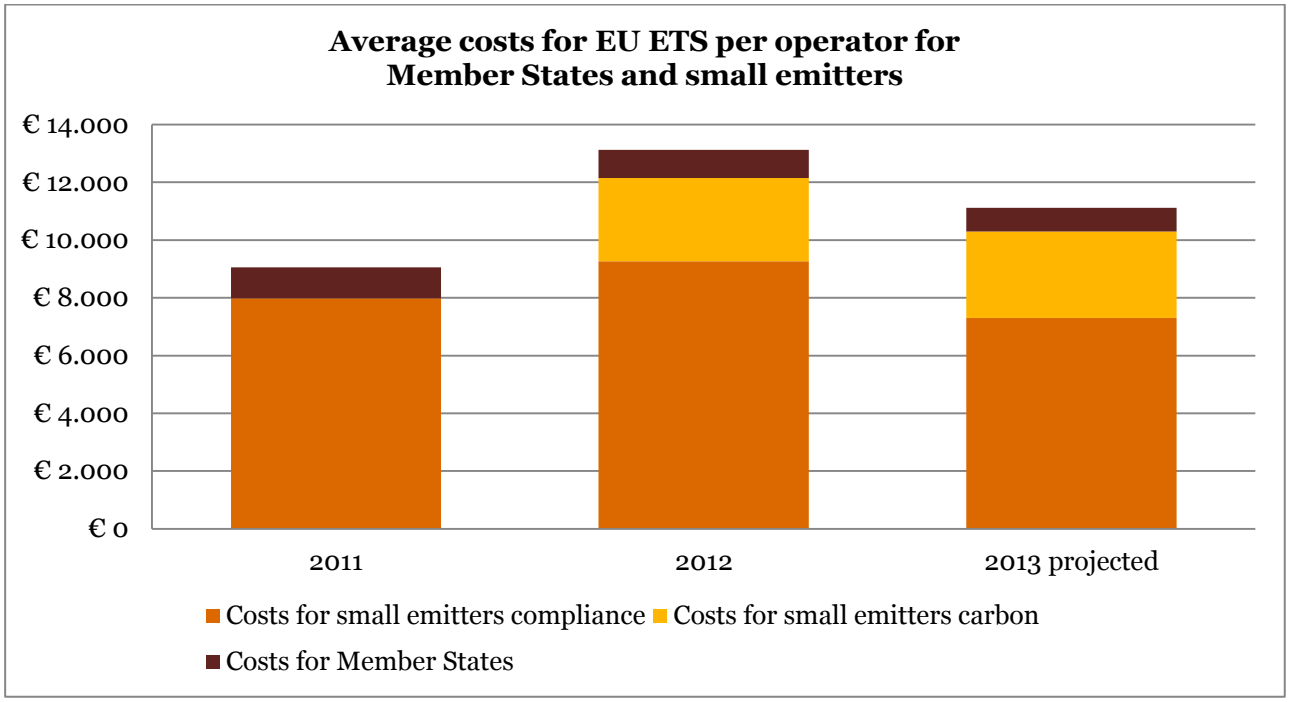
Total calculated costs of the application of EU ETS on small emitters

Based on the information provided by Member States and aircraft operators the total projected recurring costs of the application of EU ETS on small emitters amounted to EUR 7,501,000 for 2011 and EUR 11,079,000 for 2012. This is based on 870 operators, based on the 2012 indicative registry data of the European Commission. EUR 2,512,000 of the total costs of 2012 consists of costs of buying allowances for small emitters. As 2012 was the first year that aircraft operators had to surrender allowances for their emissions, these costs were not incurred for 2011.

Costs of EU ETS per small emitter

Figure 3 provides an overview of the historic costs per operator for 2011 and 2012 and the projected costs per operator for 2013 and further for the recurring cost items. Based on the responses by Member States and aircraft operators, we have calculated that the average total recurring costs of EU ETS per small emitter were EUR 9,050 for 2011 and EUR 13,121 for 2012. 2012 includes EUR 2,887 for costs of allowances for operators, EUR 9,264 for costs of compliance and EUR 970 for Member States costs. As aircraft operators had to deal with stop-the-clock for 2012 this could have contributed increase costs of compliance compared to 2011. The projected annual recurring costs of EU ETS per operator starting 2013 amount to EUR 11,121 including EUR 3,000 costs of allowances, EUR 7,300 for costs of compliance for operators and EUR 821 for Member States costs. The estimated costs for 2013 and further have been based on expert judgement of the 2011 and 2012 data and qualitative input provided by the respondents and stakeholders during several meetings held.

Figure 3: Overview of total recurring costs of EU ETS per operator



The results show that the majority of the total costs per operator consist of the costs of compliance with EU ETS. These costs include monitoring, reporting, verification and other costs, such as Member State fees. The total costs for Member States per small emitter contribute to less than 10% of the total costs per operator. The results also indicate that the costs of EU ETS for small emitters and Member States (EUR 11,200) exceed the revenues generated by others in the system (EUR 3,000) by 373%. Even if the CO_2 emissions increase by 50% and the price of the allowances would be 50% higher by 2020, the administrative costs of CO_2 related to small emitters will still exceed the revenues by 166%.

1.4.3. Cost for Member States administering small emitters

1.4.3.1. Total estimated costs for Member States maximum EUR 1.6 million

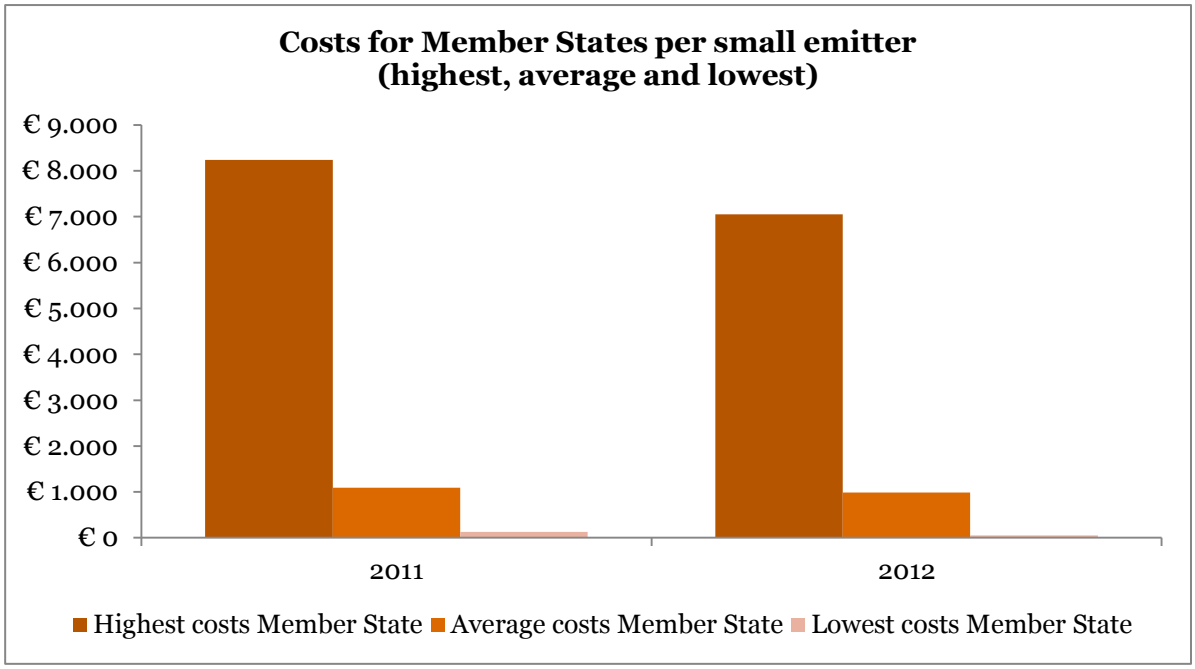
When calculating the total costs for member States to administer small emitters for EU ETS, the revenues for fees charged are deducted from the total costs and the numbers reflect the net costs for Member States. As explained in section 1.4.1.2 auctioning revenues are not considered for this project. The historical recurring cost items amounted to EUR 559,000 for 2011 and EUR 507,000 for 2012. This is based on the input provided by the Member States that responded to the survey and the extrapolation to all Member States based on the coverage of around 85% that the responding Member States to the total number of aviation small emitters. As the UK mentioned to operate cost neutral, the costs for the UK for EU ETS on small emitters are deemed to be zero.

Based on the feedback received from the Member States we expect some decrease in costs per operator in 2013 due to expected lower helpdesk costs. Monitoring Plans have been approved for Phase III of EU ETS and Member States are experienced with reviewing Annual Emissions Reports and Verification Reports.

1.4.3.2. Average costs per small emitter varies between Member State

Member States on average spent EUR 1,070 for 2011 and EUR 970 for 2012 per small emitter to administer these. The projected costs per small emitter for 2013 and further will be EUR 821 annually. These costs represent the net costs including deduction of revenues from Member States fees and similarly to the total costs for Member States, the costs for the UK are deemed zero as they mentioned to operate cost neutral. The calculated average costs for administrating small emitters differ significantly between Member States. Figure 4 shows the highest, lowest and average costs for Member States per small emitter. The results show significant differences between Member States.

Figure 4: Gross costs for Member States per small emitter (incl. UK)



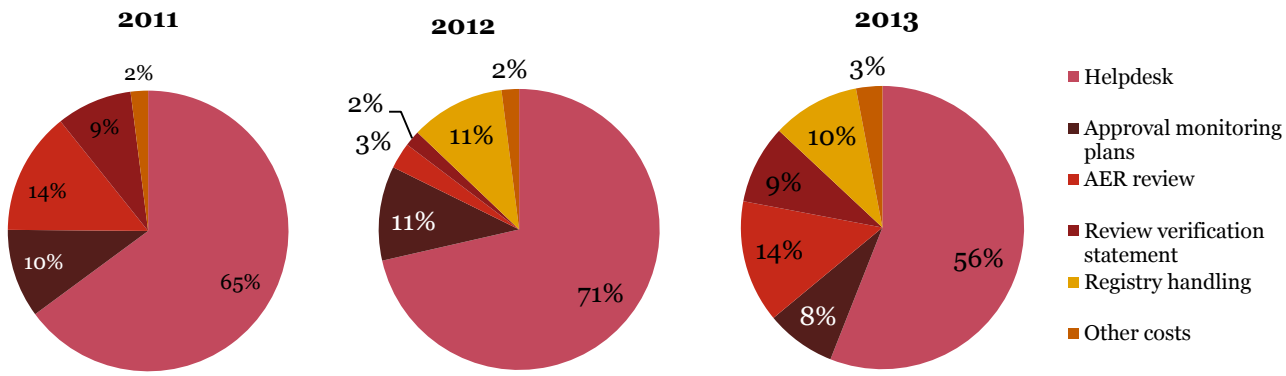
Based on the input provided to the project by Member States, some incur very high costs per small emitter compared to others. For example, the spread for 2011 appears to be between EUR 8,236 for the highest costs and EUR 126 for the lowers costs per operator, which is a factor 65. The estimations provided by Member States, could not be validated for this project in detail and therefore no firm conclusion could be drawn on the accuracy and completeness of the information. Although uncertainty about the reliability of the data exists, the results show a linear relation between the size of the Member State and the average costs per small emitter. It seems that the gross costs (without deduction of revenues for fees charged) per small emitter are reasonably comparable for the four largest Member States for aviation, UK, France, Germany and Spain. Most responding Member States reported that costs would be somewhere between EUR 500 and EUR 1,000 for 2011. Some Member States exceed this amount substantially and others seem to be very efficient when it comes to small emitters.

1.4.3.3. Helpdesk and communication function seem main cost items for member States

Figure 5 shows the distribution of the average time spent by Competent Authorities and Registry Administrators per process of the compliance cycle. Member States spend the majority of their time through helpdesk functions and communications, followed by the review of Annual Emissions Reports. The results show

a slight increase in time spent on the helpdesk in 2012 compared to 2011, where a decrease would have been expected as everyone gained more experience with EU ETS. The increase can possibly explained because of the increased amount of questions about stop-the-clock for 2012, it could also relate to increased amount of questions about updating the Monitoring Plans for 2013. As 2012 was the first year that compliance in the registry was effective for aviation, these costs were not incurred for 2011.

Figure 5: Overview of average gross costs per process for Member States

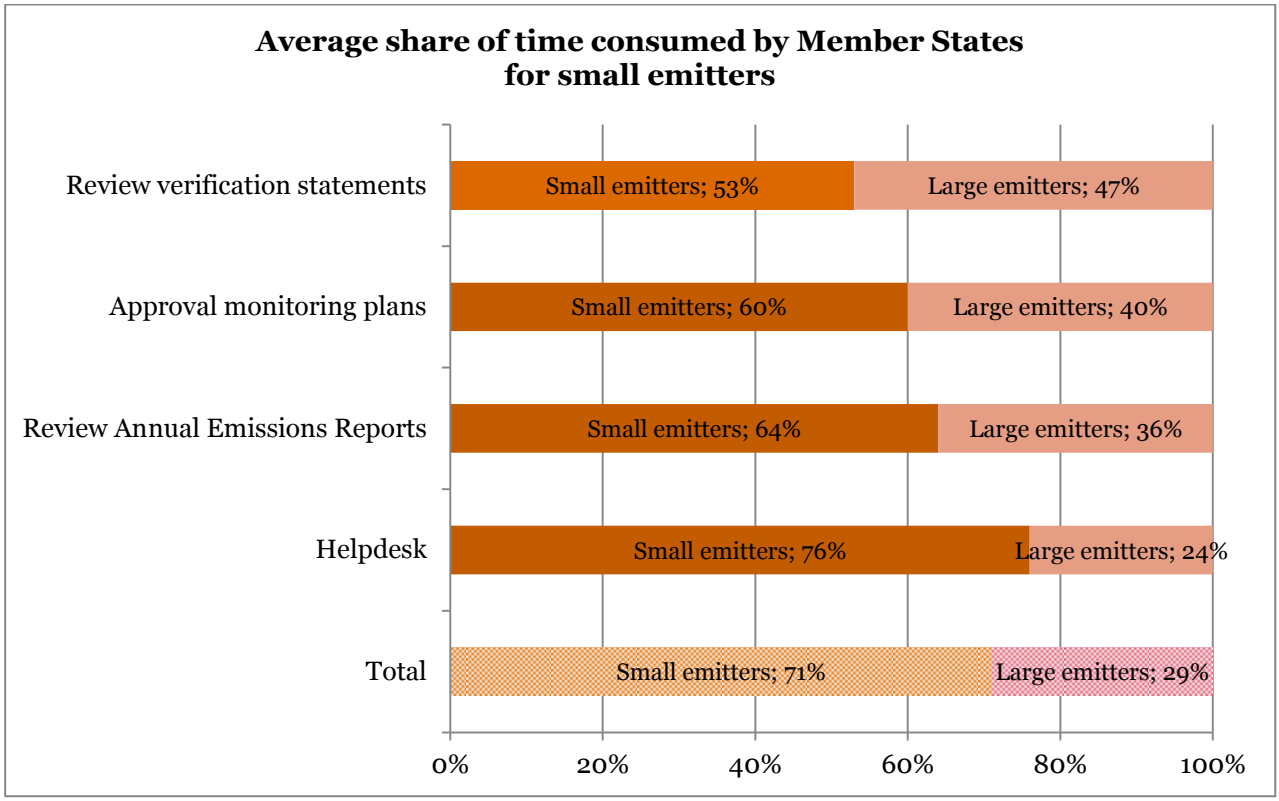


At the time of the cost information collection process, the compliance cycle for 2012 was not completed yet. Therefore the reported share in costs related to reviewing Annual Emissions Reports and Verification Reports for 2012 are very small. For the 2013 projections, we based the estimated costs on the 2011 reported data.

1.4.3.4. Member States spend disproportioned amount of time for small emitters compared to the CO_2 impact

Figure 6 details the share of gross costs of Member States incurred for small emitters in different processes of the compliance cycle. Member States indicate to spend 71% of their aviation time on small emitters (77% of the operators administered to the responding Member States). This means that on average it is only a fraction less costly to administer a small emitter than administer a large emitter. One would expect it would be significantly less time consuming to administer small emitters, based on their usually limited amount of flights and CO_2 emissions. Member States indicate that small emitters are more time consuming to communicate with due to the limited knowledge the operators have about EU ETS. In addition, small emitters seem to make relatively more mistakes than large emitters. It could also be that a large portion of the costs for Member States are fixed and are not depending on the size of the operators. The fact that Member States spend more than 70% of their time to administer less than 1% of CO_2 emissions for aviation would support the view that in the current situation the system is too costly from an efficiency perspective.

Figure 6: Overview of split in gross costs for Member States between large and small emitters (Incl. UK)



1.4.3.5. Fees for services vary greatly between Member States

The costs for some Members States are transferred to the aircraft operators via different charges for different services. Based on the information obtained during the project, fees are charged to small emitters by more than 40% of the Member States. There is a great variance in the type of services charged and the amounts. Member States with relatively high annual fees compared to others for aviation small emitters include Iceland, UK and Finland. France and Austria charge higher amounts to aviation small emitters for the opening of the registry accounts than other Member States. Table 11 details the fees charged for different services by Member States.

Table 11: Overview of Member State fees

	Member State		Iceland	UK	Spain	Germany	Liechtenstein	Finland	Bulgaria	France	Ireland	Portugal	Slovenia	Austria	Belgium	Denmark
	Member State responded to survey?		Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	No	No	
Small emitters	***Recurring costs:***															
	Yearly costs (incl. review Annual Emissions Report)	EUR	1,289	*3,060	0	0	0	0	0	0	0	0	0	0	0	3124
	Yearly costs EU registry	EUR	0	0	0	0	0	1,500	0	360	0	840	0	0	535	***0,03
	Non-recurring costs:															
	Setup costs registry	EUR	0	0	500	400	1,200	0	100	3,100	350	840	0	380	0	0
	Submission Monitoring Plan	EUR	1,691	900	0	0	0	1000	0	0	0	0	23	0	0	0
	Update of Monitoring Plan	EUR	**863	516	0	0	0	0	0	0	0	0	0	0	0	0
Large emitters	***Recurring costs:***															
	Yearly cost (incl. review Annual Emissions Report)	EUR	1,691	4,440	0	0	0	0	0	0	0	0	0	0	0	3124
	Yearly costs EU registry	EUR	0	0	0	0	0	1,500	0	5000	0	860	100	0	535	***0,03
	Non-recurring costs:															
	Setup costs registry	EUR	0	0	500	400	1,200	0	100	3,100	350	840	100	6000	0	0
	Submission Monitoring Plan	EUR	2,228	900	0	0	0	5000	0	0	0	0	23	0	0	0
	Costs acceptance verifier	EUR	0	0	0	0	0	2000	50	0	0	750	0	0	0	0
	Costs acceptance verifier	EUR	0	0	0	0	0	200	50	0	0	750	0	0	0	0
	* Based on average (50 - > 500Kton)															
	** Iceland is charging different price levels based on the impact of the changes.															
	*** Denmark charges 0,03 EUR per allocated free allowance															

Based on the responses from the Member States, the responses from aircraft operators and checking of the Member States websites in cases where we did not receive responses, we identified 13 Member States charging fees to aircraft operators and fees vary per Member State. For the other 18 Member States (including EEA and Croatia) we have no indication that substantive fees have been charged to aircraft operators.

Aviation is an international industry. We understand from non-EU based aviation small emitters (for example these based in the US) that they view the EU ETS as a European system and do not quite understand the principle of different Member States with differences in systems, processes and fees. While these operators report to different Member States for EU ETS, we received feedback that it is perceived as not fair that some Member States charge significantly more than others under the same European legislation. Since aircraft operators do not have the possibility to change administering Member States, many expressed to experience disadvantages compared to other operators based on differences in Member State fees. Based on feedback received from different operators, closing the large gap in Member State fees would be highly appreciated. This

potential harmonisation could potentially lead to lower costs for operators and a level-playing-fiel for the small emitters.

1.4.4. Costs of EU ETS for small emitters

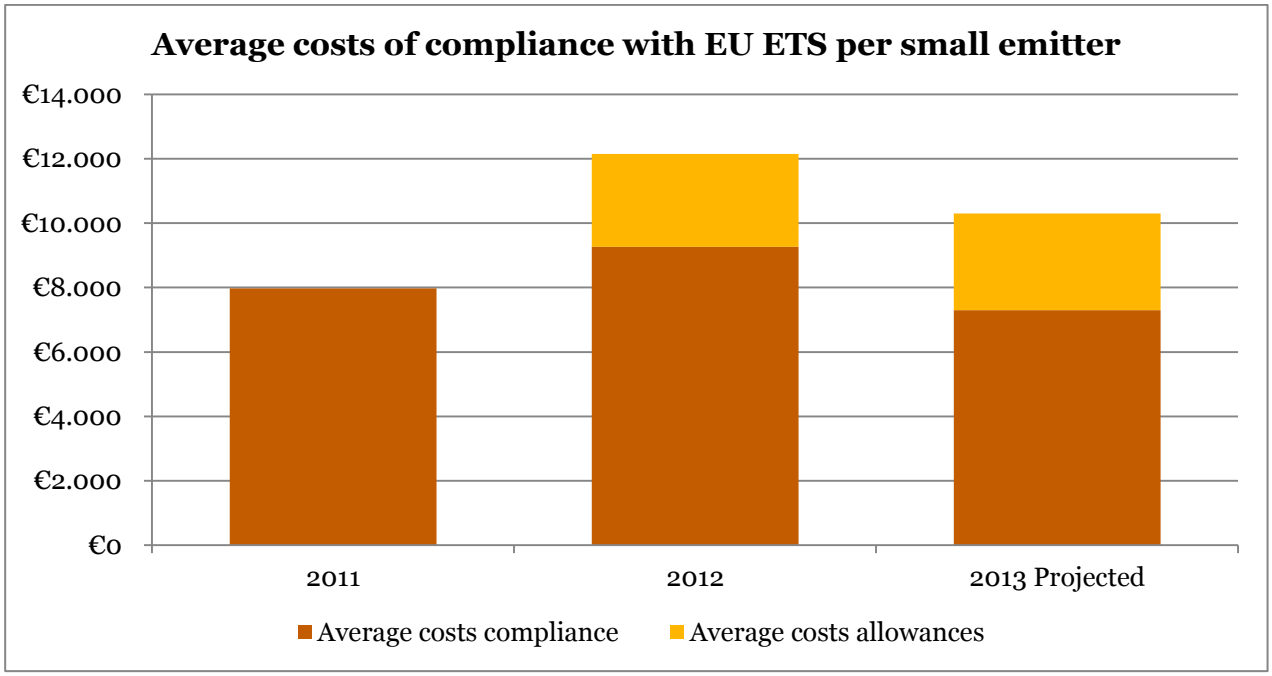
1.4.4.1. Total costs of EU ETS for small emitters estimated EUR 10 million

The historical total projected costs for small emitters to comply with EU ETS in 2011 amount to EUR 6,943,000 for 2011 and EUR 10,571,000 for 2012, based on 870 compliant small emitters in 2012. The increase for 2012 is due to the introduction of the costs of buying allowances of EUR 2,512,000 as this was the first year operators had to fulfil their registry compliance obligations. Administrative cost for small emitters 2012 amounted to EUR 8,060,000. In addition increased costs for 2012 could be due to additional work related to stop-the-clock. Although we specifically asked the participants to separate the time spent for updating the Monitoring Plan for the reporting years 2012 and 2013, it could be that some of these costs attributed to 2012 could in fact be spent on updating the Monitoring Plan for Phase III during 2012. This could not be validated for this project.

1.4.4.2. Average costs per small emitter exceeds EUR 10,000 annually

Based on the information provided to the project by small emitters, the average recurring costs of compliance per aircraft operator for compliance with EU ETS were EUR 7,979 for 2011 and EUR 9,264 for 2012 (refer to figure 7). The average costs of allowances reported by aircraft operators for 2012 were EUR 2,887. Based on average reported emissions for 2012 of 850 tCO_2, the average reported costs of one allowance purchased per operator is EUR 3.40. The total projected costs of compliance per aircraft for 2013 and further is EUR 7,300 and in addition, the projected costs of buying allowances EUR 3,000. This amount is based on a number of variables assumed, such as a similar level of allowance prices as for 2012 varying between EUR 4 and EUR 5 per tCO_2, similar average CO_2 emissions for small emitters (763 tCO_2 based on 2012 EUROCONTROL activity data) and free allowances provided to the larger small emitters.

Figure 7: Average costs per small emitter per year



The results indicate that a significant share of the costs of compliance for small emitters is fixed. Especially for very small emitters, this is a problem. The average cost per tCO_2 – based on total costs (for compliance and allowances) per operator – for a small emitter respondent was EUR 46 in 2011. Based on information obtained from some large emitters, we have estimated that the average cost per tCO_2 for large emitters will be less than EUR 1.

Small emitters emitting more CO_2 than average incur costs that would on average be lower than EUR 46. On the other hand, the results show that while the average emissions of non-commercial small emitters in 2012 have been 763 tCO_2, 39% of all small emitters emitted less than 100 tCO_2. For this group of 1,002 operators the costs for EU ETS per tCO_2 per operator is calculated at more than EUR 100, a factor 100 higher than for large emitters. Based on the feedback the project team has received from the participants of the survey, the costs of compliance are perceived as disproportionately high in comparison to the costs for the CO_2 allowances by the small emitters.

1.4.4.3. Monitoring and reporting seems main recurring cost driver for small emitters

Figure 8 provides an overview of the distribution of the recurring costs for the various processes in the compliance cycle. Monitoring and reporting of annual emissions has been the most costly and time consuming cost component historically. These costs include annual Member State administrative fees for participating in EU ETS. Another significant share of costs is incurred by the cost of buying allowances. While design and implementation of the Monitoring Plan have been relatively costly in the past, these costs will likely decrease in 2013 and further. As operators can change and need to re-assess their monitoring plans on annual basis, and more small emitters will have to prepare a monitoring plan, these costs have partly been considered recurring. The average costs per small emitter calculated based on the recurring cost information provided by responding small emitters per process in the compliance cycle is detailed in table 12.

Figure 8: Overview of split in costs for small emitters per process of the compliance cycle

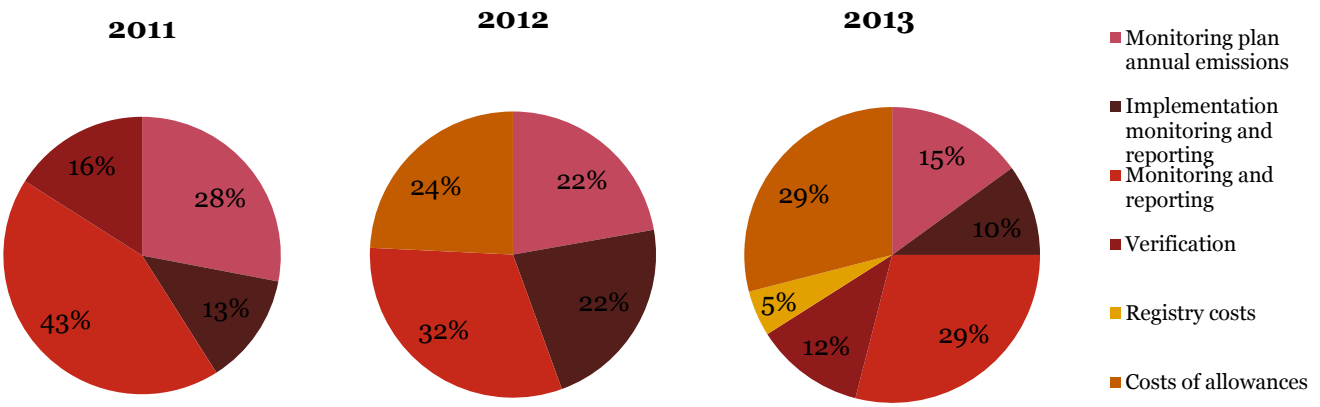


Table 12: Average costs small emitters per process in the compliance cycle

Item	2011	2012	2013
Monitoring plan annual emissions	2,198	2,720	1,500
Implementation monitoring and reporting	1,041	2,710	1,000
Monitoring and reporting	3,500	3,834	3,050
Verification	1,240	-	1,250
Registry costs			500
Costs of buying allowances	-	2,887	3000
Total	**7,979**	**12,151**	**10,300**

The 2012 overview does not contain costs of verification because at the time of the information collection process, most verification processes were not completed yet. The costs for setting up registry accounts for 2012 relate mostly to non-recurring costs and are therefore not included in the pie chart. For 2013 and further we estimated the annual cost of maintaining and using the registry per operator at 5% of the total costs.

1.4.4.4. Using management/service companies seems beneficial

The responses show that the majority of small emitters are represented by management / service companies. Other respondents include commercial or non-commercial operators organising EU ETS compliance by themselves. Commercial operators responding to the survey were all large emitters. The average cost of compliance (without the costs of allowances) for operators represented by management / service companies are significantly lower than for the other non-commercial operators. Table 13 demonstrates that where management / service companies facilitate compliance, the costs of compliance are significantly lower than for operators that have to handle EU ETS compliance by themselves. Total costs are on average 46% lower and verification cost 25%.

Table 13: Average annual costs of compliance per type of respondent

	# Operators	Avg. total costs (EUR)	Avg. verification costs (EUR)
Management company/ service company	93	6,315	1,158
Non-commercial	40	11,849	1,550

Stimulating more small aircraft operators to engage with management / service companies for EU ETS compliance may help them to reduce cost. However, one could question whether small aircraft operators only engage with these service providers for EU ETS purposes. We understand that it is common practice to engage with these companies for flight and fuel management etc. and that these companies could facilitate EU ETS compliance as add on. We also understand that a number of service companies exist specifically for facilitating EU ETS compliance.

1.4.4.5. Compliance costs for operators differ between administering Member States

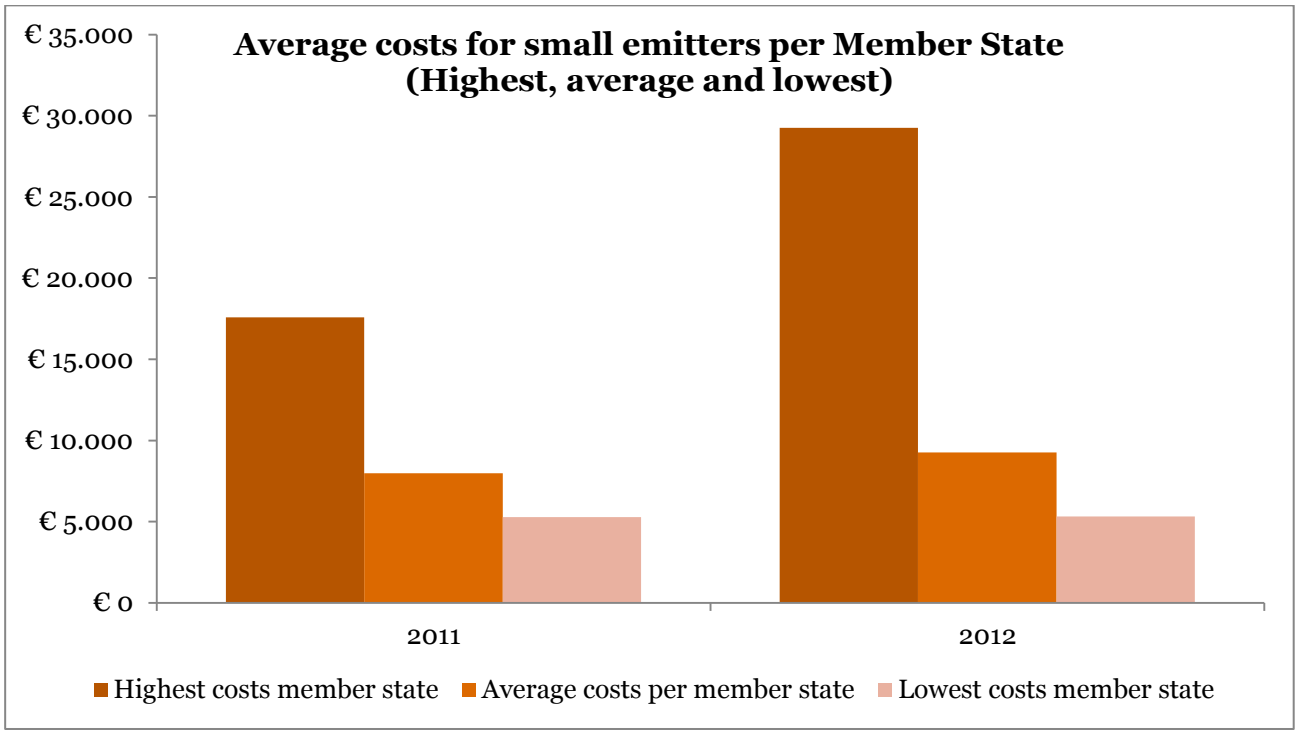
Based on the results of our survey, the costs to comply with EU ETS for aviation small emitters vary per Member State. The results however have to be interpreted with caution as for some Member States the results are based on very limited responses. Figure 9 shows the spread in costs of compliance (without costs for buying allowances) for aircraft operators between Member States based on the highest costs, the lowest costs, and the

average costs for small emitters to comply with EU ETS. The results show significant differences exist in the costs of compliance per Member State. There is a wide range of costs varying between EUR 5,285 and more than EUR 17,500 for 2011. It appears that the six Member States with the highest numbers of small emitters (UK, France, Germany, Spain, Italy and Ireland) are relatively comparable in terms of cost. The average costs of compliance to these countries vary between EUR 6,500 and EUR 10,000 for 2011.

Based on the input provided by small emitters, it seems that especially in some Member States administering a limited number of small emitters is relatively costly for aircraft operators. Larger Member States can gain from economies of scale in communicating to small emitters and dealing with requests. Another cost driver for big differences is Member State fees. Furthermore, differences in administrative procedure requirements (e.g. filling in forms and specific templates) could be a reason for difference between Member States.

While the average costs of compliance and least costly Member States are similar in 2011 and 2012, in some smaller Member States, the costs incurred for compliance with EU ETS for aviation increased significantly for 2012. As the information for these Member States are based on input by very few respondents, we could not draw a conclusion of the main cause of the increase.

Figure 9: Overview of spread in average costs of compliance for small emitters per Member State



1.4.4.6. Differences per method used for EU ETS reporting seem to exist

The overview of differences in average costs per method of monitoring fuel consumption as detailed in table 14, indicates that only few of the survey respondents used the ETS-SF (EUROCONTROL's ETS Support Facility) and Method A or B (principle methods to be chosen from, as explained in the ETS Directive). Despite the fact that the ETS-SF has been designed to support aviation small emitters to more efficiently report for EU ETS, the facility has not been used by many aircraft operators. The majority of the operators used the SET (Small Emitters Tool). The results corroborate with the information obtained from EUROCONTROL that the ETS-SF

is not used by many operators. Based on the feedback provided to the project by small emitters, most operators already set up their system for Monitoring and Reporting emissions and obtained approval for their Monitoring Plan before the ETS-SF was available in February 2011. Basically, the facility became available too late for many operators to benefit from it and the EUR 400 fee was perceived as too expensive in combination with changing their Monitoring and Reporting system afterwards.

Table 14: Overview of costs per fuel consumption method

Method (2011)	# Ops	Total costs (EUR)	Costs verifier	# Ops	Total costs (EUR)	Costs verifier
	Single non-commercial operator			Management / Service Company		
ETS SF	3	12,700	737	1	9,900	1,000
Method A or B	4	11,581	838	7	10,064	636
Small Emitters Tool (SET)	31	12,518	1,730	85	5,964	1,203

For single operators it seems that total costs are not influenced by the fuel calculation method used. It appears that management / service companies have efficiently designed and implemented a system to use the SET. The average costs when using the SET are 50% lower in case this is facilitated by management / service companies. This could be explained by the fact that most operators using the SET while not being connected to management / service companies use the SET manually (manual input of aircraft type and distance for a flight in the tool and manually copying the output in the EU ETS data set) which could be time consuming and error prone. We also understand that issues have been identified due to the fact that the SET has been updated several times during the reporting year and during the reporting and verification process in the beginning of 2013 for the 2012 reporting year. This could be a reason that verification costs are relatively high for these operators using the SET. Interestingly, verification seems to be more efficient when the ETS-SF is used compared to the use of the SET.

1.4.5. Non-recurring costs Member States

During the introduction year of EU ETS in aviation different types of costs have been incurred by Member States and operators relating to non-recurring costs to implement the system. For the implementation of the registry obligations for the reporting year 2012, also one-off costs have been incurred to setup registry accounts and processes. Table 15 provides an overview of the non-recurring cost items for Member States identified for this project and a rationale why these costs are considered one-off.

Table 15: Overview of non-recurring cost items for Member States

Category	Rationale	Cost components
2010 Initial preparation	Member States needed to understand the EU ETS requirements, implement the Directive and MRG in national legislation and implement the EU ETS competent authorities' function. This was a one-off cost component for the 2010 reporting year.	Initial preparation for implementation (identification of operators, change of systems & tools, change of legislation)
2010 workshops	Informing operators and verifiers to provide guidance on the EU ETS requirements and to ask questions as	Organising workshops for operators and verifiers

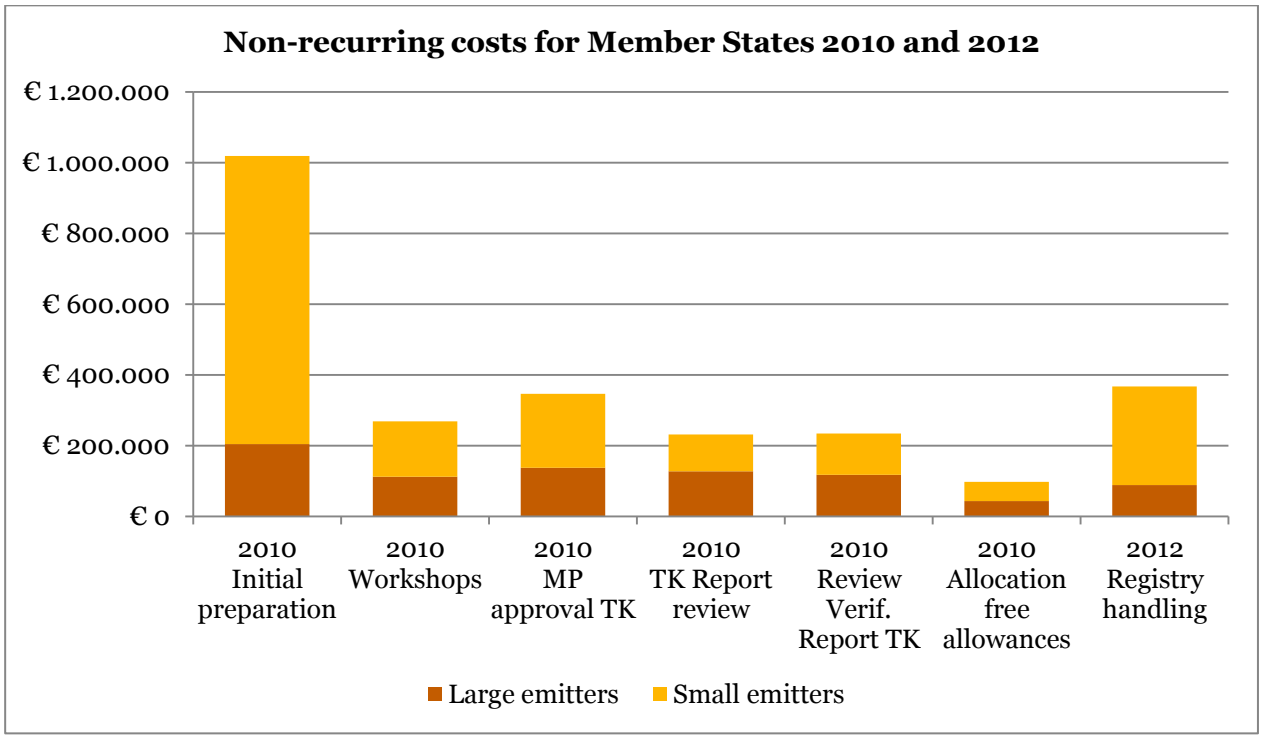
Category	Rationale	Cost components
	the system was new for everybody. This was a one-off cost component for the 2010 reporting year.	
2010 MP approval TK	Tonne-Kilometres (TK) needed to be reported only in 2010, not in the subsequent years. So the efforts related to Tonne-Kilometres are considered one-off.	Assessing / reviewing and approving 2010 TK monitoring plans
2010 TK Report Review	Tonne-Kilometres (TK) needed to be reported only in 2010, not in the subsequent years. So the efforts related to Tonne-Kilometres are considered one-off.	Assessing / reviewing and accepting 2010 TK Reports
2010 Review Verif. Report TK	Tonne-Kilometres (TK) needed to be reported only in 2010, not in the subsequent years. So the efforts related to Tonne-Kilometres are considered one-off.	Assessing / reviewing and accepting 2010 Verification Reports related to 2010 TK Reports
2010 Allocation of free allowances	Based on the 2010 TK reports, free allowances have been calculated and granted to aircraft operators for 2012 and the entire period of Phase III of EU ETS (except for special reserve applications, which have not taken place yet)	Calculation of free allowance for aviation small emitters that have filed a verified 2010 TK report and arranging for provided free allowances in the Registry Accounts of small emitters.
2012 Registry handling	The introduction of Phase III and the Union Registry for aircraft operators, caused one-off costs for the implementation, which do not need to be made in the subsequent years	Member States needed to implement the registry for aircraft operators, including small emitters. Costs have been made to implement the registry regulation in national legislation, providing guidance and explanations for small emitters on the requirements, reviewing application forms and documents and performing as a helpdesk to answers questions from small emitters about compliance with setting up the accounts and how to use them.

1.4.5.1. Main non-recurring cost components for Member States for small emitters have been preparations and registry setup

Member States spent a significant amount of time in the initial preparation of EU ETS for aviation. This includes identification of operators and communicating with these about the requirements. This also includes time and costs for changing legislation, designing and implementing systems and tools etc. Member States indicated that it has been extremely time consuming to communicate with small emitters about the EU ETS requirements and to achieve a high level of compliance. Figure 10 provides an overview of the total gross costs of non-recurring cost items for Member States.

For most non-recurring cost items, Member States spent relatively similar amounts of time and costs for large and small emitters. The results show that for the approval of Tonne-Kilometre Monitoring Plans more time is spent on small than on large emitters. Similarly to the feedback we received for the Annual Emissions Monitoring Plans, this could indicate that small emitters had difficulties in preparing compliant Monitoring Plans. Member States indicated that handling the setup of registry accounts for small emitters has been very time consuming. The results support the input from Member States as it appears that handling registry accounts for small emitters has been more than three times as costly as for large emitters. Many small emitters struggled to open their registry accounts in time.

Figure 10: Overview of non-recurring costs for Member States



1.4.6. Non-recurring costs for small emitters

Similarly to Member States, small emitters also indicated having incurred non-recurring costs of compliance with EU ETS. Table 16 provides an overview of the non-recurring cost items for small emitters identified for this project and a rationale why these costs are considered one-off.

Table 16: Overview of non-recurring costs for small emitters

Category	Rationale	Cost components
2010 TK MP costs	Aircraft operators had the possibility to apply for free allowances for 2012 until 2020 based on a 2010 TK Report. This application was a one-off exercise.	Gain understanding about the requirements for Tonne-Kilometres (TK) and EU ETS, appointing responsible persons, design of the monitoring system for TK and preparation of the TK Monitoring Plan
2010 Implementation TK monitoring and reporting	Aircraft operators had the possibility to apply for free allowances for 2012 until 2020 based on a 2010 TK	Implementation of the approved MP by setting up monitoring and reporting procedures, setting up IT systems,

Category	Rationale	Cost components
	Report. This application was a one-off exercise.	instruct staff.
2010 Monitoring and reporting TK	Aircraft operators had the possibility to apply for free allowances for 2012 until 2020 based on a 2010 TK Report. This application was a one-off exercise.	Data gathering and validation related to TK components (distance, number of passengers, weight of passengers, weight of cargo), preparation of TK Report (TKR)including correct aggregation of data and ensuring matching between number of flights between AER and TKR.
2010 Verification TK	Aircraft operators had the possibility to apply for free allowances for 2012 until 2020 based on a 2010 TK Report. This application was a one-off exercise.	Costs for verification of TKR, including time spent and travel expenses.
2012 Registry setup costs	2012 was the first year aircraft operators had to surrender allowances in the registry. In order to be able to surrender allowances, registry accounts had to be set up. One-off costs have been incurred for setting up the accounts.	The registry setup process consisted of gaining understanding about the registry setup requirements, preparing (online) application forms, collecting formal and notarised information about the company, its senior management and account representatives (including criminal records, legalised ID information and bank statements). Based on review of the registry administrators of Member States, many aircraft operators were required to provide additional explanations or documents to complete the process.

1.4.6.1. Registry setup costs is the main non-recurring cost component for small emitters

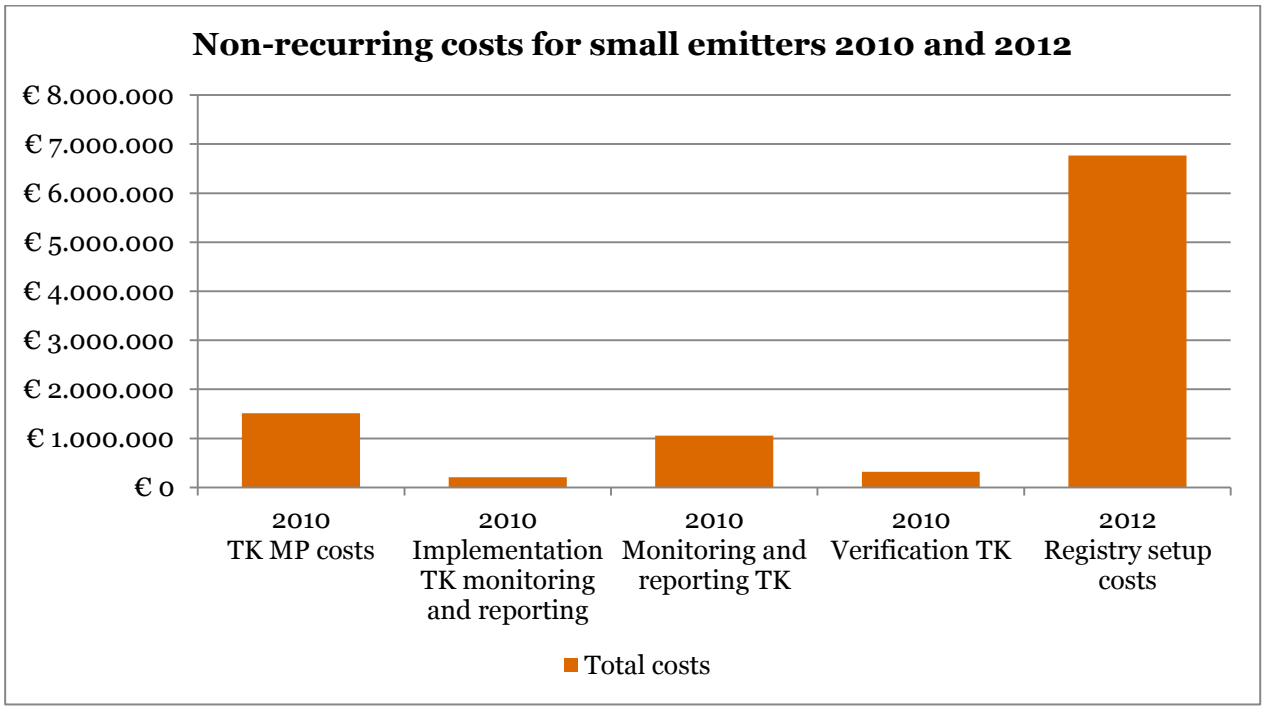
Based on the input provided by Member States in the surveys, 60% of the small emitters submitted a Tonne-Kilometres Report for 2010. Based on the cost information provided by small emitters, the costs for the preparation of the Monitoring Plan and Monitoring and Report Tonne-Kilometres are the main cost components related to the application of free allowances.

The input provided by the small emitters in the cost surveys corroborate with the oral and written feedback from aircraft operators about the complexity of opening aircraft operator holding accounts and setting up carbon management functions. Based on the number provided by small emitters, the total projected costs to setup registry accounts for small emitters are around EUR 6.8 million. This amount is of similar order of magnitude as the total projected recurring costs of compliance for small emitters. Especially for non-EU based operators, registry setup has been onerous, for example it seems very difficult, time consuming and costly to obtain criminal records in the US. We understand costs for these activities have exceeded EUR 10,000 (for time spent and out-of-pocket expenses) for single operators to fulfil these requirements. Also, for many non-commercial operators we understand it was difficult to provide information about the ultimate owner of the aircraft for legal and commercially sensitiveness of that information.

Other cost in addition to the information provided above as mentioned by aviation small emitters include (but are not limitative):

- Notarising passports of executive personnel;
- Notarising prove of legal entity of aircraft operator;
- Obtaining formal bank statements;
- Filling in multiple detailed forms and obtaining signatures from executive personnel;
- Filling in submission forms in systems.

Figure 11: Overview of non-recurring costs for small emitters



1.4.7. Cost saving potential

1.4.7.1. Potential for Member States

Based on the cost assessment, table 17 provides an overview of the areas where simplifications, alternative thresholds and alternative means of regulation emissions for small emitters could be beneficial for the Member States from a cost perspective. For each area the table provides the rationale and a reference to the section in the report where the assessment of the cost reduction potential is described.

Table 17: Overview of areas where cost saving would be beneficial for Member States

Cost reduction potential	Rationale	Follow up
Means of regulation in general (exclude small emitters from full EU ETS compliance)	71% of costs incurred by MS is to regulate 0.8% of aviation emissions High cost to identify and communicate with SE, many still not compliant Risk of high enforcement costs due to low level of compliance	Section 4
Delegation of tasks (not responsibilities) to more experienced or better staffed MS	Relatively costly to regulate only a few aircraft operators in Member States	Section 2
Share knowledge and best practices	Large share of time spent on helpdesk functions in most MS	Section 2
Simplified MP templates for aviation small emitters	Significant amount and time is spent in MS for approval of MP's for small emitters	Section 2
Simplify registry compliance for aviation small emitters	Significant amount and time is spent in MS for registry handling for small emitters	Section 2

1.4.7.2. Potential for aircraft operators

Based on the cost assessment and the various angles that the project team has reviewed the costs, table 18 details the identified areas where cost reduction is most beneficial for aircraft operators when regulating emissions for small emitters. For each area the table includes the rationale and a reference to the section in which the assessment of the cost reduction potential is described.

Table 18: Overview of areas where cost saving would be beneficial for small emitters

Cost reduction potential	Rationale	Follow up
Means of regulation in general (exclude small emitters from full EU ETS compliance)	Cost of compliance for aviation small emitters 46 times higher than for large emitters	Section 4
Facilitation by service company	Monitoring, reporting, verification & registry compliance facilitated by service companies for larger groups proves to be cost efficient	Section 2
Increase the use of ETS-SF	Compliance can be more efficient when using the ETS-SF, especially verification	Section 2
Simplify MP, implementation and reporting procedures	Relatively high amount of fixed cost, efficiency could be improved	Section 2
Simplify registry setup requirements	Extremely costly to setup accounts, many operators currently without account	Section 2
Harmonisation between Member States	Differences exist in average costs of compliance per Member State for small emitters.	Section 2
Simplified MP templates for aviation small emitters	Preparation and review of MP's for aviation small emitters relatively time consuming, while EU ETS monitoring & reporting processes in themselves are relatively simple	Section 2
Harmonise fees	Application and levels of fees vary greatly between Member States. Fees should enable efficiency and not lead to differences in total costs between aircraft operators reporting to different Member States	Section 1

The areas mentioned above will be included in the detailed assessment in the other tasks which are detailed in separate sections. However, harmonisation of fees is not considered as being a simplification, threshold or alternative means of regulation. The main challenge with harmonisation of fees is that with respect to this element each Member State is autonomous and to an extent free to choose its way of financing the EU ETS implementation. This means that fees will be charged based on national legislation and may be left to discretionary decisions per Member State. The EU law contains broad principles on fees, for example Article 11 of the Registry Regulation mentioning that national administrators may charge reasonable fees. Although this provides guidance for Member States, the extent to which fees are reasonable is still subject to interpretation, leaving room for differences between Member States. Especially for aviation small emitters, the fees charged on top of the time they have to spend and verification costs are in some Member States considered significant and disproportionate by the aircraft operators. The Task Force Aviation or Working Group III of the Climate Change Committee could contribute to explore the options for reconsidering the (level of) Member State fees for aviation small emitters. The potential areas of simplifications mentioned above, will be assessed in more detail in the other tasks.

2. Exclusion thresholds

2.1. Objective

Annex I of the Directive describes thresholds for exclusion of certain types of flights, aircraft and aircraft operators. The objective of this task is twofold, assessing the impacts of these current thresholds and analysing the impact of potential alternative thresholds.

The following current thresholds are subject of the assessment for this project:

- Annex I (h): flights performed by aircraft with a certified maximum take-off mass (MTOM) of less than 5,700 kg
- Annex I (i): flights performed in the framework of public service obligations ("PSO") imposed in accordance with Regulation (EEC) No 2408/92 on routes within outermost regions, as specified in Article 299(2) of the Treaty, or on routes where the capacity offered does not exceed 30 000 seats per year;
- Annex I (j): flights which, but for this point, would fall within this activity, performed by a commercial air transport operator operating either:
    - fewer than 243 flights per period for three consecutive four-month periods; or
    - flights with total annual emissions lower than 10,000 tonnes per year.

The impact assessment of 2006[4] includes a detailed analysis of the MTOM threshold and briefly mentions PSO flights. The *de minimis* thresholds for flights and emissions were not included in the 2006 assessment.

Key questions for this task include:

- What is the impact of the current exclusion thresholds?
- What would the impact be if these threshold values change?
- What would be the impact of other alternative thresholds?

[4] Impact Assessment of the inclusion of aviation activities in the scheme for greenhouse gas emission allowance trading within the Community,{COM(2006) 818 final},{SEC(2006) 1685}

2.2. Activities

Table 19: Activities for analysing exclusion thresholds

Nr	Subject	Activities
1	**Assess options**	• Assess impacts of current thresholds • Detail options for alternative thresholds • Assess options for alternative thresholds and exclusion categories (Feasibility and need for MRV)
2	**Collate emissions and cost data**	• Gather emissions and high level cost data from publicly available sources • Obtain additional data from EUROCONTROL • Estimate projected cost for MRV and for parameters
3	**Assess impact of thresholds**	• Assess impacts of changes to current thresholds (environmental, MS costs, operator's costs, competitive distortion) • Identify potential alternative thresholds • Consider micro enterprises
4	**Assess competitive distortion**	• Assess impacts of alternative thresholds on competitive markets between commercial and non-commercial operators • Validate results with WG3 and/or TF Aviation and associations

2.3. Reflection on approach

The results of the cost assessment and the analysis of the trajectories provide insight in the areas where changes to the application of EU ETS would be most beneficial from a cost perspective and what the potential impact on the environmental would be. We have received information from EUROCONTROL to obtain insights in what will happen to the number of aircraft operators and the CO_2 emissions included in EU ETS if exclusion thresholds would be changed. EUROCONTROL provided the following information to the project:

- A list of all aircraft operators that operated flights in the EU in 2010, 2011 and 2012 (anonymised);
- Administering Member State per operator;
- Type of operator (Commercial, Non-Commercial)
- Total number of flights per year full scope and under stop-the-clock;
- Total estimated emissions per year full scope and under stop-the-clock.

Based on the impact assessment of 2006, we have analysed the current and potential alternative MTOM threshold. We validated the results with assessments carried out by UK and Germany on this threshold.

We have examined other legislations related to regulating emissions in aviation (US, Switzerland, New Zealand and Australia) to identify potential other types of exclusion thresholds. In addition, we analysed other types of EU legislations (e.g. REACH) to obtain insight in examples how small participants could be treated. This provided the project team with an answer to the specific subtask 4 about other regulations and small participants.

2.4. Results

This sub-section details for each of the current exclusion categories the impact of the thresholds following by the potential impact of changing these thresholds.

2.4.1. Exclusion thresholds based on flights and emissions

Annex I (j) of the Directive stipulates that commercial aircraft operators are excluded from EU ETS if they operate fewer than 243 flights per period for three consecutive four-month periods or operated flights with total annual emissions lower than 10,000 tonnes per year. Commercial aircraft operators are included in EU ETS for the calendar year in which one of the two aforementioned thresholds is exceeded. The number of flights and emissions may be difficult to predict for individual aircraft operators and varies between years. Therefore Member States need to evaluate which commercial aircraft operators are included in EU ETS based on number of flights and total CO_2 emissions on an annual basis. Especially for aircraft operators with number of flights and total emissions close to the thresholds it could become clear at the very end of the calendar year of reporting whether or not they have to comply with EU ETS. This could lead to difficulties in terms of timely preparations of the operator that did not prepare during the year or unnecessary costs incurred for operators that did prepare, but stayed just below both thresholds.

2.4.1.1. Current flights and emissions thresholds are effective for commercial aircraft operators only

Regulating 98.6% of commercial EU aviation emissions covers for 31% of the commercial operators

Contrary to the fixed MTOM and PSO exclusion thresholds, a combination of thresholds for flights and emissions applies for the size of the annual operations for commercial operators. Table 20 shows the number of operators in different categories and their total emissions for EU flights for 2012. 69% of all commercial aircraft operators (691 operators) were excluded from EU ETS in 2012 based on the combination of thresholds for flights and emissions at an environmental expense of 1.4% of the total commercial aviation emissions for EU flights. Focussing EU ETS for commercial operators on the large emitters seems to be effective from a cost perspective, as costs are incurred for 31% of the commercial operators covering 98.6% of the EU emissions for commercial aviation.

Table 20: Number of operators and total emissions per type 2012

Type	Size	# Operators	CO_2 (Mt)	Share CO_2	Exempted
Commercial	Large	309	227.3	97.1%	No
Commercial	Small	691	3.3	1.4%	Yes
Non-commercial	Large	24	1.5	0.7%	No
Non-commercial	Small	2,533	1.9	0.8%	No
Total		**3,557**	**234.0**	**100%**	

Source: Activity data obtained from EUROCONTROL

Threshold for flights would exempt more aircraft operators than threshold for emissions

EU wide information about the threshold for number of flights related to the cut-off of 243 flights for three consecutive four-month periods for each aircraft operator was not available. Therefore, to assess the impact of this threshold, we used the 2012 activity data of EUROCONTROL and assumed that the application of the threshold based on 729 flights annually would give a similar result as the formal threshold applied by individual Member States.

Table 21 shows that 544 commercial small emitters (79%) in 2012 are excluded based on both number of flights and emissions. 97 operators (14%) exceeded the threshold of two daily EU flights but emitted less than 10,000 tCO_2 and 50 commercial small emitters (7%) emitted more than 10,000 tCO_2 by operating fewer than 729 flights annually. Looking at the total amount of operators that would be excluded if these thresholds would apply separately, the threshold for number of flights would be slightly more effective (8%).

Table 21: 2012 EU activity of commercial aircraft operators

# flights / tCO_2	< 729	≥ 729	Total
≤ 10,000	544	97	**641**
> 10,000	50	309	**359**
Total	**594**	**406**	**1,000**

Source: Activity data obtained from EUROCONTROL

Lack of exclusion threshold on flights and or emissions for non-commercial operators is costly
Applying the current exclusion thresholds for number of flights and total emissions only on commercial operators leads to the inclusion of 2,533 non-commercial small emitters (99% of all non-commercial operators). In total, this group contributes to 0.8% of all EU aviation emissions (see table 31 above).
Under the assumption that future developments in aviation do not lead to a different balance in emissions contribution between commercial and non-commercial aircraft operators, it seems that the decision to include non-commercial small emitters was not based on environmental arguments. The excluded 69% of commercial operators together emitted 1.4 $MtCO_2$ more on EU flights than the non-commercial operators, while the latter group is more than 3 times bigger.

The assessment in section 1 shows that the total cost to regulate 34% of the non-commercial aircraft operators amounts to EUR 9.4 million. Putting this amount in perspective, the results show that the costs of compliance per tCO_2 are on average EUR 46 for a small emitter, while the average costs per tCO_2 for a large emitter is most likely below EUR 1. Large operators on average obtained free allowances for around 80% of their total annual emissions (large emitters on average emitted more than 600,000 tCO_2 in 2012 according EUROCONTROL's activity data). In addition the share of fixed costs of compliance for EU ETS related to their annual emissions are significantly lower than for small emitters. Furthermore, based on expert judgement the project team assumes that large operators incur salary costs of less than two FTE for EU ETS on average. Large operators can benefit from economies of scale leading to significantly less costs per tCO_2 emitted for EU ETS.

Based on the comparison between small and large emitters it can be concluded that the current exclusion thresholds for flights and emissions lead to relatively high total and average costs to regulate small emitters.

Section 1 also shows that 66% of the non-commercial small emitters failed to complete their 2012 obligations for EU ETS by 1 May 2013. This indicates that most small emitters have difficulties with fulfilling the obligations, despite the fact that 2012 was the third year of EU ETS in aviation for monitoring, reporting and verification. On top of the costs already made, significant additional efforts are most likely needed at the side of Member States to enforce compliance for the large group of currently non-compliant operators, which themselves will have to incur costs to fulfil their 2012 obligations. Extrapolating the total costs to all small emitters under the current legislation would dramatically increase these to EUR 27.6 million, excluding the enforcement costs for which we did not receive quantitative information.

Current thresholds lead to marginal impact on competitive distortion
The current thresholds on flights and emissions could lead to competitive distortion for commercial aviation. Operators just below one of the thresholds could benefit from cost savings by not having to comply with EU ETS compared to competitors on similar routes that are included in the system. The impact is impossible to quantify based on the data obtained during this project. However, we did not receive any information during this project indicating that this market distortion is a major issue currently.

For non-commercial operators, the impact on the competitive market is likely to be limited to instances where for example business aviation competes with commercial aviation or where a large non-commercial operator competes with a commercial small emitter. A distortion on the market could occur when passengers shift from non-commercial operators to commercial operators due to EU ETS. Given the advantages on non-commercial aviation in terms of flexibility, timing and comfort in combination with the relatively low costs of EU ETS compared to the total operating costs of non-commercial aircraft, a major shift to commercial aviation is not expected.

2.4.1.2. Changing thresholds for flights and emissions seems highly beneficial

This subsection analyses the implications of changes to the current thresholds on the number of flights and the amount of emissions. The analysis builds on activity data provided by EUROCONTROL on the number of flights and emissions per operator in the geographical scope of the EU ETS in 2010, 2011 and 2012 in combination with the information about costs from section 1. This sub-section starts with an analysis of the impacts of extending the application of current thresholds for commercial operators to non-commercial operators, followed by the analysis of the impacts of changes to the thresholds on the number of flights and the amount of emissions.

Any changes to the current threshold would require a change to the Annex I (j) of the Directive and a change to the Commission decision 2009/450/EC[5]. Such changes may not be complex from a technical perspective, but would mean that a usually lengthy process has to be competed including approval by the European Parliament in order to implement such proposed changes. It is likely that formal impact assessments would be required to be carried out on the impacts of any proposed changes.

Extending the current thresholds to non-commercial operators would result in major benefits
Many aircraft operators and Member States suggested extending the scope of the flights and emissions thresholds also to non-commercial operators. Such an extension of scope of the threshold would mean that based on 2012 activity data, 2,533 non-commercial aircraft operators would be excluded from EU ETS. Table 22 below details the impact of the exclusion of this large group of operators.

[5] COMMISSION DECISION of 8 June 2009 on the detailed interpretation of the aviation activities listed in Annex I to Directive 2003/87/EC of the European Parliament and of the Council (notified under document number C(2009) 4293) (Text with EEA relevance) (2009/450/EC)

Table 22: Impact of extension of current flights and emissions thresholds to non-commercial operators

Impacts	Current scope	Alternative option	Impact (absolute)	Impact (%)
# of operators included	2,866	333	(2,533)	(88%)
Emissions regulated ($MtCO_2$)	230.7	228.8	(1.9)	(0.8%)
Total projected annual costs for Member States (EUR)	1,481,000	0	(1,481,000)	(100%)
Total projected annual costs for operators (EUR)[6]	26,090,000	0	(26,090,000)	(100%)
Impact on competitive markets	Very limited	Very limited	-	-

Extending the current thresholds to non-commercial operators would exempt 88% of the operators currently included, amounting to EUR 27.6 million at an environmental expense of 0.8% of the current emissions in scope of EU ETS. The factual environmental impact of excluding non-commercial small emitters compared to the cost savings would be marginal. However, including non-commercial operators in EU ETS in the past seems not to be based on factual environmental impact. Therefore the perceived environmental impacts of potentially excluding 99% of non-commercial operators from the EU ETS should be assessed. In case reducing the amount of operators and emissions in scope of EU ETS, regardless of the amount of the reduction, would be considered as not acceptable, section 4 provides an analysis of the alternative options for regulating the emissions that would be excluded by this option.

Potential market distortion could be introduced by this option, for example related to choosing between owning and operating a private aircraft or participating in a fractional ownership scheme. Aircraft with fractional ownership are probably used more intensively and consequently these are more likely to be above a threshold (we do not have the data to validate this assumption). Hence, introducing a threshold for non-commercial operators could increase the cost of a fractional ownership scheme relative to owning a private aircraft. However, we believe that other factors are more important than price in this choice, such as availability of the aircraft and flexibility, and that therefore the impact on the market would be minimal for this option.

Alternative exclusion thresholds for number of flights for non-commercial operators seems promising

The aforementioned option of extending the current exclusion threshold for number of flights to non-commercial operators would exclude almost the whole group of small emitters currently included in EU ETS. Table 23 provides an overview of the number of non-commercial operators, the emissions and projected costs under different scenarios of potential exclusion thresholds based on number of flights.

Table 23: Overview of operators, emissions and costs under different exclusion thresholds for flights

# of flights annually	≤12	≤26	≤52	≤104	≤365	≤729	≤1,094	N/A
# of Non-commercial operators	1,223	1,609	1,965	2,208	2,455	2,513	2,525	2,557
Share of non-commercial operators	48%	63%	77%	86%	96%	98%	99%	100%
Emissions ($MtCO_2$)	0.1	0.2	0.4	0.7	1.2	1.9	2.2	3.4
Emissions (% of current EU ETS scope)	0.04%	0.09%	0.17%	0.30%	0.52%	0.8%	0.95%	1.48%

[6] Costs for operators and Member States for the assessment of exclusion thresholds are based on projected costs assuming 100% compliance.

# of flights annually	≤12	≤26	≤52	≤104	≤365	≤729	≤1,094	N/A
Projected cost savings Member States (EUR million)	0.7	0.9	1.1	1.3	1.4	1.5	1.5	1.5
Projected cost savings small emitters (EUR million)	12.6	16.6	20.2	22.7	25.3	25.9	26.0	26.3

Interestingly, almost half of the non-commercial operators operate a maximum of one EU flight each month on average and more than 95% operates not more than one EU flight per day. This means that any exclusion threshold for non-commercial operators higher than 1 flight per month on average would lead to exclusion of a very large group of operators and thus to major cost savings. Any threshold below one flight per day on average would have an environmental impact of less than 1 $MtCO_2$ (0.5%). This is considered a fraction compared to the 230.6 $MtCO_2$ currently included in aviation. Table 24 details the impacts of potentially introducing an exclusion threshold based on flights for non-commercial operators between 12 and 365 annually.

Table 24: Potential impact of flights thresholds to non-commercial operators

Impacts	Current scope	Alternative option (≤365-≤12)	Impact (absolute)	Impact (%)
# of operators included	2,866	411 – 1,643	(2,455) – (1,223)	(86%) – (43%)
Emissions regulated ($MtCO_2$)	230.7	229.5 – 230.6	(1.2) – (0.1)	(0.52%) – (0.04%)
Total projected annual costs for Member States (EUR million)	1.5	0.1 – 0.8	(1.4) – (0.7)	(96%) – (48%)
Total projected annual costs for operators (EUR million)	26.1	0.7 – 13.4	(25.3) – (12.6)	(96%) – (48%)
Impact on competitive markets	Very limited	Very limited	-	-

Introducing an exclusion threshold for non-commercial operators based on flights between 12 and 365 flights on average per annum, would lead to cost reductions between EUR 12.6 million and EUR 25.3 million in total, relieving a large group of operators from administrative complexity at a marginal factual environmental expense. Similar to the previously analysed option about extending the current thresholds to non-commercial operators, the perceived environmental impact should be taken into account and the potential impact on competitive markets would be limited.

Introducing exclusion thresholds for non-commercial operators based on emissions would be highly beneficial

We have analysed the impacts of different potential exclusion thresholds based on annual CO_2 emissions for non-commercial operators. Table 25 details the results of the analysis which was based on 2012 activity data provided to the project by EUROCONTROL.

Table 25: Potential impact of emissions thresholds to non-commercial operators

Annual emissions (tCO_2)	10	100	500	1,000	10,000	25,000	All
# of Non-commercial operators	191	1,002	1,882	2,201	2,513	2,530	2,557
Share of non-commercial operators	7%	39%	74%	86%	98%	99%	100%
Emissions ($MtCO_2$)	0.00	0.04	0.26	0.49	1.26	1.53	3.42
Emissions (% of current EU ETS scope)	0.00%	0.00%	0.11%	0.21%	0.55%	0.66%	1.48%
Projected cost savings Member States (EUR million)	0.1	0.6	1.1	1.3	1.5	1.5	1.5
Projected cost savings small emitters (EUR million)	2.0	10.3	19.4	22.7	25.9	26.1	26.3

86% of all non-commercial operators emit less than 1,000 tCO_2 annually. This large group of operators could be considered as very small emitters as their annual environmental impact is 10 times below the cut-off of de small emitter definition for this project (10,000 tCO_2). Based on the results of the analysis, a 1,000 tCO_2 exclusion threshold could be a promising alternative for the current situation and a potential extension of the current emissions threshold to non-commercial operators.

2.4.2. Exclusion threshold based on MTOM

Aircraft having a certified MTOM of less than 5,700 kg are excluded from EU ETS. The MTOM is a fixed figure and therefore it is easy to determine whether the MTOM of an aircraft is below or above the threshold. Contrary to the thresholds on flights and emissions, there is no distinction between commercially and non-commercially used aircraft.

2.4.2.1. Current MTOM threshold leads to minor issues with commercial helicopters

The MTOM threshold leads to exclusion from EU ETS of most very light small aircraft used for very short domestic non-commercial flights. The stakeholders for this project did not report major issues arising by the current threshold in terms of emissions, costs and distortion of competitive markets.

We understand from the UK Environment Agency that the UK and Norway face some issues with commercial helicopters exceeding the MTOM threshold. It appears that the nature of their operations (many very short flights not to official airports with different fuel monitoring procedures than airplanes) lead to difficulties in compliance with EU ETS requirements on monitoring and reporting. As this group of operators is rather small (supposedly 3 operators in the UK) this may perceived as a minor issue in terms of impact on the total EU ETS.

We understand from the aviation industry that competitive distortion is currently not an issue, mainly because no commercially used aircraft are excluded based on MTOM. Excluding these aircraft by raising the threshold would lead to distortion on competitive markets as aircraft operators operating lighter aircraft on popular routes would benefit from not having the EU ETS obligation compared to those that would have to comply. For business aircraft, the impact on competitive markets is less likely to occur due to EU ETS. Their operations primarily focus on time, flexibility and comfort, whereas for commercial purposes selling seats, cost efficiency

and profitability of flights are more important. The costs of EU ETS could have impact on the profitability of the commercial airline.

2.4.2.2. Raising the MTOM threshold could potentially be beneficial

Any changes to the current threshold would require a change to the Annex I (h) of the Directive and a change to the Commission decision 2009/450/EC[7]. Such changes would not be complex from a technical perspective, but would mean that a usually lengthy process has to be competed including approval by the European Parliament in order to implement such proposed changes. It is likely that formal impact assessments would be required to be carried out on the impacts of any proposed changes.

Raising the MTOM threshold could be cost effective at minimal environmental expense

There is no quantitative EU wide data available combining MTOM information with flights and emissions information. We have based our analysis of the impacts of raising the MTOM exclusion threshold on a study performed by the UK Civil Aviation Authority in 2013 for the UK with 2012 EU ETS data and a study performed by the DLR in Germany in 2013 based on 2010 reported data for EU ETS for Germany.

Table 26 demonstrates the results of both studies and provides an overview of the impact on the number of aircraft operators and their CO_2 emissions that would be excluded below certain thresholds.

Table 26: Operators and CO_2 emissions below alternative MTOM thresholds in the UK and Germany

Country	MTOM (kg)	# non-commercial operators	% non-commercial operators	CO_2 emissions	% CO_2 emission (non-commercial)	Commercial aircraft below this MTOM
UK (2012)	< 7,500	29	4%	7,319	2%	none
	< 10,000	53	8%	16,532	4%	none
	< 12,000	68	10%	18,239	4%	BAE Jetstream 41, Embraer 120
	< 14,000	109	16%	26,999	6%	Saab SF340A
	< 15,000	113	17%	27,897	6%	Dash 8-100 (DH8C)
	< 20,000	207	31%	47,722	11%	ATR42, Embraer 135 & 145, Dash 8-300
	> 20,000	469	69%	403,110	89%	
	Total	**676**	**100%**	**450,832**	**100%**	
DE (2010)	< 14,000	44	59%	25,000	26%	Saab SF340A
	Total	**75**	**100%**	**96,153**	**100%**	

Source: UK CAA 2013 (UK ETS data 2012) and DLR 2013 (German ETS data 2010)

Raising the exclusion threshold to 10,000 kg, would exclude 8% of the non-commercial operators administered by the UK (4% of the UK non-commercial CO_2 emissions). This would relieve 53 operators from compliance to the UK with minimal environmental impact (0.02% of total 2012 UK aviation CO_2 emissions). This alternative threshold would not lead to potential market distortion as no commercially used aircraft have MTOM below 10,000 kg.

[7] COMMISSION DECISION of 8 June 2009 on the detailed interpretation of the aviation activities listed in Annex I to Directive 2003/87/EC of the European Parliament and of the Council (notified under document number C(2009) 4293) (Text with EEA relevance) (2009/450/EC)

There appears to be a large difference in the use of aircraft between the UK and Germany, demonstrated by a potential 14,000 kg MTOM threshold. Where in the UK 16% of the non-commercial operators operate aircraft below this threshold (6% of non-commercial emissions), 59% of the non-commercial operators administered by Germany would be excluded by this alternative threshold, contributing to 26% of the non-commercial emissions in Germany. The difference is likely caused by the fact that most US based non-commercial operators, operating relatively heavier aircrafts than European based non-commercial operators, are administered by the UK. Extrapolation of the impacts of potential different MTOM thresholds to the other EU countries is not possible based on the UK numbers and the information obtained for this project. In order to quantify the EU wide impact of potentially raising the MTOM exclusion threshold, activity data on flights and emissions would need to be combined with MTOM information per Member State. Based on EU ETS activity data and route charge information, EUROCONTROL would potentially be able to provide this data for further analysis.

Maximum seat capacity in combination of increased MTOM threshold could avoid potential market distortion for commercial aviation

The current MTOM threshold leads to the exclusion of aircraft only used for non-commercial purposes (business aircraft). Table 27 shows the MTOM of different commercial and business aircraft. Any threshold above 10,885 kg would exclude aircraft used for commercial purposes.

Table 27: MTOM of selected business and commercial aircraft

Commercial Aircraft	MTOM[8] (kg)	Business Aircraft	Commercial Aircraft	MTOM (kg)	Business Aircraft
	6,291	Citation 525B		18,461	Falcon 2000
	7,394	Hawker Beech 400	Dash 8-300	18,643	
	8,150	Phenom 300	Embraer 135	19,000	
	8,165	Learjet 35/36	Embraer 145	19,990	
	9,163	Citation 560XL	ATR72[9]	20,000	
	9,299	Learjet 45		20,457	Challenger 601
	10,478	Learjet 60		20,639	Falcon 900
BAE Jetstream 41	10,886			21,591	Challenger 604
Embraer 120	11,500			22,000	Embraer Legacy 600
Saab SF340A	12,370		Saab 2000	22,800	
	12,428	Hawker 800	Bombardier CRJ200	22,995	
	13,000	Falcon 20	Dash 8-400	28,998	
Dash 8-100	14,969			31,298	Falcon 7X
ATR42	15,750			32,160	Gulfstream 4
	15,808	Gulfstream 200	Bombardier CRJ900	36,500	
	16,193	Citation X (C750)		45,178	Gulfstream G650
	17,463	Bombardier BD100			

Source: http://noisedb.stac.aviation-civile.gouv.fr/find.php

[8] Note that for each aircraft type, the lowest registered MTOM (kg) has been taken
[9] Some ATR72 have a MTOM below 20,000 kg, most ATR72 have a higher MTOM

Some popular business aircraft, for example the Falcon 900 and the Gulfstream 4, have a higher MTOM than some popular regional commercial aircraft such as the ATR42, Embraer 145 and the Dash 8-300. Therefore, above 10,500 kg no clear cut-off can be made between business and commercial aircraft solely on MTOM. MTOM exclusion thresholds of 14,000 kg or 15,000 kg would not lead to issues with aircraft of a similar type falling below or above the threshold in different configurations. As the Embraer 145 and ATR 72 exist in different versions having a MTOM of just below or just above 20,000 kg, this threshold would lead to competitive distortion for commercial aircraft operators operating different versions of these aircraft. An alternative option to avoid potential distortion of competitive markets for commercial aviation could be to combine MTOM with maximum certified passenger capacity, an option which has been suggested for this project and was also included in the impact assessment of 2006[10]. Aircraft with fewer than 20 seats are generally used by non-commercial operators. Therefore, such a combined threshold would exclude only business aircraft.

This option could be considered for further analysis on potential improvement of the EU ETS and based on the information available for this project it is not possible to quantify the potential benefits.

2.4.3. Exclusion threshold based on PSO flights

The Directive describes in Annex I (i) that flights performed in the framework of public service obligations ("PSO") imposed in accordance with Regulation (EEC) No 2408/92 on routes within outermost regions, as specified in Article 299(2) of the Treaty, or on routes where the capacity offered does not exceed 30 000 seats per year are excluded from EU ETS. Member States may impose a public service obligation (air services meeting fixed standards to which the aircraft operator would not operate if he were considering nothing but his commercial interest) in respect of scheduled air services to a regional airport on a route which is considered vital for the economic development of the region.

2.4.3.1. No improvement potential identified related to PSO

Table 28 details 37 open access routes that fall under the PSO exclusion threshold, based on the PSO Inventory Table of 25 February 2013[11], published by the Commission. In total, 271 PSO routes have been published on the list. For 171 routes, access is restricted to single operators or operators with an exclusive concession, who get compensated for losses resulting from the PSO. For 63 routes, the PSO is either abrogated or not effective.

Table 28: Open access routes within Outermost Regions under a Public Service Obligation

Member State	Outermost Region	# of routes	From	To
France	French Guyana	5	Cayenne	Grand-Santi
			Cayenne	Maripasoula
			Cayenne	Saül
			Saint-Laurent-du-Maroni	Grand-Santi
			Saint-Laurent-du-Maroni	Maripasoula
Portugal	Azores	16	Corvo	Flores
			Funchal	Ponta Delgada
			Horta	Corvo

[10] Impact Assessment of the inclusion of aviation activities in the scheme for greenhouse gas emission allowance trading within the Community, {COM(2006) 818 final},{SEC(2006) 1685}

[11] http://ec.europa.eu/transport/modes/air/internal_market/pso_en.htm, accessed 28 May 2013.

Member State	Outermost Region	# of routes	From	To
			Horta	Flores
			Ponta Delgada	Flores
			Ponta Delgada	Horta
			Ponta Delgada	Pico
			Ponta Delgada	Santa Maria
			Ponta Delgada	Sao Jorge
			Ponta Delgada	Terceira
			Terceira	Corvo
			Terceira	Flores
			Terceira	Graciosa
			Terceira	Horta
			Terceira	Pico
			Terceira	Sao Jorge
Spain	Canary Island	13	Gran Canaria	El Hierro
			Gran Canaria	Fuerteventura
			Gran Canaria	La Gomera
			Gran Canaria	Lanzarote
			Gran Canaria	Santa Cruz de la Palma
			Gran Canaria	Tenerife Nord
			Gran Canaria	Tenerife Sud
			Santa Cruz de la Palma	Lanzarote
			Tenerife Nord	El Hierro
			Tenerife Nord	Fuerteventura
			Tenerife Nord	La Gomera
			Tenerife Nord	Lanzarote
			Tenerife Nord	Santa Cruz de la Palma

Source: PSO Inventory Table

We found no information available on the number of flights and emissions on these routes. Therefore, we could not quantify the impact of the current threshold. Given the fact that the amount of routes is limited to 37 and these routes are very short, it seems unlikely that the emissions originated from commercial flights on these routes amount to more than a fraction of a per cent of total aviation emissions under the EU ETS. The project team believes that the PSO threshold has very limited impact on the current EU ETS. Based on the limited amount of available information about PSO flights, we did not identify potential beneficial changes to this exclusion threshold.

2.4.4. Other options such as reducing the reporting frequency seem less beneficial

Reduction of frequency of compliance cycle for small emitters might be beneficial

Based on other situations of regulating emissions in aviation and other types of regulation within the EU on different topics, we have analysed whether other alternative thresholds could be beneficial. Based on requirements for regulating emissions in aviation the US, Switzerland, Australia and New Zealand, we did not identify other alternative thresholds that could be beneficial for EU ETS.

For none of the analysed systems involving a tax (Switzerland, US and Australia), exclusion thresholds seem to exist, apart from the fact that international flights are exempted. For the New Zealand system, an exemption threshold also applies for international flights. In Switzerland, no thresholds appear to apply on the voluntary reduction of GHG emission scheme, but the scheme seems to only currently apply to stationary installations. In the future, Switzerland plans to implement a system similar to EU ETS, where also similar exclusion thresholds as for EU ETS would apply. Australia defined 11 different thresholds of which one has to be met in order to be eligible to opt-in for the Carbon Pricing Mechanism. This does not relate to exclusion thresholds.

Based on an analysis of other EU regulations, such as the IED Directive[12], the EMAS[13] regulation and REACH, we identified one potential other type of threshold for small emitters. The EMAS regulation provides micro, small or medium-sized enterprise to report or register less frequently under certain conditions.

Reduced frequency could lead to cost savings but could add complexity too

If small emitters would be allowed to fulfil the EU ETS requirements once every two years, instead of yearly, this could potentially lead to a cost reduction of 50%, amounting to EUR 13.8 million, without environmental impact or distortion of competitive markets.

This sounds promising at first glance, but leads to certain additional complexities, such as:

- Change of the Directive, the MRR, the AVR and the Registry Regulation;
- Variance between years of operators being small or large due to change in size of activities;
- The risk of operators losing focus and knowledge about EU ETS leading to more errors and last minute issues arising during verification leading to additional costs;
- Communication issues between Member States and operators due to changes of staff;
- Changing the ETS support facility output for small emitters reflecting two years;
- Potential conditions to be set under which the reporting period could be extended, meaning that one has to keep track of who can make use of the option and who cannot.

Based on the analysis performed, this option would be beneficial from a costs, environmental an market perspective, but would create a number of issues to be solved which would be time consuming and lead to additional complexity to the EU ETS.

[12] Annex I of Directive 2010/75/EU of European Parliament and the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control), OJ 17 December 2010, L 334,17.
[13] Regulation (EC) No 1221/2009 of the European Parliament and Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC, OJ 22/12/2009, L342/1.

3. Options for simplifications

3.1. Objective

The purpose of this task is to identify and assess the options for simplifications related to monitoring, reporting and verification, as well as managing registry accounts and systems (opening, maintenance and surrendering of units for aircraft operators; daily administration of existing accounts, solving issues with credentials reviewing and approving requests for changes for Member States), without compromising the quality of the EU ETS. The assessment includes both simplifications within and beyond the current legal framework.

The cost assessment in Section 1 provides valuable insights in the areas where potential simplifications would be beneficial. We have used these insights in the assessment of the impacts.

3.2. Activities

Table 29: Activities for analysing options for simplifications

Nr	Subject	Activities
1.	**List options for simplification**	Obtain input from different stakeholders on options for simplifications via surveys, meeting with MS, meeting with EBAA, meeting with EUROCONTROL Present and discuss the options with EBAA, the Commission (registry team and MRV team), Task Force Aviation, EUROCONTROL and Working Group 3 Description of simplifications and ranking
2.	**Analyse simplifications**	Assess environmental, economic, financial and competitive distortion impact Assess legal implications Assess potential other implications (political, practical)
3.	**Propose simplifications**	Shortlist of promising simplifications Validation of options with Commission, Task Force Aviation, Associations

3.3. Reflection on approach

The Commission suggested certain specific areas of simplifications in the tender specifications for this project. We have assessed these suggestions, including the following:

- Subtask 2: Explore delegation to small aviation memberships and industry associations;
- Subtask 5: Analyse whether flexibility on the decision of who is the administering Member State for an aircraft operator might be useful;
- Subtask 6: Explore facilitation of the opening of the aircraft operator holding account;
- Subtask 9: Assess if access to small quantities of allowances should be granted.

In our assessment, we considered the guidance that was developed in 2012 to support the implementation of the MRR and the AVR. That guidance provides information on approaches that can be used for the verification of small emitters.

Before preparing a detailed list of options based on the tender specifications, input received from the online surveys and the experiences of the project team, we agreed with the Commission to discuss with the relevant stakeholders first about their ideas. Therefore, we organised a meeting with Member States on 26 February 2013 and with the EBAA and its members on 6 March 2013. In addition, we held a bilateral meeting with EUROCONTROL on 10 April. The outcomes of these meetings were positive. Based on the feedback provided by the stakeholders, it was highly appreciated that the Commission offered a real opportunity to address the main issues and to provide input on potential solutions. Several creative new ideas were brought to the table and at the same time some existing ideas were mentioned and supported by many.

During the meetings, not only simplifications were discussed, but also thresholds and alternative means of regulation. Assessing the options for simplifications from different angles provided the project team to structure the detailed observations and insights in such that a balanced view could be provided on the feasibility of each of the options.

For the most promising simplifications, the project team provided insight in the potential impact of the simplification by:

- Calculating the potential impact on the amount of CO_2 emissions regulated;
- Applying assumptions on cost saving potential for Member States and aircraft operators based on the cost information assessed in Section 1 and expert judgement on the % of potential cost savings due to the simplification compared to the total costs for all Member States and all small emitters;
- Including assumed additional investments needed to implement the change based on high level expert judgement;
- Concluding on whether the simplification leads to potential market distortion;
- Concluding on whether the simplification leads to potential changes to the legal framework;
- Concluding on whether the simplification is considered to be a quick win;
- Concluding on whether the simplification would also be beneficial if extended to large operators;
- Providing a rationale for reason why the simplification is considered promising by the project team.

3.4. Results

Based on all the potential options for simplifications, the project team observed that the options for simplification could be categorised as in table 30.

Table 30: Simplification categories

ID	Simplification category	No. of different options
C	Communication	7
D	Delegation and/or grouping	6
R	Requirements	9
Te	Templates	4
To	Tools	5
	Total	**31**

3.4.1. *Overview of options for simplification*

The project team has been asked to assess the following specific issues related to options for simplification in relation to aviation small emitters. The related options are included in the table above and below, reference is made to these options.

Table 31: Description of subtasks

Subtask no.	Description subtask	Reference
2	Explore delegation to small aviation memberships and industry associations	D1, D2, D3
5	Analyse whether flexibility on the decision of who is the administering Member State for an aircraft operator might be useful.	D5, R6
6	Explore facilitation of the opening of the aircraft operator holding account	D3
9	Assess if access to small quantities of allowances should be granted	R9

The detailed assessment of all options for simplifications identified and assessed for the project is included in Annex B. The project team assessed the options based on discussions during several stakeholder meetings, professional judgement and internal validation sessions. Apart from the requested angles to review simplifications: environmental, economic/financial and competitive distortion, the project team also assessed the potential legal implications of the options. The analysis of economic impact is supported by the identification of the main potential benefits and constraints of each option. Furthermore, the project team assessed whether options could be also beneficial for the application for EU ETS on aviation large emitters. Depending on the feasibility of the option, we have indicated which options could be considered as quick wins in terms of implementation.

Priorities in options for simplifications can be identified in the table as follows:

Not promising		Promising		Most promising	

Legal implications could vary between the types of change needed. Changing guidance or establishing bilateral agreements for example would be relatively easy to achieve. Implementing changes to the Directive would become more difficult as this would require formal processes, including approval by Member States in the Climate Change Committee. A change of the Directive would be the most radical change. This could potentially be very time consuming. The project team prepared a list of all options for simplifications identified. Each option has been ranked on environmental and economic/financial impact as well as the impact on competitive distortion. The scale of ranking applied can be found in table 32.

Table 32: Scale of rankings

		Ranking						
Subject	**Definition**	**---**	**--**	**-**	**o**	**+**	**++**	**+++**
Environmental impact	What is the impact on the total amount of CO_2 emissions regulated?	High decrease	Medium decrease	Low decrease	No impact	Low increase	Medium increase	High increase

		Ranking						
Economic impact Member States	To what extent does this option lead to cost reduction for Member States?	High increase	Medium increase	Low increase	No impact	Low decrease	Medium decrease	High decrease
Economic impact Operators	To what extent does this option lead to cost reduction for the operators?	High increase	Medium increase	Low increase	No impact	Low decrease	Medium decrease	High decrease
Impact on competitive distortion	To what extent does this option lead to a competitive distortion of the market?	High increase	Medium increase	Low increase	No impact	Low decrease	Medium decrease	High decrease

3.4.2. Most promising options for simplification

Based on the detailed assessment of all individual options and also a combination of options related to the same topic, the project team identified a number of promising options for simplification (Table 33), which are described in more detail in the sub sections below. Annex B details the assessment of all options for simplifications suggested for this project.

Table 33: Promising options for simplification

Option	Description	Legal implications
C3	EU wide front desk function for all communication with aviation small emitters	Bilateral agreements between MS
C4	Coordinated communications from Member States to small emitters	None
D1	Pooling of monitoring, reporting and verification for small emitters	Change in Directive Potential change in MRR and AVR
D6	Change of attribution of small emitters to MS	Change in Directive (article 18a), list of the Commission mentioned in Article 18a(3)
R3	Allow operators to use the ETS-SF output as basis for EU ETS reporting	Change in guidance
R5	No verification in case the ETS-SF is used	Change of Directive (Article 15 and Annex V), Assess whether it is legally possible to change only Annex V if ETS SF is considered as the verification for small emitters. However this should be carefully phrased to be in line with considerations and objectives of Directive)

3.4.2.1. EU wide front desk for all small emitters could enable more efficient communication

Background of the option

This option was suggested during the stakeholder meeting on 26 February 2013 with Member States. Member States indicated that a large share of their time spent on aviation is related to the helpdesk function for small emitters. On the other hand, aircraft operators mentioned to perceive communication with Member States to be time consuming.

How would the option work?

The idea behind this option would be to set up a centralised front desk that could serve as communication centre for all aviation small emitters. The desk could provide small emitters with relevant information and could act as helpdesk for all matters related to EU ETS. It might also be possible that the desk facilitates communication between the small emitters and the Member States, who will still be responsible for administering the individual operators. Lessons could be learned from the REACH Local Helpdesk and the Central REACH Helpdesk operated by ECHA. In this case companies are requested to submit their questions to the Local Helpdesk and in those cases where the Local Helpdesk is not able to provide a sufficient answer, the Central Helpdesk is taking over. This means that instead of requiring all Member States to be able to answer all questions, certain specific topics could be addressed centrally enabling efficiency and benefitting from economies of scale.

Main potential benefits

The option could lead to full harmonisation of communication between EU Member States and aviation small emitters. The specialised front desk could work effectively and efficiently resulting in time saving at the side of both the aircraft operators and the Member States.

Main potential constraints

The option would require setting up a new centralised function that would perform activities currently carried out by individual Member States. In order to set up such a function, a number of complexities would have to be dealt with, such as:

- Member States agreeing on how the desk would be set up and what activities it would be allowed to perform;
- Funding the helpdesk would need to be agreed between Member States;
- Member States would have to agree on the criteria related to the front desk, such as response times, availability quality, procedures, means of communication etc.

Impacts

Setting up a centralised front desk could lead to some cost savings at the side of both the operators and the Member States. Especially for non-EU small emitters, harmonisation of information provided to operators and communication about issues would be beneficial for the understanding of the requirements and could avoid confusion, which we understand currently could exist due to interpretation differences. Although no changes to the formal legislation would be required, the option would require Member States to agree amongst each other on the design and implementation of the front desk.

Table 34: EU wide front desk for all small emitters for more efficient communication

Impacts of simplification option	Impact
Total emissions regulated ($MtCO_2$)	0
Assumed share of annual cost savings for Member States	30%
Estimated total annual costs savings for Member States (EUR)[14]	444,000
Assumed share of annual cost savings for small emitters	10%
Estimated total annual costs savings for small emitters (EUR)[14]	1,849,000
Estimated average annual cost savings per small emitter (EUR)[15]	730
Assumed additional design and implementation investment (EUR)	50,000
Impact on competitive markets	No
Impact on legal framework	No
Quick win	No
Potentially beneficial when simplification would be extended to large operators	No
Why is this option promising?	
It could lead to cost savings and reduced frustrations at the operator side within the current legal framework.	

3.4.2.2. Coordinated communications from Member States to small emitters could be facilitated by the Commission

Background of the option

We understand from aircraft operators and consultants that interpretation differences about EU ETS related issues exist between Member States. Currently, Member States are responsible for communication with aircraft operators and organise this communication by themselves. In some cases, communication with stakeholders by Member States is only carried out in local language. Aircraft operators and consultants mention it to be confusing when interpretation differences exist.

How would the option work?

The organisation of coordinated communication to aircraft operators on important issues could be facilitated by the European Commission. Communication about how to deal with stop-the-clock for 2012 was coordinated by the Commission who drafted communication to the aircraft operators which was sent via the Member States. All operators received exactly the same clear message in English and in several Member States also in local language.

Main potential benefits

For important issues, communication would need to be prepared only once for all Member States. This would save some time at the Member States side. Aircraft operators, including small emitters, would receive exactly the same information, regardless of the Member States they are administered by. This would reduce the risk of misinterpretation of the requirements by the aircraft operators and thus it would save some time in communication and/or repairing mistakes due to misinterpretation. Most importantly, harmonised communication would be perceived positive, especially by the non-EU based operators.

[14] Costs for operators and Member States for the assessment of simplifications are based on projected costs assuming 100% compliance.
[15] Based on population of 2,533 non-commercial small emitters applied for all options for simplifications assessed

Main potential constraints

Member States would need to agree on which topics would require centrally coordinated communication. It also requires sufficient capacity within the Commission to facilitate this role. Therefore, funding of this communication needs to be arranged. Finally, it could become complex if Member States have different views on the communication itself. The Commission has an advice and facilitation role and is therefore depending on Member States for decision making.

Impacts

Establishing coordinated communication to aircraft operators facilitated by the Commission via Member States has proven to be potentially successful. This could lead to some cost savings at the side of the Member States and the operators.

Table 35: Coordinated communications from Member States to small emitters could be facilitated by the Commission

Impacts of simplification option	Impact
Total emissions regulated ($MtCO_2$)	0
Assumed share of annual cost savings for Member States	5%
Estimated total annual costs savings for Member States (EUR)	74,000
Assumed share of annual cost savings for small emitters	5%
Estimated total annual costs savings for small emitters (EUR)	925,000
Estimated average annual cost savings per small emitter (EUR)	365
Assumed additional design and implementation investment (EUR)	5,000
Impact on competitive markets	No
Impact on legal framework	No
Quick win	No
Potentially beneficial when simplification would be extended to large operators	Yes
Why is this option promising?	
It could lead to cost savings and reduced frustrations at the operator side within the current legal framework. In addition this could be beneficial for large operator.	

3.4.2.3. Pooling of monitoring, reporting and verification for small emitters could lead to major cost savings

Background of the option

The vast majority of small emitters in aviation could be considered as very small. Almost 50% of all small emitters included in EU ETS operate fewer than one EU flight per month on average. Each single non-commercial aircraft operator, no matter how small, has the obligation to comply with all EU ETS requirements individually. Most small emitters do not use method A or B and therefore make use of the provision to estimate their emissions either by means of the ETS-SF or by application of the SET themselves. The results of the cost assessment shows that compliance with EU ETS could be relatively expensive compared to the very low level of operations of the majority of the group.

How would the option work?

In the suggested option small emitters could join a group which would be represented formally by one of the group members or a consultant. By means of a power of attorney, the individual aircraft operator could delegate its responsibilities for EU ETS to the selected representative of the group. The group representative could formally be appointed as the party responsible to fulfil the obligations for EU ETS for all the group members on an aggregated level. This would mean that the representative would establish one Monitoring Plan, one Annual Emissions Report and undergoes one verification process. The total emissions for the group would have to be reported to the Competent Authority. This could also mean that one registry account for the representative would be sufficient. We understand that this is already possible due to the formalisation of an amendment to the Registry Regulation in 2013.

Main potential benefits

Should many small emitters be grouped together, this would lead to a major cost reduction at the side of the operators. Individual aircraft operators would not need to perform any activities and the formal documentation needed for EU ETS would significantly be reduced. Member States would have similar amount of flights and emissions to administer, but they have to deal with a limited number of group representatives instead of each small emitter separately. This would also lead to significant cost reductions at the Member States side. A similar construction exists within the REACH legislation, therefore it could be beneficial to assess how EU ETS can make use of this.

Main potential constraints

A precondition for this option would be that all information about flights and fuel would need to be made available for the group representative. In addition, specific items per operator should be known as well, for example about test flights, training flights etc. The group members would need to agree on power of attorneys and general terms and conditions. Special care should be taken if operators would be allowed to switch between representatives during the reporting year. Provisions would have to be made for small emitters that become "large". They could for example be required to leave the group and report individually again. It would also require Member States to keep track of whether individual operators are covered by a group or not. In addition, this option would be most successful if the entire group would be administered by one Member State. With the current definitions in the Directive, change of attribution of Member States would not be possible within the current legislation. Grouping could potentially lead to reduced awareness and responsibility of small emitters for the environment. The feedback received from the small emitter community indicates that small emitters are aware of their environmental responsibilities and that currently the time and cost of compliance prevails instead of the costs of allowances. In this option, the group representative would be able to invoice the individual operators for the environmental impact.

Impacts

Allowing large groups of operators to be administered on aggregated level would lead to major cost savings, while the quality of the EU ETS would not be compromised, providing certain conditions would be set in establishing this option. As this option would require a change in the Directive, the implication of changing legislation should be considered when potentially examining this option further.

Table 36: Pooling of monitoring, reporting and verification for small emitters

Impacts of simplification option	Impact
Total emissions regulated ($MtCO_2$)	0
Assumed share of annual cost savings for Member States	50%
Estimated total annual costs savings for Member States (EUR)	741,000
Assumed share of annual cost savings for small emitters	75%
Estimated total annual costs savings for small emitters (EUR)	13,868,000
Estimated average annual cost savings per small emitter (EUR)	5,475
Assumed additional design and implementation investment (EUR)	500,000
Impact on competitive markets	No
Impact on legal framework	Yes, change in Directive
Quick win	No
Potentially beneficial when simplification would be extended to large operators	No
Why is this option promising?	
It could lead to major cost savings, especially for the small emitters without compromising the quality of the system under certain conditions.	

3.4.2.4. Change of attribution of small emitters to MS would be beneficial, especially in relation with grouping

Background of the option

The Directive prescribes how aircraft operators are attributed to Member States. For commercial operators holding an Air Operating Certificate (AOC) attribution is based on the Member State in which the AOC is issued, or for non-EU operators the Member States to which the operator operated the most number of flights in the benchmark year. For non-commercial operators without AOC, attribution is based on the Member States to which the operator operated the highest number of flights in the benchmark year. Without AOC, the owner of the aircraft is obliged to fulfil the EU ETS requirements. Many small emitters are non-commercial without an AOC and have engaged with consultants facilitating their EU ETS compliance. These consultants facilitate compliance for operators with usually similar EU ETS processes reporting to various different Member States. In addition, non-commercial aircraft operators belonging to a group, especially those that are not based in the EU currently also report to different Member States while their EU ETS compliance process is centralised. The project received feedback from small emitters and consultants that fragmentation of operators operating only a very limited number of (unscheduled) flights leads to unnecessary costs due to inefficiencies. We understand that a number of non-EU based operators operated only very few flights in the EU in the benchmark year for a specific one off event (unscheduled meeting, tank stop etc.). Based on these flights, these operators could have been attributed to a Member State in which it might be difficult to communicate due to language issues etc.

How would the option work?

The idea behind this option is to allow small emitters more flexibility under conditions, which have to be further specified, to change their administering Member State. Aircraft operators belonging to a group or engaged with certain consultants (facilitating their EU ETS compliance) could be given the opportunity to report to one Member State. In addition, EU based non-commercial operators without AOC could be given the opportunity to be administered by the Members State in which they are based, where this is currently not the case. In their base country they know the authorities and language will not be a barrier.

Main potential benefits

Allowing airline groups of small emitters or small emitters engaged with a consultant facilitating their EU ETS compliance to report to one Member State would increase efficiency in EU ETS compliance. Instead of keeping informed with the specific requirements of multiple Member States and establishing different communication lines with different Competent Authorities, the group or consultant could centralise this to one Member State. This would lead to time and cost savings for the small emitters. This option could also lead to some cost savings at Member States as they have to communicate with fewer different parties about EU ETS.

Main potential constraints

Differences exist between Member States in the organisation of administering aircraft operators, including small emitters. The cost assessment in Section 1 shows that the costs of compliance vary greatly between Member States. Differences occur due to a great variety in Member State fees and additional requirements. Therefore, allowing flexibility could lead to competition between Member States and incentives for aircraft operators to choose the cheapest Member State. Changing attribution of Member State would also lead to potential changes in national allocation for Member States, which may be complex to achieve from a legislative perspective, but would also require approval from the Member States. This also would require a change to article 18a of the Directive.

Impacts

Allowing flexibility to change attribution to Member States would be interesting from a cost perspective, both for Member States and operators. Conditions would have to be set to avoid perverse incentives to choose the cheapest Member State and changes in legislation would be unavoidable in this option.

Table 37: Change of attribution of small emitters to MS

Impacts of simplification option	Impact
Total emissions regulated ($MtCO_2$)	0
Assumed share of annual cost savings for Member States	15%
Estimated total annual costs savings for Member States (EUR)	222,000
Assumed share of annual cost savings for small emitters	10%
Estimated total annual costs savings for small emitters (EUR)	1,849,000
Estimated average annual cost savings per small emitter (EUR)	730
Assumed additional design and implementation investment (EUR)	250,000
Impact on competitive markets	No
Impact on legal framework	Yes, change of Directive article 18a
Quick win	No
Potentially beneficial when simplification would be extended to large operators	No
Why is this option promising?	
Operators for which ETS monitoring and reporting is centralised (group airlines or facilitation by consultant) could benefit from this centralisation (efficiency) when reporting to only one Member State, instead of multiple, in some cases more than 10 Member States, we understand. Member States could benefit from increased efficiency too and this option would lead to less frustration and increased support by the industry.	

3.4.2.5. Allow operators to use the ETS-SF output as basis for EU ETS reporting would lead to cost reductions

Background of the option

Operators using the ETS-SF, have the obligation to formally check the flight data with their own data in their systems. Also, the verifier has to either check whether the check of the operator has been performed correctly or compare the sources themselves. Based on our experiences and the feedback received for this project we have indication that many small emitters do not have the capacity and knowledge about EU ETS reporting to perform and document this check adequately. In addition, we understand there may be small differences between the ETS-SF data and the operators' data, however these differences are generally not material and often based on operators who did not inform EUROCONTROL of last minute changes. Assuming that the ETS-SF data is not materially misstated the cross checks by the operator and/or verifier may not add that much value.

How would the option work?

Based on information provided to the project by EUROCONTROL and Member States, the ETS-SF output appears to be of very high quality when comparing to actual flight and fuel information. Should there be enough comfort that the ETS-SF output does not lead to material misstatements, it could be viewed as reliable for reporting without the need for further checks on flight and fuel data for small emitters. The operator would need to approve the draft report produced by the ETS-SF and the verifier could have access to the ETS-SF output too to check whether the operator submits the report without changes.

Main potential benefits

This option would lead to time saving for the operator in checking the output of the ETS-SF in detail with their own data. In addition, this option would save time for the verifier to check the draft report, leading to cost savings for the operator for verification. Making use of the ETS-SF would save some time at the Member State for reviewing Annual Emissions Reports, as it would be very easy to check if the reports have not been changed. Most Member States have access to the ETS-SF data too for the operators they administer. This option could lead to a significant increase of the use of the ETS-SF, potentially leading to a reduced fee for obtaining access to the facility.

Main potential constraints

In this option one would accept deviations from actual emissions. We understand that the ETS-SF is very, but not 100% accurate and complete. The acceptable error margin of the ETS-SF would need to be agreed upon. We understand that currently the deviation from the actual emissions data is less than 2%, which is the materiality level for large operators. In the current situation, the majority of the small emitters already make use of the opportunity to estimate the emissions on a flight level basis. In addition to the fact that certain errors would not be corrected, a solution may be needed for EU flights currently not covered by EUROCONTROL. This would include flights to and from Iceland, Estonia and overseas territories. A solution could be found for example by information sharing between route charge offices. As EUROCONTROL data would be the basis for reporting in this option, it would be important to ensure that the ETS-SF processes and systems lead to reliable output for EU ETS reporting. This might raise the need for an audit on EUROCONTROL's ETS-SF instead of verification on individual aircraft operator level. In this option, overhead cost related to verification would still remain in place (e.g. overhead at verifier for accreditation purposes, contracting, invoicing, communication), although this could be quite straightforward.

Impacts

Allowing operators to use the ETS-SF output for reporting without formal checks on flight and fuel data, would lead to a verification focus on the changes at the operators' side in processes, systems. This option would lead to time saving in reporting and reduced verification costs in case the ETS-SF output is submitted to the Competent Authority without changes. It would lead to some cost savings for Member States too.

Table 38: Allow operators to use the ETS-SF output as basis for EU ETS reporting

Impacts of simplification option	Impact
Total emissions regulated ($MtCO_2$)	0
Assumed share of annual cost savings for Member States	10%
Estimated total annual costs savings for Member States (EUR)	148,000
Assumed share of annual cost savings for small emitters	20%
Estimated total annual costs savings for small emitters (EUR)	3,698,000
Estimated average annual cost savings per small emitter (EUR)	1,460
Assumed additional design and implementation investment (EUR)	100,000
Impact on competitive markets	No
Impact on legal framework	Not formally, a change in the guidance might be sufficient to achieve this
Quick win	Yes
Potentially beneficial when simplification would be extended to large operators	No
Why is this option promising?	
This option could lead to significant cost savings without compromising the quality of the EU ETS on short term within the legal framework. It could lead to a significant increase of the use of the ETS-SF at lower cost per operator.	

3.4.2.6. Verification could be redundant when small emitters use the ETS-SF

Background of the option

We understand from operators, Member States and EUROCONTROL that the ETS-SF provides high quality output. Although in some individual cases there may be larger difference, for the vast majority of operators the ETS-SF output appears to not materially deviate from the actual flight and fuel consumption data. We understand that EUROCONTROL is constantly improving the facility in order to increase its reliability, completeness and accuracy. Considering the limited environmental contribution of the large group of small emitters compared to the large emitters, a very simple approach towards monitoring and reporting for this group could be allowed. With reliable ETS-SF output, internal detailed checks by the operator and verification would add little value. When considering that Member States also check Annual Emissions Reports against ETS-SF data, one could question the added value of the verification of flight and fuel data of individual small emitters.

How would the option work?

Under the condition that the ETS-SF output provides EU ETS reports without material misstatements, verification would not be needed for small emitters using the ETS-SF for reporting. If the small emitters doubt the output of the ETS-SF they would have the opportunity to check the data and decide on whether the report

would have to be adjusted. In case small emitters would like to change the reports, verification would be needed to validate the accuracy and completeness of the reports. Small emitters that do not change the reports could send the ETS-SF output directly to the Competent Authority without changes to fulfil their reporting requirements.

Main potential benefits

All small emitters using the ETS-SF for reporting without changes would save 100% of their verification cost and reporting time, as well as time to facilitate and communicate with the verifier. This option would save Member States also some time in reviewing Annual Emissions Reports as it is very easy to determine whether the ETS-SF output has remained unchanged. Most Member States have access to the ETS-SF data too for the operators they administer. Another benefit could be that significantly more small emitters would use the ETS-SF, which could lead to reduction of the fee per operator.

Main potential constraints

This option would have identical potential constraints as the previous option. In addition, this option would require a change in the Directive, where in article 15 and Annex V verification is described. It might be worthwhile assessing whether it is legally possible to change only Annex V if the ETS-SF is considered as the verification for small emitters. However this should be carefully phrased to be in line with considerations and objectives of Directive.

Impacts

Relieving small emitters from reporting and verification time and costs when the ETS-SF output is used for reporting without changes, would lead to significant time and cost reductions. It would also lead to an increase of the use of the ETS-SF. This option would require assurance that the ETS-SF output is not materially misstated. As with any threshold, this option for small emitters could have some impact on the level playing field for EU ETS as aircraft operators emitting more than 25,000 tCO_2 would not have the possibility to use this option. As the current legislation already includes simplified procedures for small emitters, this option would not distort the market, especially not within the small emitters' community as aircraft operators would have a choice to apply the current method or the alternative option. This option for simplification would also have legal implications related to the Directive.

Table 39: No verification in case of using ETS-SF for reporting

Impacts of simplification option	Impact
Total emissions regulated ($MtCO_2$)	0
Assumed share of annual cost savings for Member States	10%
Estimated total annual costs savings for Member States (EUR)	148,000
Assumed share of annual cost savings for small emitters	35%
Estimated total annual costs savings for small emitters (EUR)	6,472,000
Estimated average annual cost savings per small emitter (EUR)	2,555
Assumed additional design and implementation investment (EUR)	350,000
Impact on competitive markets	No
Impact on legal framework	Yes, change in Directive would be required
Quick win	No
Potentially beneficial when simplification would be extended to large operators	No
Why is this option promising?	
This option could lead to major cost savings without compromising the quality of the EU ETS. It would enhance the EU ETS to be more efficient without activities that don't add value to the overall quality of the system. It could lead to a significant increase of the use of the ETS-SF at lower cost per operator.	

4. Alternative means of regulating emissions

4.1. Objective

The purpose of this task is to analyse alternative means of regulating emissions, in case certain small emitters would be excluded from compliance with the EU ETS requirements. For each alternative identified, the objective was to analyse the potential impacts.

4.2. Activities

Table 40: Activities with regard to alternative means

Nr	Project team member	Activity
1	**Agree on criteria for alternative means**	Agree on principles regarding alternative means (similar impacts on net emissions, required administration)
2	**Identify alternative means**	Identify alternative means for regulation of small emitters (e.g. by looking at other existing situations) Highlight potential implications of these alternative means (e.g. obligations, revenue collection, criteria for revenue use, liability for non-compliance) Identify potential show stoppers and legal changes required, including definition of fuel tax.
3	**Assess impact**	Assess environmental, economic, financial impact s and impacts on competitive markets Validate results

4.3. Reflection on approach

Determining the principles of alternative means provides a basis to assess the value of the alternatives explored. For some alternative means, specific issues have been asked to the project team to address:

- Subtask 8: What is the impact of a domestic fuel tax;
- Subtask 10: Look at potential market distortion, perverse incentives and evasion from upstream coverage.

In the surveys for cost assessments and the many bilateral meetings, as well as the consultation meetings, we encouraged different stakeholders to provide suggestions for alternative means to regulate aviation small emitters. The project team added any new suggestion to the alternatives already mentioned in the approach of the project in the inception report.

Options for alternative means alternative means of regulating emissions for small emitters in aviation include:

- Alternatives based on other systems regulating aviation emissions (includes Subtask 8);
- Regulation of emissions via route charging;
- Regulation via an upstream approach (includes Subtask 10);
- Participation in a climate fund;
- Offsetting;
- Opt-out alternative.

In addition to the analysis of the costs, environmental impact and impact on competitive markets, we also looked at other potential implications of the options, such as revenue collection and practical issues. Should any of the options be explored further after this project, our analysis would provide a good starting point related to the potential issues to consider.

During several stakeholder meetings, we validated the results of our analysis to obtain views and considerations to qualify the options analysed.

4.4. Results

4.4.1. Principles for alternative means

Based on input provided by the stakeholders to this project, we believe the following principles should be met in order to qualify potential alternative means of regulation as beneficial:

1. Similar amounts or higher CO_2 emissions should be regulated;
2. Similar accuracy / quality of data;
3. The alternative should lead to a reduction of the administrative complexity;
4. It should be realistically possible from a political and legal perspective to implement within the EU;
5. The impact on the competitive markets should be minimal.

In addition to these principles, high level of commitment and support of both the aviation industry and Member States is crucial in achieving the potential benefits of alternative means of regulation. Strong support for the potential option from the industry would also lead to a high level of compliance.

All options analysed would require a change in the Directive and potential other legislative documents. This means that we did not identify any alternatives which could be implemented within the current legal framework. Analysing the legal aspects in this section is relevant when it comes to understanding what kind of changes are needed.

4.4.2. Alternatives based on other systems regulating aviation emissions

The EU is not the only region regulating emissions in aviation. The US, Switzerland, Australia and New Zealand have implemented systems applicable to aviation in relation to the environment. The Commission asked the project team specifically to analyse these systems in order to potentially identify alternative options for the EU ETS for small emitters.

4.4.2.1. Tax and upstream approach in a domestic scope are most commonly used principles and prices are fixed

To identify potential beneficial alternatives based on other systems regulating aviation emissions requires a detailed understanding of the characteristics of these systems. Table 41 summarises the main characteristics of each system and provides an overview of the design of these systems. Based on the information obtained by performing a document study, the table shows similarities and differences between the four systems analysed. Annex C includes more detailed information on the design of the different systems analysed.

All systems mentioned only apply to a domestic scope. Switzerland, US and New Zealand use an upstream approach where the regulations apply to parties that own, produce or purchase/import fuels for aviation.

Australia applies a downstream approach on consumers for domestic flights. Both downstream and upstream application is relatively easy on domestic emissions.

Switzerland, US and Australia impose taxes on fuels and in Australia participants can voluntarily opt-in a Carbon Pricing Mechanism, which is based on similar principles as the EU ETS in terms of monitoring, reporting and verification and the registry, with a fixed price until and a market based price setting after 2015. New Zealand applies an ETS system with also similar principles as the EU. In Switzerland a tax reduction could be obtained by means of using a voluntary reduction of GHG emission scheme. None of the systems are currently market based, but the Australian system will be after 2015.

Extending the tax based systems for Switzerland, US and Australia to international flights will add complexity on the scope of flights (departing, arriving) and which fuel to regulate (produced/purchased or consumed). Especially, this would be difficult to manage if the international flights would relate to regions where other types of systems are operational, such as EU ETS. Moreover, in the international context of aviation an excise duty on fuel is prohibited under Article 11(2) (c) of the Open Skies Treaty and Article 24(a) of the Chicago Convention. This means that imposing taxes on international flights is not allowed. Extending the scope to international flights seems only possible for the New Zealand system as no tax is imposed as main system. This extension is most likely very complex where there might be a potential overlap with other systems that are designed differently, such as EU ETS which is a downstream system.

Table 41: Summary of characteristics of systems regulating aviation emissions in the US, Switzerland, Australia and New Zealand

Characteristic	US	Switzerland	Australia	New Zealand
Type of main system	Federal Tax system	Tax	Tax	ETS
Short description of main system	Mandatory tax is imposed on the removal, entry, or sale of fuel used in aviation. All removals of fuel at a terminal rack are taxable.	CO_2 tax imposed on the manufacture, production and import of aviation fuels	Consumers of fuels used in domestic aviation are required to pay a carbon charge under the fuel tax and excise system.	Owners and purchasers of fuels are obliged to monitor, report and surrender NZ units or international carbon credits deriving from the Kyoto protocol
Alternative	No alternative	Target setting and reporting on progress on GHG emissions reductions ETS system on aviation in preparation	Carbon Pricing Mechanism	No alternative
Flexibility of the main system	Mandatory	Possibility to apply for reduction of CO_2 tax if participants commit themselves to reduce GHG emissions to a certain amount by 2020 (voluntary basis). This possibility does not seem to apply to aviation	Voluntary opt-in into Carbon Pricing Mechanism (CPM)	Partly mandatory Partly voluntary opt in
Results of using alternative	Not applicable	Tax reduction	Tax exemption	Not applicable
Status of main system	Operational	Operational	Operational	Operational
Status of alternative	Not applicable	Operational In preparation (ETS)	Operational	Not applicable
Way of regulating	Upstream	Upstream	Downstream	Upstream

Characteristic	US	Switzerland	Australia	New Zealand
Thresholds applied	No thresholds (in certain specific cases a refund or credit can be applied	No thresholds, voluntary reduction of GHG emission scheme seems only applicable to activities of installations.	No thresholds for tax Large consumers of fossil liquid fuels applicants are only eligible in the CPM under certain conditions (e.g. eligibility test is applicable and one of 11 thresholds must be met)	Minimum quantity of fuel owned or purchased
Exemption based on type of aircraft operator (commercial / non-commercial)	No	No	No	No
Distinction in application based on type of operator (commercial / non-commercial)	Yes	No	No	No
Scope of system	Domestic	Domestic The ETS scheme would also apply to international flights	Domestic	Domestic
Settlement of main system	Tax invoice	Tax invoice	Tax invoice	Surrendering of emission allowances
Settlement of alternative system	Not applicable	Allocation of emission reduction certificates	Surrendering of emission allowances	Not applicable
Price setting of main system	Determined by IRS and legislation	Determined by the Federal Office of Environment and legislation	Determined by Australian taxation office and legislation	Fixed price per tCO_2
Price setting of alternative	Not applicable	Not applicable	Fixed prices until 2015, then market based	Not applicable

Characteristic	US	Switzerland	Australia	New Zealand
Free allocation (in the case of an ETS scheme)	Not applicable	ETS scheme for aviation would have free allocation	Partly free allocation	No (for suppliers of liquid fossil fuels)
MRV requirements (in case of no tax)	N/A	Annual report on reduction of GHG emissions. Monitoring Plan may be required by FOEN ETS scheme for aviation would have MRV requirements similar to EU ETS	Mandatory interim and final reporting. Interim reporting is mandatory for fixed price period. Monitoring framework based on UNFCCC/IPPC guidelines for direct emission and WBCSD / WRI GHG protocol for indirect emissions. Requirements are laid down in NGER Act. Reports are checked by the CA. Independent verification will only be carried out in certain cases by registered greenhouse gas auditors.	Mandatory monitoring and reporting in line with specific regulations and methodologies. Verification only required when a unique emission factor (individual analysis and sampling) is used. Applying a unique emission factor is only allowed under specific conditions
Accreditation / acceptation of verifiers	N/A	ETS scheme for aviation would require accredited verifiers	Registered greenhouse and energy auditors are recognised by Clean Energy Regulator and must meet specific requirements.	Recognition by competent authority and performance monitoring
Specifics system	See Annex B for more information	See Annex B for more information	Possibility to use domestic offsets for fixed price period and possibility to use international units for compliance in flexible price period	No cap (there is an option to include a cap in future). International Kyoto credits, (CERS, RMUs and ERUs) can be used for compliance next to New Zealand Units.

4.4.2.2. Voluntary opt-in principle is good example of building in flexibility in the system

Switzerland and Australia provide a voluntary opt-in to an alternative with a potential tax reduction, respectively a tax exemption as a result. New Zealand provides a voluntary opt in for airlines to take on the obligations for emissions accounting (instead of being charged for emissions by the suppliers). The advantage of an opt-in is that participants can choose between options in order to reduce costs when one option is less costly than the other. In addition, an opt-in could help reducing the risk of distortion on competitive markets if the system is designed well and provides flexibility to choose between options.

4.4.2.3. No specific simplifications for small emitters identified

The Australian Carbon Price Mechanism includes thresholds based on size, but these are inclusion thresholds, rather than exclusion thresholds. We did not identify differences between commercial and non-commercial aviation in Australia. The Carbon Price Mechanism is focussed on larger participants.

The US federal tax system differs between commercial and non-commercial operators. Commercial operators are subject to a tax based on the transportation of persons or goods, non-commercial operators are subject to a tax on fuel. Therefore, the federal tax on fuel in the US only applies to non-commercial operators.

The operational systems in Switzerland and New Zealand are both designed and implemented without distinction between large and small operators or commercial and non-commercial operators. The Swiss ETS that is in preparation would likely contain similar provisions for different requirements between large emitters and small emitters as exists in the EU ETS.

4.4.3. Regulation of emissions via route charging

4.4.3.1. Invoicing for CO_2 would be possible to implement

Background of the option

Out of all suggestions for alternative means of regulation, this option is by far mentioned most, both by the industry and the Member States. Instead of compliance with the different requirements under EU ETS, small emitters would be charged for their environmental impact with an invoice. We understand that the idea behind this option is that the small emitters are willing to contribute to a system that is aimed to decrease the environmental impact of the aviation industry and that their usually small size of operations advocates for a very simple system. The small emitters that contributed to this project mention that especially the amount of time they are investing in compliance with EU ETS is perceived as very high compared to their relatively small contribution environmentally.

How would the option work?

EUROCONTROL invoices all aircraft operators operating flights within the geographical range of EUROCONTROL for route charges. In the scope of the airspace of EUROCONTROL covers the vast majority of EU air traffic. Route charges are based on the actual ground flight track distance of the route. This distance is also an eligible alternative for small emitters to use as variable for the Small Emitters Tool (SET). The SET is approved by the commission as a reliable tool to estimate the fuel consumption for a specific aircraft type for a specific distance. The algorithm of the SET is also used in EUROCONTROL's ETS Support Facility (ETS-SF) to estimated fuel consumption based on the EU flights of aircraft operators.

We understand from EUROCONTROL that in total the ETS-SF output is very accurate compared to the reported CO_2 emissions. For the reporting year 2010, the accuracy appeared to be 99.8%. We also understand that the accuracy of the output has further increased the past two years. Under the condition that the ETS-SF provides high quality emissions data, the estimated CO_2 emissions could be linked to individual flights by EUROCONTROL. Combining the emissions information with the route information would be technically straightforward for EUROCONTROL. This option would mean that monitoring and report would be done by EUROCONTROL.

We understand that it would technically be possible to send invoices for CO_2 based on the processes and structures in place for route charging, without major efforts to be made. Once a price per tCO_2 is determined, it would be possible for EUROCONTROL to provide invoices for CO_2 emissions to the small emitters. Suggestions to determine the price for CO_2 emissions for invoicing purposes include setting a fixed price and calculate a periodic average of CO_2. How the price could be determined depends also on the way that the revenues from invoicing would be spent. Two options were discussed, transfer of the revenues into a climate fund and EUROCONTROL having to buy allowances and surrender these in the registry. The first option would require allowances taken out of the EU ETS.

Main potential benefits

From an operator's perspective the time spent and costs of compliance would be reduced to virtually zero, as only invoices have to be paid. Compared to the current situation, only the cost of allowances would remain for each small emitter. Similarly, virtually all Member States' costs related to small emitters would be saved. Another advantage of this option is that it would be significantly easier to ensure 100% compliance. We understand that Member States have put much effort in achieving a high level of compliance. Information letters, guidance documents, telephone calls and meetings have been used to engage with small emitters. Still, after three years of experience with EU ETS in aviation 66% of the small emitters have not fulfilled their 2012 obligations yet. We understand from EUROCONTROL that compliance via invoices has proven to be highly effective for route charges.

Main potential constraints

Based on the analysis and input obtained by participants to this project, we have identified the following potential constraints:

- Quality of EUROCONTROL's output;
- Reduced awareness for the environment at the small emitters;
- EUROCONTROL performing trading activities in the registry;
- Mandating EUROCONTROL to perform these extra activities;
- How to deal with the revenues generated from invoicing;
- Dealing with biofuels;
- Potential tax definition issues.

Quality of EUROCONROL's output

Although EUROCONTROL calculated that the output is very reliable, there have been examples provided to the projected of errors in the ETS-SF output.

EUROCONTROL does not cover airspace around Iceland and Estonia. This leads to the fact that flights from these countries to non-EU countries are missed out by EUROCONTROL. The same applies to special territories and islands outside Europe belonging to EU territories, such as Guadeloupe and Reunion. Based on our experience with EU ETS in aviation we believe a very small share of flights and CO_2 would be missed by

EUROCONTROL. To overcome this problem, EUROCONTROL could engage with other route charge offices to exchange information about certain flights to enable EUROCONTROL to include these in the ETS-SF.

We understand from verifiers and consultants that for many operators supposedly 50% the ETS-SF data contain errors related to the routes or aircraft used. Based on interviews with EUROCONTROL and PwC's experience with the ETS-SF, we understand that these errors in the ETS-SF occur because a last minute change was not communicated to EUROCONTROL timely. EUROCONTROL has a process in place to claim incorrect invoice data and without receiving claims, EUROCONTROL does not always know that the data does not reflect the actual flight information. Although this could be a potential issue, we have indications that these errors in the ETS-SF output does not lead to material misstatements in the vast majority of the cases. Corrections made based on claims for route charges, would have to result in corrections in the ETS-SF output as well.

In order to ensure the quality of the output of the ETS-SF, the process and system could be included in the scope of the audit on the route charge processes and systems.

Reduced awareness for the environment at the small emitters
We understand from the small emitter community that environmental awareness is on the agenda. By using the SET of ETS-SF (95% of the operators participating to this project) emissions are estimated. Therefore, we understand that it is not very likely that small emitters would feel an incentive to increase fuel efficiency in order to reduce their CO_2 emissions to benefit from having to buy fewer allowances for EU ETS than others. Increasing fuel efficiency and therefore reduce emissions we believe is more an incentive based on saving fuel costs. At the same time, increasing fuel efficiency and providing EUROCONTROL with actual data would contribute to lower fuel consumption estimation when the SET is updated. This indirect influence on the CO_2 emissions under EU regulation would not be different than in the current situation. In order to potentially find political support for this option, the positive attitude of the small emitters' community participated to this project and the positive responses by Member States for this option could have a positive impact.

EUROCONTROL purchasing allowances in the registry
This could create a conflict of interest between invoicing for CO_2 and purchasing at the same time. Making use of an independent non-profit party for obtaining sufficient allowances could contribute to a solution for this potential problem. In any case, EUROCONTROL is a non-profit organisation. This means that there is in principle no incentive to benefit from trading activities. EUROCONTROL would buy allowance sufficient to fulfil the obligations of surrendering allowances in the registry for the amount of emissions by small emitters. A risk would be that this would likely not result in the lowest prices for allowances, although with the small quantities for most small emitters this might not represent major issues.

Mandating EUROCOTROL to perform these extra activities
Similarly to route charges, EUROCONTROL would have to be mandated by the Member States to perform the potential additional activities. A formal approval process to obtain this mandate should be undertaken.

How to deal with the revenues generated from invoicing
There are several options possible to spend the revenues generated from the invoicing activities. Suggestions include transferring the money collected in a climate fund. This could for example be a fund dedicated to invest in emission reductions in aviation. This could be complicated to implement as it would entail that Member States have to allow a decreased scope in their national allocation and potentially fewer revenues from auctioning. There could be complications with national legislation, as we understand from the UK for example.

Another option is that EUROCONTROL or an independent other party purchases sufficient allowances on the market and that these allowances are used to surrender for EU ETS for all small emitters.

Dealing with biofuels
Although currently no small emitters applied for the use of biofuels, this would become more likely in the future. This could probably not be arranged in the standard invoicing process. However, one could imagine an option where the small emitter can apply for a refund after the year has ended based on sufficient evidence that biofuels were used on EU flights.

Potential tax definition issues
As taxation of fuels on international flights is prohibited, it would be very important to avoid the situation where the CO_2 invoicing could be perceived as a fuel tax. This has to be reviewed carefully when potentially suggesting this option. In the situation of EUROCONTROL surrendering allowances on behalf of the small emitters, it might effectively not change the current principles. In addition, small emitters could potentially be given a choice, either to comply with EU ETS or to opt-out to this alternative.

4.4.4. Regulating emissions via route charging would be highly beneficial, but requires some hurdles to be taken

The analysis of this option included the five principles for alternative means, as pointed out previously. Table 42 provides an overview of the analysis of these principles for this option. Based on our analysis, it seems that the potential constrains for most of the principle would be relatively easy to overcome. The legal implications, especially related to fuel taxations need to be assessed carefully should this option be considered.

Table 42: Analysis of regulating emissions via route charging

Principle	Principle met?	Explanation
1. Similar amount of CO_2 regulated	Yes	This option could make it easier to regulate the emissions covered
2. Similar data quality / accuracy	Yes	With materiality in mind, EUROCONTROL could provide high quality output
3. Less administrative complexity	Yes	Significant reduction in time and costs for small emitters and Member States, estimated investment in EUROCONTROL lower than cost savings
4. Legally and politically possible	No	Requires a change in the Directive and potential discussions related to fuel tax
5. Low impact on competitive markets	Yes	No effect on the competitive markets compared with the current EU ETS

As a result of the analysis of this option, table 43 below provides an overview of the potential impacts of this option. Significant cost reductions would be possible with a limited expected additional investment for the alternative. The scope of operators and emissions will not change as well as the impact on the competitive markets. The total cost savings could be EUR 20 million annually and we assumed that the design and implementation of this alternative could amount to EUR 1 million.

Table 43: Potential impacts of regulating emissions via route charging

Impacts	Current situation	Alternative option	Impact (absolute)	Impact (%)
# of operators included	2,866	2,866	0	0
Emissions regulated ($MtCO_2$)	230.7	230.7	0	0
# of operators under this option	0	2,557	2,557	100%
Total projected annual costs for Member States (EUR)	1,481,000	100,000	(1,381,000)	(93%)
Total projected annual costs for operators (EUR)[16]	26,090,000	7,599,000	(18,491,000)	(71%)
Assumed additional design and implementation investment (EUR)	0	1,000,000	1,000,000	100%
Impact on competitive markets	Very limited	Very limited	-	-

4.4.5. Regulation via an upstream approach

4.4.5.1. The potential constraints would outweigh the benefits of an upstream approach for small emitters

Background of this option

Regulating emissions based on actual fuel consumption for each specific flight is relatively complex compared to regulating based on volumes delivered. In addition, the market for especially non-commercial aviation is very fragmented. Fuel suppliers are more concentrated as they operate on airports for multiple aircraft operators. Therefore, the Commission requested the project team to analyse whether regulating via an upstream approach could be beneficial. In particular, the objective is to look at potential market distortions, perverse incentives and evasion from upstream coverage.

How would the option work?

In an upstream approach, fuel suppliers would be obliged to comply with EU ETS. Regulation would not be based on the fuel consumed per flight but based on volumes delivered. Fuel suppliers would have to monitor and report fuel delivered to small emitters for EU flights. Based on an emission factor, CO_2 emissions would be calculated. Registry obligations would shift from aircraft operators to fuel suppliers. The administrative Member State would have to be attributed, for example based on the country with the largest operations in the EU of the fuel supplier. Fuel suppliers would need to surrender allowances for emissions originated from their fuel deliveries.

[16] Costs for operators and Member States for the assessment of alternative means are based on projected costs assuming 100% compliance.

Main potential benefits

The EU ETS could become less costly as monitoring fuel delivery is less complex than monitoring actual emissions on a flight basis. In addition, the group of fuel suppliers is likely to be significantly smaller than group of aircraft operators. This would reduce the time spent at the side of the Member States and the fuel suppliers. Total delivery of fuel is likely easier to report than total actual fuel consumption in accordance with the current EU ETS requirements.

Main potential constraints

Applying an upstream approach to aviation small emitters would require setting up a new system for small emitters, which would lead to potentially high additional costs to prepare and approve new legislation. The time and costs involved could potentially counterbalance the cost savings from the benefit mentioned above.

A potential constraint is that it could be challenging to apply only on small emitters. How does a fuel supplier distinguish between delivery of fuel to large and small emitters? If actual emissions based on consumption for small emitters would not remain monitored, if would become more difficult that in the current situation to determine who is a large emitter and who is small. Also, how would the fuel supplier know whether the flight is a flight included in EU ETS or exempted under the categories in Annex I of the directive?

EU flights can be regulated relatively easily by the EU because at least one airport related to departure and arrival is situated in the EU (or EEA). For an upstream approach, it would be complex to regulate fuel delivery at non-EU airports for EU flights. It is questionable if it would be legally possible to achieve this. If this would not be possible, the scope of EU ETS on small emitters would significantly reduce to only departing flights. Many “larger” small emitters currently included are operating longer haul flights to and from the EU.

If an upstream approach would include only departing flights, this could create perverse incentives for evasion to outside the EU for fuel uplifts. Although this so called “tankering” could have negative impact, we understand that based on the non-commercial nature of the operations of the largest groups of small emitters, tankering would not result in major issues. Most small emitters operate non-commercially with a specific purpose of transporting persons to a specific destination in an efficient manner. It would be unlikely that non-commercial aircraft operators operating flights from and to the EU would make an extra fuel stop just to avoid EU ETS requirements. In addition we understand many small emitters based in the EU operate the majority of their flights within the EU and that it would be less likely that tankering would take place on large scale for this group.

In an upstream approach, emissions would be regulated indirectly. There would be less incentive for aircraft operators to reduce fuel consumption as they do not have much influence to reduce the cost of their environmental contribution. Fuel suppliers would pass on the costs of EU ETS to their customers and would have fewer incentives to reduce their fuel delivery volumes as this would conflict with their main objective, delivering fuel to aviation.

4.4.5.2. An upstream approach for small emitters does not seem promising

Based on the analysis of the principles for successful alternative means, as detailed in table 44, it seems that and upstream approach is not a very promising alternative when applied on departing flights and only for small emitters.

Table 44: Analysis of regulating emissions via an upstream approach

Principle	Principle met?	Explanation
1. Similar amount of CO_2 regulated	No	Likely not possible for incoming flights
2. Similar data quality / accuracy	Yes	Simpler monitoring and reporting, based on delivered fuel volumes
3. Less administrative complexity	No	Although monitoring based on fuel delivered is easier to perform, additional complexities arise, such as determination of small emitters and the design and set up of a new system for small emitters
4. Legally and politically possible	No	Requires a change in the Directive, complex to implement on non-EU airports and new regulations required for small emitters.
5. Low impact on competitive markets	Yes	Limited impact on the competitive markets, low risk of tankering and evasion is not very likely

As most principles would likely not be met, the upstream alternative is deemed as not promising would it apply to small emitters only. Adding a new system next to the existing EU ETS for large emitters would add complexity and costs. We understand that an upstream approach could be interesting when applied to all aviation activities. Based on the analysis performed and information obtained, we were not able to quantify the potential impact of an upstream approach.

4.4.6. Participation in a climate fund

4.4.6.1. Regulation via climate fund could be made possible

Background to this option

As an alternative for the Union Registry, the Commission requested the project team to analyse the potential impact of compliance for small emitters via a climate fund.

How would the option work?

This option would still require accurate determination of CO_2 emissions for small emitters. This could be the current EU ETS requirements, but also in the route charge approach this would be possible. Instead of surrendering allowances, small emitters would pay an amount for their CO_2 emissions which would be transferred into a climate fund. This would mean that part of the allowances would have to be taken from the EU ETS. Payment could be organised to the administering Member States, but a centralised office collecting the payments could also be set up. Price setting could for example be based on the average price of allowances. The climate fund could have the specific purpose to invest in technology to reduce emissions from fossil fuels in aviation. Revenue collection could for example be done via an invoice or for example a “credit card” principle to enable efficient settlement of payments.

Main potential benefits

Aircraft operators would be relieved from their registry obligations. More than 1,500 operators would be relieved from opening their registry account and all small emitters would be relieved from purchasing and surrendering allowances. This would save time at the side of the operators and also some time at Member States for registry handling and helpdesk functions. Another advantage would be that a climate fund could be set up guaranteeing investments in emission reduction in aviation.

Main potential constraints

We understand that in some EU countries, for example the UK, a central EU climate fund with money originated by the UK from EU legislation could impose conflicts with local legislation. Based on a study on the appetite for earmarking EU ETS auctioning revenues for climate action[17], we understand that in several Member States earmarking revenues from EU ETS for climate action would at least be possible on national level.

Setting up a climate fund would lead to additional investments as well as the management of the fund and guaranteeing that the money is spent on emissions reductions in aviation. Removing allowances from the EU ETS could be complex from a political and legislative perspective as it would require approval from the Member States and the European Parliament.

4.4.6.2. Marginal benefits expected by climate fund participation

A climate fund option would meet most principles set for alternative means

As a result of the analysis of this option, table 45 shows most principles for alternative means would be met by the option of a climate fund.

Table 45: Analysis of regulating emissions via participation in a climate fund

Principle	Principle met?	Explanation
1. Similar amount of CO_2 regulated	Yes	Monitoring, reporting and verification could remain the same
2. Similar data quality / accuracy	Yes	No change in determining the amount of CO_2 needed, only how compliance based on emissions would be organised
3. Less administrative complexity	No	Limited recurring benefits identified for operators for relieving from registry compliance, administrative complexity added to set up and manage the climate fund
4. Legally and politically possible	No	Requires a change in the Directive, a centralised climate fund could represent issues with local legislation in some Member States
5. Low impact on competitive markets	Yes	Similar impact as the current legislation

The majority of recurring costs for small emitters are likely to comprise of monitoring and reporting, Member States fees, verification and the costs of allowances purchased. Once a registry account has been set up and aircraft operators found an efficient way to purchase allowances, operators indicate that the annual costs of

[17] Using EU ETS auctioning revenues for climate action, what is the appetite for earmarking within specific EU Member States?, Anja Esch, May 2013

dealing with the registry and purchasing allowances is relatively cost efficient. Therefore, the expected cost savings from changing compliance via the registry to participation in a climate fund are relatively small.

However, in a situation where revenues would be generated in a route charge based approach, a climate fund could be an option instead of for example transferring the revenues to Member States and cancelling allowances from the system.

Participating in a climate fund would not have environmental impact, nor would it impact competitive markets. The amount of operators in the system would remain the same. Although some cost savings could be achieved, this is not possible to quantify based on this project. We did not obtain sufficient data to quantify the cost savings and on the other hand it is not possible to estimate the additional costs of designing and implementing a climate fund, based on the information obtained for this project.

4.4.7. Small emitters contributing by offsetting

4.4.7.1. Offsetting is perceived as ineffective on longer term

Background of this option

By compliance with EU ETS, aviation small emitters have limited influence on where reductions are being achieved. Instead of complying with the requirements in the registry, small emitters would be responsible for offsetting their emissions. Aircraft operators are able to use offsets for a small portion of their emissions for EU ETS compliance and the % of allowances that can be used for EU ETS will decrease compared to 2013 starting Phase III of EU ETS.

How would the option work?

Based on their verified emissions, small emitters could invest in emission reductions by purchasing carbon credits and therefore offsetting their emissions. Determining the emissions in accordance with EU ETS would still be required. Small emitters would be responsible to demonstrate that their emissions originated from EU ETS are offset in accordance with certain requirements. The emissions related to these small emitters would have to be removed from the EU ETS.

Main potential benefits

Similarly to the climate fund option, small emitters would be relieved from their requirements in the registry, which would lead to some cost reductions on the longer term.

Main constraints

Contrary to the climate fund option, offsetting would most likely not lead to emission reductions in the aviation industry. Another issue raised during the project is that offsets are perceived as decreasing in quality, for example related to the Clean Development Mechanism (CDM). Based on the 2012 CDM Policy Dialogue, it seems that two thirds of all CDM credits during 2013 and 2020 would be originated from business-as-usual projects and would lead to an increase of emissions if these credits would be used for compliance. Therefore, recommendations related to offsetting include strict conditions under which credits should be allowed to use for compliance. For example, only projects with high environmental quality should be allowed. As multiple different options for offsetting exist at different qualities, it would potentially become difficult to safeguard the quality of the offsets by small emitters. It would require time and costs to review the quality of the offsets.

4.4.7.2. Potential benefits of offsetting counterbalanced by potential risks and constraints

Offsetting does not meet most principles for successful alternative means

Table 46 reflects the analysis of the offsetting option based on the principles set for alternative means. Although the quality of the system for monitoring, reporting and verification would not be compromised, the limited control on the quality of the offsets leads to a risk of reduced quality for the system.

Table 46: Analysis of regulating emissions via offsetting

Principle	Principle met?	Explanation
1. Similar amount of CO_2 regulated	Yes	Monitoring, reporting and verification could remain the same
2. Similar data quality / accuracy	No	Quality of determining CO_2 not compromised, quality of offsets difficult to safeguard
3. Less administrative complexity	No	Limited recurring benefits identified for operators for relieving from registry compliance, administrative complexity added to review and safeguard quality of the offsets
4. Legally and politically possible	No	Requires a change in the Directive, quality criteria for offsets have to be agreed upon by Member States as well as means of safeguarding quality and review whether emissions are offset adequately.
5. Low impact on competitive markets	Yes	Similar impact as the current legislation

Although some benefits could be achieved from offsetting emissions for small emitters, the expected cost savings would be marginal. It seems that the biggest issue with offsetting is safeguarding the quality of credits to be used for offsetting. This imposes a risk for the quality of the system. Therefore, the offsetting option is perceived as an alternative that would not be promising.

4.4.8. Introducing an opt-out alternative

4.4.8.1. An opt-out alternative would introduce flexibility, limit competitive distortion and increase commitment of participants

Background of this option

Currently, small emitters do not have a choice but to comply with all the requirements of EU ETS. Based on the results of this project, it appears that EU ETS has a much higher impact on small than on large emitters. Most small emitters are deemed very small non-commercial operators having a completely different business model as the large emitters, of which the vast majority is commercial. In addition, the biggest group of participants (2,533) contribute together to 0.8% of the aviation emissions. Based on examples in other legislation related to regulating emissions in aviation (Switzerland, Australia and New Zealand), providing certain participants a choice how to be regulated could be beneficial both from a cost perspective and commitment by the industry.

How would the option work?

Taking the EU ETS as a basis, alternative means of regulating could be introduced for small emitters. Under a certain thresholds, small emitters would be given the opportunity to choose for an alternative way of regulation. The operator would have to apply for the alternative option to their Competent Authority who checks whether the operator is eligible and records the choice of the operator. The potential alternative could be installed for example for settlement of emissions compliance but also for all current EU ETS requirement, provided that the alternative meets the principles set. An opt-out alternative could be introduced with only two alternatives available. Based on input obtained from the industry, a more tiered approach with different alternatives under different thresholds would also be possible.

Main potential benefits

Based on the input provided by the industry to the project, most small emitters would make use of any alternative as long as it reduces the administrative complexity. Costs are relevant, but would not necessarily be the main driver to choose alternatives. We understand from small emitters that participated in the project that if an alternative would lead to higher costs for CO_2 than in the current system for buying allowances, this would be to a certain extent acceptable as long as the system would be simple. For aircraft operators just below the threshold, a higher price for CO_2 could mean significantly higher costs than currently incurred. Therefore, for these operators, complying with EU ETS would be less costly overall. Therefore, an opt-out alternative would allow operators to choose the alternative that best fits their situation. This could increase the support for the system by the industry. Potential competitive distortion caused by EU ETS could be reduced by providing an opt-out alternative. An opt-out alternative would provide flexibility in the system for the large group of small emitters whose emissions would still be regulated, while for large emitters the system remains unchanged.

Main potential constraints

Any alternative would require additional legislation next to EU ETS, which would be costly and time consuming to achieve. Simple and highly beneficial alternatives would likely have a higher chance to survive the approval process of Member States and the European Parliament. Member States would have an extra task in keeping track of the choices of the operators eligible to make use of the opt-out alternative. On the other hand, if the alternative is simple and used by many, time could be saved by Member States. The alternative(s) would need to meet the principles of successful alternatives as it will only be effective if benefits would be gained from the alternative(s), while the quality of the system could not be compromised.

Annexes

A. Surveys Member States & aircraft operators

A.1. Member state survey

Introduction

Q1.1.
Welcome to this survey.

The European Commission has commissioned a project to obtain an accurate and detailed understanding of the impacts of EU ETS on aviation small emitters and administering for competent authorities to administer these aviation small emitters. The aim of this project is to identify and assess potential simplifications for the system which could lead to a reduction of cost.

The purpose of this survey is to collect relevant information for the project.

We kindly ask your cooperation by completing a number of questions related to cost and options for simplification.

All information collected will be treated confidentially. Data will only be presented on aggregated levels and only for the purpose of this project.

Via the link below, you may print the full survey so you can prepare the information without having to stay online in the survey itself. After gathering the information, the survey will take you about 15 minutes to complete. Please click on the "Next" button on the right left corner to start the survey.

We kindly ask you to complete and submit the survey by 22 February 2013 close of business.
Many thanks in advance for your cooperation and we are looking forward to your contribution in the potential improvements of EU ETS for Member States.

Please click on "Next" after completion to go to the next page and "Previous" if you want to correct an answer.

Link to survey in PDF for preparation purposes: Member states survey 08 02 2013

General

Q2.1.
(Mandatory) Which Member State do you represent?

Member State

Q2.2.
Did you change national laws and regulations **specifically for aviation small emitters** for phase II and/or phase III for EU ETS?

- Yes
- No

Q2.3.
How many aircraft operators submitted a verified Annual Emissions Report for the initial reporting year 2010 and subsequent year 2011?

	Initial reporting year, 2010	2011
Aircraft Operators with less than 10.000 tCO_2 and less than 243 flights for 3 consecutive 4 month periods.		
Aircraft Operators with less than 10.000 tCO_2 but more than 243 flights for 3 consecutive 4 month periods.		
Aircraft Operators with more than 10.000 tCO_2 but less than 243 flights for 3 consecutive 4 months periods.		
Aircraft operators between 10.000 and 25.000 tCO_2.		
Aircraft operators with more than 25.000 tCO_2.		

Q2.4.
What is the share of CO_2 emissions of aviation small emitters of the total CO_2 emissions reported to your Member State for the aviation sector the initial year 2010 and subsequent year 2011?

	Initial year, 2010	2011
Share of contribution of aviation small emitters (%)		

Q2.5.
How many aviation aircraft operators submitted a verified Tonne-Kilometres Report for 2010?

	Number of operators
Aircraft operators with less than 10.000 tCO_2.	
Aircraft operators between 10.000 and 25.000 tCO_2.	
Aircraft operators above 25.000 tCO_2.	

Q2.6.
Did you develop (or modify) an IT tool for compliance (monitoring and reporting) and administration of aircraft operators?

Yes No

Q2.7.
Did you make specific changes to the IT tool for aviation small emitters?

Yes No

Q2.8.
Did you, as a Member State, prepare other supporting tools and templates specifically for aviation small emitters (e.g. guidance, forms etc.)?

Yes No

Q2.9.
Do you make use of the Eurocontrol ETS Support Facility (ETS SF)?

Yes No

Q2.10.
How many different verifiers, including foreign verifiers, have provided verification services to aircraft operators reporting to your Member State ?

	2010	2011	2012
Number of verifiers			

Preparation

Q3.1.
The questions below are intended to provide insights in time and costs of administering aircraft operators for EU ETS. We understand that it may be difficult and time consuming to provide precise data. Incase actual data is too time consuming to collect, we kindly ask you to provide a reasonable estimation of time and cost.

In cases where no time was spent and/or costs were made, please fill in 0.

Please consider an aviation small emitter for this survey as an aircraft operator with less than 10.000 tCO_2.

Q3.2.
How much time was spent, in total, to change national laws and regulations **specifically for aviation small emitters**?

	Time spent
Number of hours	

Q3.3.
How much time was spent in total for the following activities since the beginning of EU ETS Aviation (all aircraft operators) in the preparation phase for compliance:

- identifying aircraft operators (including finding out the address);
- getting in touch with the aircraft operators initially (e.g. letters, calls, contact with embassy, other national authorities in your country);
- communication with aircraft operators about the requirements for EU ETS.

	Time spent
Number of hours	

Q3.4.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options.

0-20%	20-40%	40-60%	60-80%	80-100%
○	○	○	○	○

Q3.5.
How much time was spent and what extra costs were made on developing / modifying the IT tool for compliance and administration for **aviation small emitters**?

	Total
Number of hours	
Other costs (e.g. for purchase of tool) (EUR)	

Q3.6.
How much time was spent and what extra costs were made on developing other supporting tools and templates for compliance and administration for **aviation small emitters**?

	Total
Number of hours	
Other costs (e.g. for purchase of tool) (EUR)	

Q3.7.
How much have you paid for the use of the Eurocontrol ETS Support Facility?

	2010	2011	2012
Total amount for each reporting year (EUR)			

Q3.8.
How much time was spent, in total, on organising workshops with aircraft operators?

	Time spent
Number of hours	

Q3.9.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options.

0-20%	20-40%	40-60%	60-80%	80-100%
○	○	○	○	○

Q3.10.
How much time was spent, in total, on a help desk function for EU ETS for all aircraft operators?

	Time spent
Number of hours	

Q3.11.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options.

0-20%	20-40%	40-60%	60-80%	80-100%
○	○	○	○	○

Monitoring

Q4.1.
Did you, as a member state, charge fees for the submission of Annual Emission Monitoring Plans for the initial reporting year 2010 and/or the subsequent years 2011-2013?

○ Yes ○ No

Q4.2.
What fees did you charge per aircraft operator for the submission of the Annual Emissions Monitoring Plan for the different reporting years?

	Initial year 2010	2011	2012	Mandatory update 2013
Amount for a large emitter (EUR)				
Amount for a small emitter (EUR)				

Q4.3.
How many aircraft operators submitted a new (or updated) version of their Annual Emissions Monitoring Plan for 2011, 2012 and 2013?

Please provide information for large and small emitters separately.

	2011	2012	2013
Number of updated plans for large emitters			
Number of update plans for small emitters			

Q4.4.
How much time was spent, in total, on the approval process of Annual Emissions Monitoring Plans for all aircraft operators for the initial reporting year 2010 and subsequent years 2011-2013?

	Initial reporting year, 2010	2011	2012	2013
Number of hours				

Q4.5.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options for each reporting year.

	2010	2011	2012
0-20%	○	○	○
20-40%	○	○	○
40-60%	○	○	○
60-80%	○	○	○
80-100%	○	○	○

Q4.6.
Did you, as a member state, charge fees for the submission of a Tonne-Kilometres Monitoring plan?

○ Yes ○ No

Q4.7.
What fees did you charge per aircraft operator for the submission of the Tonne-Kilometres Monitoring plan of 2010?

	Fees
Amount for a large emitter (EUR)	
Amount for a small emitter (EUR)	

Q4.8.
How much time was spent, in total, on the approval process of Tonne-Kilometres Monitoring plans for all aircraft operators for the initial reporting year 2010?

	2010
Number of hours	

Q4.9.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options.

0-20%	20-40%	40-60%	60-80%	80-100%
○	○	○	○	○

Q4.10.
How much time was spent, in total, on the allocation of free allowances for all aircraft operators for both phase II and phase III of EU ETS?

	Time spent
Number of hours	

Q4.11.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options.

0-20%	20-40%	40-60%	60-80%	80-100%
○	○	○	○	○

Reporting

Q5.1.
Did you, as a member state, charge fees for the submission of Annual Emissions Reports for the initial reporting year 2010 and/or the subsequent years 2011-2012?

○ Yes ○ No

Q5.2.
What fees did you charge per aircraft operator for submission of the Annual Emissions Report of the initial year 2010 and the subsequent years 2011-2012?

	Initial year 2010	2011	2012
Amount (EUR)			

Q5.3.
How much time was spent, in total, to review (checking and clarifying with the aircraft operator) the Annual Emissions Report for all aircraft operators for the reporting year 2010 and the subsequent years 2011-2012?

	initial year, 2010	2011	2012
Total amount of hours			

Q5.4.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options for each reporting year.

	2010	2011	2012
0-20%	○	○	○
20-40%	○	○	○
40-60%	○	○	○
60-80%	○	○	○
80-100%	○	○	○

Q5.5.
Did you, as a Member State, charge fees for the submission of Tonne-Kilometres Reports?

○ Yes ○ No

Q5.6.
What fees did you charge per aircraft operator for the submission of the Tonne-Kilometres report of reporting year 2010?

	Fees
Amount (EUR)	

Q5.7.
How much time was spent, in total, to review (checking and clarifying with the aircraft operator) the Tonne-Kilometres Reports for all aircraft operators for the reporting year 2010?

	Time spent
Number of hours?	

Q5.8.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options.

0-20%	20-40%	40-60%	60-80%	80-100%
○	○	○	○	○

Verification

Q6.1.
How much time was spent on the acceptance of aviation verifiers, including foreign verifiers in your Member state (including organising workshops and trainings)?

	Initial year, 2010	2011	2012
Number of hours			

Q6.2.
Did you, as a member state, charge fees to verifiers, including foreign verifiers for handling / acceptance for aviation?

○ Yes ○ No

Q6.3.
What fees did you, as a member state, charge per verifier for handling/ acceptance for aviation?

	Initial year, 2010	2011	2012
Amount (EUR)			

Q6.4.
How much time was spent, in total, to review the verification reports for Annual Emission for the reporting year 2010 and the subsequent years 2011-2012?

	Initial year 2010	2011	2012
Total amount of hours spent to review AE reports?			

Q6.5.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options for each reporting year.

	2010	2011	2012
0-20%	○	○	○
20-40%	○	○	○
40-60%	○	○	○
60-80%	○	○	○
80-100%	○	○	○

Q6.6.
How much time was spent, in total, to review the Verification Reports for Tonne-Kilometres for the reporting year 2010?

	Time spent
Total amount of hours spent to review TKM reports?	

Q6.7.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options.

0-20%	20-40%	40-60%	60-80%	80-100%
○	○	○	○	○

Registry and other

Q7.1.
How much time was spent on communication with aircraft operators about the registry (e.g. requirement of opening aircraft operater holding account, answering questions, organising sessions)?

	Time spent
Number of hours	

Q7.2.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options.

0-20%	20-40%	40-60%	60-80%	80-100%
○	○	○	○	○

Q7.3.
Did you charge any fees for opening an aircraft operator holding account in the registry for 2012?

○ Yes ○ No

Q7.4.
What fees did you charge per aircraft operator for opening a aircraft operator holding account in the registry for 2012?

	Fees
Amount for a large emitter (EUR)	
Amount for a small emitter (EUR)	

Q7.5.
Did you charge any fees for the use of an operator holding account in the registry?

○ Yes

○ No

Q7.6.
What fees do you charge per operator for the use of the an aircraft operator holding account in the registry?

	2012	2013
Amount for a large emitter (EUR)		
Amount for a small emitter (EUR)		

Q7.7.
Did you impose any penalties to aircraft operators?

- Yes
- No

Q7.8.
How much time was spent, in total, on building cases to justify sanctions / penalties for aircraft operators and collecting payments?

	Time spent
Number of hours	

Q7.9.
What % of the total time mentioned above was spent on aviation small emitters?

Please choose one of the following options.

0-20%	20-40%	40-60%	60-80%	80-100%

Q7.10.
What was the amount from penalties for aircraft operators did you receive for the reporting years 2010-2012?

	2010	2011	2012
Amount from large emitters (EUR)			
Amount from small emitters (EUR)			

Q7.11.
Have you incurred any costs with regard to **aviation small emitters** in the initial year 2010 or the subsequent years 2011-2013 which have not been mentioned above?

- Yes
- No

Q7.12.
What kind of costs did you incure? Please specify?

Q7.13.
How much time, or what amount of cost was incurred?

	Initial year, 2010	2011	2012
Number of hours			
Amount of additional cost (EUR)			

Additional Information

Q8.1.
What change to the current legislation would in your opinion decrease the costs for compliance and/or administering aviation small emitters significantly?

	High cost decrease	Medium cost decrease	Low cost decrease	No cost decrease
Management companies can choose the member state to be attributed to administration.	○	○	○	○
No verification required in case of use of Eurocontrol ETS SF.	○	○	○	○
Member states provide IT-tools for reporting.	○	○	○	○
Simplified requirements to open aircraft holding account. (just receiving and surrendering of allowances possible)	○	○	○	○
Registry compliance delegated to consultant.	○	○	○	○
Centralised EU wide IT reporting tool for operators.	○	○	○	○

Q8.2.
If applicable, which other suggestions do you have for simplification of the EU ETS within the current legal framework?

Q8.3.
If applicable, which other suggestions do you have for simplification of the EU ETS beyond the current legal framework?

A.2. Aircraft operator survey

Introduction

Q1.1.
Welcome to this survey.

The European Commission has commissioned a project to obtain an accurate and detailed understanding of the impacts of EU ETS on aviation small emitters and for competent authorities to administer these aviation small emitters. The aim of this project is to identify and assess potential simplifications for the system which could lead to a reduction of cost.

The purpose of this survey is to collect relevant information for the project.

We kindly ask your cooperation by completing a number of questions related to cost and options for simplification.

All information collected will be treated confidentially. Data will only be presented on aggregated levels and only for the purpose of this project.

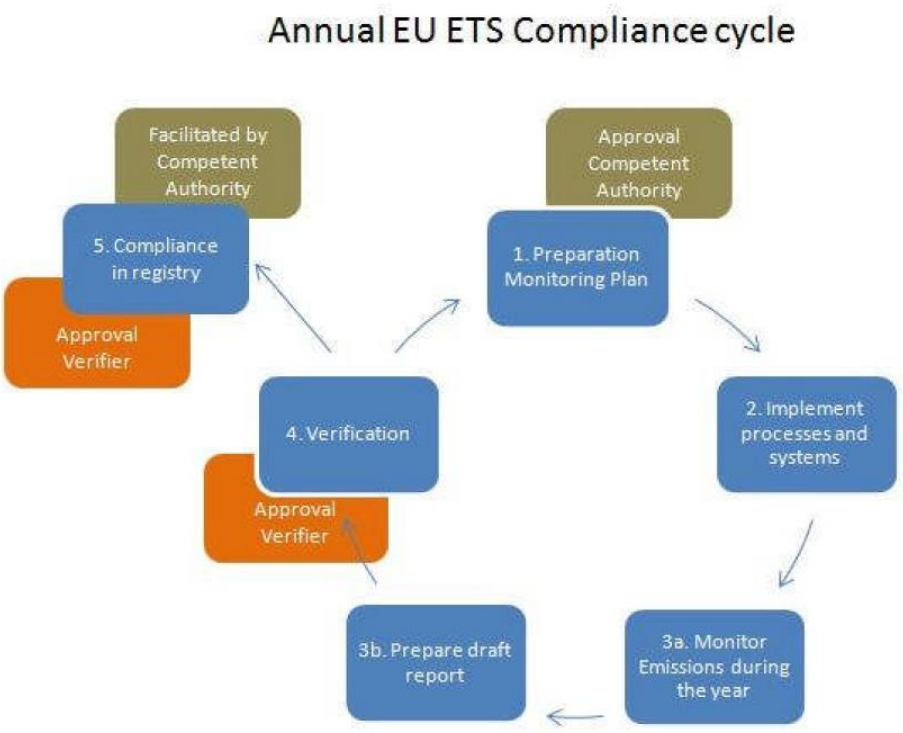
Via the link below, you may print the full survey so you can prepare the information without having to stay online in the survey itself. After gathering the information, the survey will take you about 15 minutes to complete. Please click on the "Next" button on the right left corner to start the survey.

We kindly ask you to complete and submit the survey ultimately 1 March 2013, so we can use the input in our aggregated preliminary results on the stakeholder meeting which will be organised on 6 March 213. Any late responses will still be valuable for the course of the project. Many thanks in advance for your cooperation and we are looking forward to your contribution in the potential improvements of EU ETS for aviation small emitters.

Please click on "Next" after completion to go to the next page and "Previous" if you want to correct an answer.

Link to survey in PDF for preparation purposes:Aircraft operators 08 02 2012

For your convenience we have included the EU-ETS Compliance cycle scheme for operators. In the survey the order of questions is related to the compliance cycle:



General

Q2.1.
(Mandatory) What type of aircraft operator / company are you?

- Commercial
- Non Commercial
- Management company/ service company

Q2.2. For how many aircraft operators are you facilitating and/or assistance with compliance for EU ETS?

Q2.3. Please indicate per administrative Member State the number of aircraft operators for which you facilitate compliance?

Austria	
Belgium	
Bulgaria	
Cyprus	
Czech Republic	
Denmark	
Estonia	
Finland	
France	
Germany	
Greece	
Hungary	
Iceland	
Ireland	
Italy	
Latvia	
Liechtenstein	
Lithuania	
Luxembourg	
Malta	
Netherlands	
Norway	
Poland	

Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	
United Kingdom	

Q2.4.
(Mandatory) What is your administering member state?

Please select your member state.

Q2.5.
What was the total amount of CO2 emissions for EU ETS eligible flights for the reporting year 2011.

	Reporting year 2011
Amount of emissions (in tonnes)	

Q2.6.
Did you apply for free aviation allowances (submission of a verified Tonne-Kilometres Report) for the reporting year 2010?

Yes No

Q2.7.
Please explain why you did not apply for free aviation allowances.

Q2.8.
What tool did you use for monitoring flight and fuel data for Annual Emissions for EU ETS during the reporting year?

	Excel	In house built tool	Tool from an external vendor	Eurocontrol ETS support facility (ETS SF)	Process outsourced to consultant	No monitoring during the year
Reporting year 2010						
Reporting year 2011						
Reporting year 2012						

Q2.9.
What tool did you use to generate the (draft) Annual Emissions Report for EU ETS?

	Excel	In house built tool	Tool from an external vendor	Eurocontrol ETS support facility (ETS SF)	Process outsourced to consultant	Other
Reporting year 2010	○	○	○	○	○	○
Reporting year 2011	○	○	○	○	○	○
Reporting year 2012	○	○	○	○	○	○

Q2.10.
Which method did you primarily use for determining fuel consumption for annual emissions?

	Method A or B	Small Emitters Tool (SET)	Eurocontrol ETS support facility (ETS SF)
Reporting year 2010	○	○	○
Reporting year 2011	○	○	○
Reporting year 2012	○	○	○

Q2.11.
Please explain the reason for not making use of the ETS SF.

Q2.12.
If any, which suggestions do you have for the application of the ETS SF for EU ETS purposes?

Q2.13.
Does your administering Member State charge fees for services related to compliance for EU ETS?

Examples could be for using IT systems, submission of documents (e.g. monitoring plan, AER) or other administrative fees.

○ Yes ○ No

Preparation

Q3.1.
The questions below are intended to provide insights in efforts and costs of compliance for EU ETS. We prefer to obtain actual data where readily available. Where not available, we kindly ask you to provide an estimation.

In cases where no time was spent and/or costs were made, please fill in 0.

Q3.2.
How much time was spent on the preparation of your **Annual Emissions Monitoring Plan**?

Please provide information for the initial preparations for 2010 and also if applicable for updates for 2011 and 2012. Updates for 2011 and 2012 could have been necessary based on recommendations by your verifier.

	Initial preparation, 2010	2011	2012
Number of hours internal staff			
Number of hours external consultans			

Q3.3.
For phase III of EU ETS it is required to update the **Annual Emissions Monitoring Plan**. How much time was spent for the preparation of the Annual Emissions Monitoring Plan for phase III of EU ETS (2013-2020)?

	Internal staff	External consultant
Number of hours		

Q3.4.
How much time was spent for the preparation of the Tonne-Kilometres Monitoring Plan for the reporting year 2010?

	Internal staff	External consultant
Number of hours		

Q3.5.
How much time was spent to design and implement you monitoring and reporting system for Annual Emissions for 2010, and for updating it in 2011 and 2012 (if applicable)?

	Initial preparation, 2010	Updates, 2011	Updates, 2012
Number of hours for internal staff			
Number of hours for external consultant			

Q3.6.
How much time was spent to design and implement your monitoring and reporting system for Tonne-Kilometres for the reporting year 2010?

	Internal staff	External consultant
Number of hours		

Monitoring & reporting:

Q4.1.
What fees (in EUR) did the administering Member State charge you in relation to the following activities:
If no fees were charged for one or more activities, please fill in 0.

	2010	2011	2012	2013
Submission and approval of Annual Emissions Monitoring Plan.				
Submission and approval of Tonne-Kilometres Monitoring Plan (only 2010).				
Submission and approval of Annual Emissions Report.				
Submission and approval of Tonne-Kilometres Report (only 2010).				

Q4.2.
What were the costs (only cost for the tool, excluding implementation costs) for the external monitoring and/ or reporting tool (not being the Eurocontrol ETS-SF) for the initial reporting year 2010 and for the subsequent reporting years 2011-2013?

	initial reporting year, 2010	2011	2012	2013
Amount (EUR)				

Q4.3.
How much time was spent on monitoring and reporting of Annual Emissions for the initial reporting year 2010 and subsequent years 2011-2012? (including time spent during the verification process)

	Initial reporting year, 2010	2011	2012
Number of hours internal staff.			
Number of hours external consultants.			

Q4.4.
How much time was spent on monitoring and reporting of Tonne-Kilometres for the reporting year 2010? (including time spent during the verification process)

	Internal staff	External consultant
Number of hours		

Q4.5.
What fees were charged for making use of the Eurocontrol ETS support facility (ETS SF)?
(If in one or more years the ETS SF has not been used, please fill in 0)

	2010	2011	2012	2013
Amount (EUR)				

Verification

Q5.1.
How much time has your verifier charged for the verification of the Annual Emissions Report for the initial year 2010 and the subsequent year 2011? We would like to know the number of hours charged, if this data is not available please provide the total cost. If applicable, please als provide the cost for travel expenses (e.g. in case of site visists).

	Initial year, 2010	2011
Number of hours		
Total amount (EUR)		
Cost for travel expenses (EUR)		

Q5.2.
How much time has your verifier charged for the verification of the Tonne-Kilometres Report in the reporting year 2010?
We would like to know the number of hours charged, if this data is not available please provide the total cost.

	2010
Number of hours	
Total amount (EUR)	

Registry, trading and other

Q6.1.
How much time was spent on the opening of an aircraft operator holding account in the registry? The time spent could include time for collecting information, legalisation of documents, filling in forms, communication with consultants and/or registry handlers, management meetings etc.)?

	Internal staff	External consultant
Number of hours		

Q6.2.
How much time was spent on the design and implementation of carbon management function for EU ETS? This includes time for strategy, management meetings, setting up contracts etc. for the purpose of buying Emission Allowances.

	Internal staff	External consultant
Number of hours		

Q6.3.
What are your estimated costs of carbon trading for 2012 compliance (buying allowances)?

	Cost of trading activities
Amount (EUR)	

Q6.4.
If other fees (not mentioned above) were charged by your administrative Member State in the initial reporting year 2010 and the subsequent years 2011-2013, please provide details below.

	Initial year,2010	2011	2012	2013
Description of costs				
Amount (EUR)				

Q6.5.
Have you incurred any penalties by your administrative Member State in the initial reporting year 2010 and the subsequent years 2011-2013?

- ○ Yes
- ○ No

Q6.6.
What was the reason for the penalties imposed by your administrative Member State?

Q6.7.
Please provide the amount of the penalties for the respective reporting year(s).

	Initial year, 2010	2011	2012
Amount (EUR)			

Q6.8.
Did you incur any other cost related to EU ETS? If so, could you please explain what kind of cost you made and also indicate how much time was spent or fees were paid?

Additional Information

Q7.1.
Have you used the Eurocontrol ETS support facility (ETS SF) for reporting and verification purposes?

	Yes	No
Reporting year 2010	○	○
Reporting year 2011	○	○
Reporting year 2012	○	○

Q7.2.
What change to the current legislation would in your opinion decrease the costs for compliance significantly?

	High cost decrease	Medium cost decrease	Low cost decrease	No cost decrease
Management companies can choose the Member State to be attributed to administration.	○	○	○	○
No verification required in case of use of Eurocontrol ETS SF .	○	○	○	○
Member states provide IT-tools for reporting.	○	○	○	○
Simplified requirements to open aircraft holding account. (just receiving and surrendering of allowances possible).	○	○	○	○
Registry compliance delegated to consultant.	○	○	○	○

Q7.3.
If applicable, which other suggestions do you have for simplification of the EU ETS within the current legal framework?

Q7.4.
If applicable, which other suggestions do you have for simplification of the EU ETS for aviation small emitters beyond the current legal framework?

Q7.5.
Your input may provide us with interesting insights. Therefore, we would welcome the opportunity to get in touch with you to obtain more detailed information, especially on suggestions you provide.

If we may contact you about this survey, please provide your name, email address and telephone number below. If you would like to contact us, please send your comments or questions to: dennis.mes@nl.pwc.com

Name	
Email address	
Telephone number	

B. Detailed assessment of options for simplification

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
C1	MS communication in English	Member States could provide all information and communication in English next to local language	Reduction in communication time for operators and preventing double work due to misinterpretation of requirements	N/A	None	0	0	+	0	Yes	Yes
C2	EU wide subject matter experts specializing in helping other MS with issues on specific topic	In some Member States, specialists on certain topics (e.g. exempted flights, registry) could help in handling issues, questions and solutions other MS have in regulating aircraft operators. Designated subject matter experts could be appointed to provide assistance on structural basis. The Task Force Aviation could play a role for this option.	Design and implement solutions for efficiently dealing with certain issues and increase harmonisation between MS	MS would have to agree on who (from which MS) will deal with which area of expertise. MS would need to agree on who will fund the time to help the other MS. This could be difficult from a practical perspective, MS have different views	None	0	+	0	0	No	Yes
C3	EU wide front desk function for all communication with aviation small emitters	A centralised front office could be established for communication with small emitters about EU ETS (e.g. Monitoring Plans, requirements for reporting and registry related issues). Back office and formal administering of small emitters would still be performed by the MS	Harmonise communication with aircraft operators (small), increase efficiency in regulating small emitters and reduce communication time for aircraft operators	Potentially complex to settle agreements between MS on practical matters. Question is also the delineation of legal responsibilities between the EU wide communication point and the MS. Funding for the front office would have to be agreed amongst MS.	Bilateral agreements between MS	0	+	+	0	No	No
C4	Coordinated communications from Member States to small emitters	Stop the clock is one of the few examples where harmonised communication to aircraft operators is successfully carried out. This could be done more to increase efficiency in communication and avoid interpretation differences about the requirements	One single efficient message to small emitters, no differences (in interpretation) between MS, which saves some time	Could be difficult to arrange as this depends on the willingness of MS to accept centralised communication	None	0	+	+	0	No	Yes

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
C5	MS adopting guidance prepared by other MS	Although much information is currently shared by MS, double work in designing guidance still exist to a certain extend. More coordination of designing of guidance for aviation and preparing these by one or a selected group of MS to be used by others could be established	Some time savings at the MS in preparing guidance	Differences in appreciation of issues could exist between MS, need for guidance could differ per MS too. This could make it more complex to achieve in practice.	None	0	+	0	0	No	Yes
C6	Member States using best practices of others	Sharing best practices informally is already promoted, making more use of best practices of others could be done more in the view of multiple stakeholder to the project	We understand form the aircraft operators, that some MS are more efficient than others in certain areas, sharing more and adopting best practices would help to reduce cost	Local legislation and organisational design/communication lines in MS could represents constraints in adapting best practices from others.	None	0	+	0	0	No	Yes
C7	Member States to work only based on digital documents	In some MS, formal documents have to be submitted in hard copy. In some MS, PDF format or other digital formats are accepted. Working without hardcopy documents is more and more accepted in doing business; it would enable more efficient communication with limitation of risk of documents getting lost.	Reduce processing time and enable more efficient communication in MS where hard copy documents are currently used.	There might be legal issues connected to national legislation (e.g. electronic information should have the same legal status as paper information, however the electronic information must meet certain EU requirements). In some MS it could be required by law to have hard copy documents. This would be very difficult to change.	None	0	0	0	0	No	Yes
D1	Pooling of monitoring, reporting and verification for small emitters	Aircraft operators could form a group for EU ETS purposes. One representative (or consultant) could be responsible for EU ETS compliance for the entire group. If for EU ETS purposes the group could be considered to be one aircraft operator, one MP, one AER, one verification process and one registry account would be allowed to set up.	Significantly reduce the cost of compliance for small emitters for the whole compliance cycle, including verification, but also for MS to regulate way fewer "EU ETS operators".	Could be complex when operators in the group do not have similar processes and type of business. It also requires that the group representative (or consultant) obtains all the required flights and fuel data of the operators. Power of attorney would be required to delegate the responsibilities to the group representatives. Could be complex if operators change group throughout the year. MS would need to keep track of whether aircraft operators are administered via a group or not. It should be clear who the Member States will impose sanctions on in case of non-compliance.	Change in Directive Potential change in MRR, AVR and Registry Regulation	0	+	+++	0	No	No

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
D2	Pooling of registry compliance (group registry accounts)	Instead of having a separate registry account for each aircraft operator, pooling of aircraft operators account (delegated to consultant or head of the group) could reduce administration time for setting up accounts and registry compliance. The delegated representative could be responsible for compliance.	Reduce time and out of pocket costs for registry compliance for aircraft operators and for MS to administer a smaller group.	Definition of account holder for aircraft operators would have to change. MS would need to keep track of whether aircraft operators are administered via a group or not. Power of attorney would be required to delegate the responsibilities to the group representatives. Difficulties could arise in transferring free allocation to operators.	Change in Registry Regulation	0	+	+	0	No	Yes
D3	Aircraft operator delegating registry compliance to a consultant	By giving power of attorney, small aircraft operators can engage with consultants to perform the compliance in the registry on behalf of multiple aircraft operators	Reduce time and out of pocket costs for registry compliance for the operators. With the amended Registry Regulation, this is already possible.	Power of attorney is needed to delegate responsibilities to a consultant. Could become complex when operators change consultants.	None	0	0	+	0	Yes	No
D4	Virtual Member State (e.g. Aviation small emitters authority) for all aviation small emitters	Establish a central point of contact for dealing with aviation small emitters. This could be organised in different ways. It could vary to complete administering of all tasks in the compliance cycle to concentrating small emitters to a few larger MS.	One central point of contact for all small emitters would increase efficiency in communication and avoid confusion in the international market about differences between MS for non-EU operators. Administering small emitters centrally would enable benefits of economies of scale to be achieved at MS level.	This may require setting up a function on EU level; it could be complex to agree on this between all MS. It would have to be agreed who will fund this centralised function. Also, it may require changes in the national allocation for aviation at MS.	Change in Directive and / or bilateral agreements between MS	0	+	+	0	No	No
D5	Delegation of tasks between Member States	MS with more capacity and knowledge can execute tasks from other Member States without taking over responsibilities. For example one MS could perform the review of all AER of another MS and provide an advice on the acceptance of the reports.	This would increase the efficiency of administering small emitters in aviation without compromising on quality. This could save time, especially for small MS.	Complexities could arise in agreeing on what tasks to delegate to what MS. Agreements would have to be set up between MS about the tasks that would be delegated and about payment of the services rendered by other MS.	Bilateral agreements between MS	0	+	0	0	No	Yes

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
D6 	Change of attribution of small emitters to MS	Attribution to MS is detailed in the Directive and is based on either the MS in which the AOC is provided or the MS where the operator has most of their EU traffic to. Many small emitters do not have an AOC and only fly unscheduled. The proposed suggestion is to allow small emitters more flexibility in choosing the MS to be administered by. This could for example apply to operators operating very few flights (e.g. below 52), operators belonging to a group of operators and operators engaged with a consultant to facilitate compliance for EU ETS.	This would enable small emitters facing language problems with MS and its requirements, in case the operator is not based in the MS by which it is administered. Allowing some flexibility for small emitters belonging to a group or engaged with a consultant would enable the groups or consultant to increase the efficiency of EU ETS compliance. This would save time at the operators' side. It would also save time at the MS as they would need to communicate with fewer different parties about EU ETS.	Differences in organisation of administering aircraft operators exist between MS. Costs also differ between MS. Allowing flexibility could lead to perverse incentives to choose the cheapest MS. Change of attribution would also mean change in potential national allocation for MS when small emitters that applied for free allowances would be regulated by another MS.	Change in Directive (article 18a), list of the Commission mentioned in Article 18a(3)	0	+	++	0	No	No
R1 	Simplified aircraft operator holding accounts for small emitters	Under a certain threshold, "compliance only" accounts could for example be introduced for small quantities of allowances. The requirements to open and maintain these accounts could be reduced to make it easier for small operators to comply and for MS to regulate, while the risk of misuse of the registry would not change.	Reduce time and out of pocket expenses for the large group of operators that have not yet opened their account and for small operators to update the account and for MS to validate and check information.	This requires technical change to system, we understand from the Commission that this would be difficult to harmonise between MS. The Commission already assessed this option and found this to be too difficult to achieve, especially from a security perspective. Therefore the option for facilitation was introduced by the Commission as an amendment in the Registry Regulation.	Change of Registry Regulation	0	0	++	0	No	No
R2 	Extend the threshold for use of the Small Emitter Tool	Currently aircraft operators emitting less than 25,000 tCO_2 are allowed to use the SET to estimate the emissions per flight instead of monitoring actual consumption based on method A or B. For this option, a higher threshold for the use of the SET is suggested.	Some benefits could be achieved in case aircraft operators would be able to report more efficiently using the SET compared to Method A or B. Time could be saved at the side of the operators.	Fewer emissions in EU ETS would be calculated based on actual fuel consumption. This is opposing the principle of increasing accuracy of actual emissions. It might be that limited operators would make use of this option should using the SET not lead to cost reductions compared to method A or B or in case using the SET would lead to significantly different estimations compared to actual fuel consumption.	Change of MRR (article 54)	0	0	0	0	No	No

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
R3	Allow operators to use the ETS-SF output as basis for EU ETS reporting	Operators using the ETS-SF, have the obligation to formally check the flight data with their own data in their systems. Also, the verifier has to either check whether the check of the operator has been performed correctly or has to compare the sources themselves. Many small emitters do not understand how to do this and how to document, or they are constraint in the time they can make available to do so. The output of the ETS-SF could be viewed as reliable without the need for further checks on flight data and fuel data.	This would reduce time spent on reporting, cross checking and verification time. This could be a trigger for many more aircraft operators to use the ETS-SF, which could lead to a decrease of the fee per operator.	In this option one would accept deviations from actual emissions. We understand that the ETS-SF if very, but not 100% accurate and complete. The acceptable error margin of the ETS-SF would need to be agreed upon. In addition, a solution may be needed for EU flights currently not covered by EUROCONTROL, such as flights to and from Iceland, Estonia and overseas territories. This could for example be achieved by information sharing between route charge offices.	Change in guidance	0	0	++	0	Yes	No
R4	Using the current simplification possibility when the ETS-SF is used	The quick guide on verification provides an option for simplified verification if the operator sufficiently performs and documents a cross check between the draft emissions report and the ETS-SF output and if that results in limited amounts of differences	Save reporting time and verification cost especially in case issues arise during verification in cases where the operator does not cross check the ETS-SF output. This would most likely be a trigger for many more aircraft operators to use the ETS-SF.	Small emitters may not have sufficient capacity and/or capabilities to adequately perform and document the check between the ETS-SF output and their own EU ETS flights and fuel data.	None	0	0	+	0	Yes	No
R5	No verification in case the ETS-SF is used	We understand that the quality of the output of the ETS-SF is very high. Both EUROCONTROL and Member States mentioned that only very limited differences exist between the EU ETS emissions reported based on actuals (method A or B) compared to the estimated emissions by the ETS-SF. The accuracy and completeness of the ETS-SF emissions output appears to be above 99%. Should the ETS-SF be considered as reliable source to estimate emissions for small emitters for EU ETS without material misstatements and to produce draft EU ETS reports in the correct formats, verification of the operators' reports would not add value. In this option, verification would not necessary.	Aircraft operators would save time in reporting and verification and would save verification costs.	In this option one would accept deviations from actual emissions. We understand that the ETS-SF if very, but not 100% accurate and complete. The acceptable error margin of the ETS-SF would need to be agreed upon. In addition, a solution may be needed for EU flights currently not covered by EUROCONTROL, such as flights to and from Iceland, Estonia and overseas territories. This could for example be achieved by information sharing between route charge offices. In addition, verification on the ETS-SF may be needed to provide reasonable assurance that the output of the ETS-SF is not materially misstated.	Change of Directive (Article 15 and Annex V), Assess whether it is legally possible to change only Annex V if ETS SF is considered as the verification for small emitters. However this should be carefully phrased to be in line with considerations and objectives of Directive)	0	0	++	0	No	No

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
R6	Attribution to Member State in base country of non-commercial EU operators	Attribution of aircraft operators without an AOC is now based on where the operator flown to most in the past. For non-commercial operators with unscheduled operations based in the EU, it could be beneficial to be administered by the MS of the base country of the aircraft operator.	More efficient communication in local language between operator and MS, easier to get in touch with each other and geographically easier to meet.	This may require changes in the national allocation for small emitters that successfully applied for free allowances.	Change in Directive (article 18a), list of the Commission mentioned in Article 18a(3)	0	+	+	0	No	No
R7	Harmonisation of interpretation of necessary changes to the Monitoring Plan for small emitters	We understand that differences exist between MS about the interpretation of which changes shall lead to an update of the MP and in addition which changes require approval of the Competent Authority. The proposed suggestion is to harmonise the requirements for changes to the MP between MS and to agree on which specific changes should be processed in the MP and which specific changes should be subject to approval by the Competent Authority	Harmonised approach across MS and reduction of time and fees to change the MP.	It could become complex to agree between all MS which specific types of changes should lead to changes in the MP for small emitters and which have to be approved. For example, we understand differences exist between MS in the approach towards changing aircraft. Is a change of aircraft for a small emitter a change in emission source or not? And is this considered to be significant? Additional guidance on this might help.	Potential change to the MRR	0	0	+	0	No	No
R8	Light accreditation for Aviation Small Emitter verifiers	If verifiers only verify small emitters, they could fall under a light regime of accreditation (e.g. when it comes to qualification of staff, risk analysis, verification process)	Reduction of accreditation cost for verifiers, which could lead to less costs for operators.	It could become difficult to agree on EU level on accepting this. Also, local accreditation requirements might contain restrictions to achieve this. It also would become complex in a situation that a small emitters becomes large, this would then mean either a change of verifier or extra accreditation work on the verifier.	Change in the AVR (Annex I) and potential change in national legislation	0	-	+	0	No	No

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
R9	Provide access to small quantities of allowances (auctioning)	Many aviation small emitters emit a very low amount of CO_2 emissions. With a minimum amount of emissions to be obtained from auctioning much higher than the emissions of many small emitters (e.g. 1,000 tCO_2), it can be difficult for aviation small emitters to obtain only a small quantity of allowances. Lowering the minimum auctioning amount could provide access to allowances easier for aviation small emitters. We also understand that purchasing small quantities of allowances on the market could be difficult.	Aviation small emitters can buy on an auction the low quantities that they need and therefore reduce costs of compliance. In Phase III of EU ETS, small emitters could also buy more allowances the first year which they can use for compliance in future years to solve the issue.	While small quantities may be helpful for small emitters, lowering the minimal amounts on auctions could impair the cost effectiveness of the auctioning process as potentially smaller batches could be auctioned, meaning more transactions and therefore more work.	None	0	0	0	0	No	No
Te1	Include SET in AER Template	By including the SET in the AER template, aircraft operators can build up the list of flights in the reporting template in excel, which can then be automatically linked to the SET output and the aggregated numbers of the report.	In this option, only 1 Excel file would be needed instead of 3. This would enable reduction of the risk of manual errors and reduce the reporting and verification time. Instead of using the SET manually, it could be automatically applied in the reporting template to reduce time spent.	It would require some effort to update the template and MS would need to agree on the template before it would be published.	None	0	0	+	0	Yes	No
Te2	Simplified Monitoring Plan for Small Emitters	Although the MP is already simpler for Small Emitters, compared to large Emitters, the templates could further be simplified. Especially when small emitters use the ETS-SF or the SET and only have a very limited amount of flights, the data management section for example, is perceived to add little value.	This option would lead to more standardisation and efficient preparation and approval of MP for small emitters	It would require some effort to update the template and MS would need to agree on the template before it would be published.	None	0	0	+	0	Yes	No

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
Te3	Standardised Monitoring Plan for Small Emitters EU wide	Apart from the excel templates adopted by many MS, some require separate input in an online tool. To enable full standardisation, an upload function of the full excel template directly in the online tools without further information required could be built. Also, in some MS the MP has to be submitted in the local language, accepting English could be the standard for aircraft operators	Full harmonisation for very simple MP's for small emitters in all MS would be beneficial for small emitters, so that is does not matter in which MS one reports. This reduces time to fill in additional information in some MS (and differences in cost there) and reduces some potential cost of translation for Aircraft Operators	It could become complex to convince all MS to accept this, especially when IT tools are used currently. In addition, complexity could arise when language of MP's is defined in local language due to national legislation.	None	o	o	+	o	No	No
Te4	Pre-filled MP and AER based for admin information	Following the example of some MS, MP's and AER's could be pre-filled with administrative information as a default, such as name, contact persons, identification numbers, and verifier information.	The option would reduce some duplication of providing information to the MS which is already available at the MS.	MS would need to agree on what field to pre-fill based on what information and it could become complex to achieve for all MS using the excel templates.	None	o	o	+	o	No	Yes
To1	ETS application	Instead of having to use excel templates and other formats, small aircraft operators can use an application on their mobile devices to input ETS information about flights and fuels and admin information. Report could be generated from the app at year end for verification and formal report purposes.	This would be a user friendly way of reporting and compliance. The option could save operators time when fulfilling monitoring and reporting requirements for small emitters, which is currently based for most operators on minimal amounts of information in different systems.	It would become complex to ensure data protection and harmonisation between MS. The app would have to be reliable. It would require operators also to still keep records of flight information available for cross checking and verification.	Changes in national legislation could be necessary to allow for electronic submission. There is EU Legislation that would allow electronic submission provided certain conditions are met. But additional national legislation might in some cases be necessary (MPs are a legal document)	o	o	+	o	No	No
To2	ETS in the “cloud” for small emitters	Fully online and real time management of EU ETS for MS, Operators and verifiers in the same system could be introduced to optimise harmonisation and standardisation.	This would enable more efficient monitoring, reporting and verification in one single system instead of multiple systems used by different parties involved.	It could become complex to convince MS to participate and have limited influence on the system that differs from the current systems. The system has to be designed and implemented and all MS would need to agree on the system. It would be an additional system next to the current systems for large emitters. IT security aspects need to be considered as well.	None	o	-	+	o	No	Yes

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
To3	Automated workflow with ETS SF output and upload for MS	Currently the ETS-SF output consists of a draft AER in the Excel format. Some MS use IT systems for reporting. An automatic interface between the ETS-SF and the reporting system of MS or specific Excel templates could be created in the correct language with all necessary information automatically filled in for reporting for Small Emitters could be created.	This option would increase the efficiency of reporting for small emitters and reducing the risks of manual errors when filling the IT systems based on the current excel output of the ETS-SF.	Communication between relevant MS and EUROCONTROL would be needed to design the output in the correct format. Per operator, the output would have to be tailored depending on the administering MS. Funding of the changes to the ETS-SF output would have to be agreed.	None	0	0	+	0	No	No
To4	Increase the use of currently available IT systems developed and operated by several MS	All MS could agree on the use of the currently available IT systems for small emitters for reporting emissions.	Using the currently available IT systems (e.g. from the UK and Germany) would lead to a reduction of errors, better harmonisation between MS and could save time at the MS to review MP's and AER's.	It could become complex to convince all MS to use one of the systems currently used. In addition, it could be complex to agree on funding of the use of these systems and training of staff at MS.	None	0	+	+	0	No	Yes
To5	Create a mandatory new IT tool to use for small emitters	A simple and effective mandatory IT tool for aviation small emitters for MP and AER could be designed and implemented.	A simple and standard tool for all small emitters would increase harmonisation of reporting. Cost reduction could be achieved in time spent to report emissions and to review MP's and AER's.	A new tool would have to be designed and implemented. This costs time and money. It could become complex to convince all MS to use a new tool in addition to the existing tools for large emitters. MS would have to agree on funding.	None	0	+	+	0	No	No

Option	Name of simplification	Description of simplification	Main potential benefits	Main potential constraints	Legal impact	Environmental impact	Economic impact (MS)	Economic impact operators	Impact competitive distortion	Quick win	Potentially beneficial for large operators
C1	MS communication in English	Member States could provide all information and communication in English next to local language	Reduction in communication time for operators and preventing double work due to misinterpretation of requirements	N/A	None	0	0	+	0	Yes	Yes
C2	EU wide subject matter experts specializing in helping other MS with issues on specific topic	In some Member States, specialists on certain topics (e.g. exempted flights, registry) could help in handling issues, questions and solutions other MS have in regulating aircraft operators. Designated subject matter experts could be appointed to provide assistance on structural basis. The Task Force Aviation could play a role for this option.	Design and implement solutions for efficiently dealing with certain issues and increase harmonisation between MS	MS would have to agree on who (from which MS) will deal with which area of expertise. MS would need to agree on who will fund the time to help the other MS. This could be difficult from a practical perspective, MS have different views	None	0	+	0	0	No	Yes
C3	EU wide front desk function for all communication with aviation small emitters	A centralised front office could be established for communication with small emitters. Back office and formal administering of small emitters would still be performed by the MS	Harmonise communication with aircraft operators (small), increase efficiency in regulating small emitters and reduce communication time for aircraft operators	Potentially complex to settle agreements between MS on practical matters. Question is also the delineation of legal responsibilities between the EU wide communication point and the MS. Funding for the front office would have to be agreed amongst MS.	Bilateral agreements between MS	0	+	+	0	No	No
C4	Coordinated communications from Member States to small emitters	Stop the clock is one of the few examples where harmonised communication to aircraft operators is successfully carried out. This could be done more to increase efficiency in communication and avoid interpretation differences about the requirements	One single efficient message to small emitters, no differences (in interpretation) between MS, which saves some time	Could be difficult to arrange as this depends on the willingness of MS to accept centralised communication	None	0	+	+	0	No	Yes
C5	MS adopting guidance prepared by other MS	Although much information is currently shared by MS, double work in designing guidance still exist to a certain extend. More coordination of designing of guidance for aviation and preparing these by one or a selected group of MS to be used by others could be established	Some time savings at the MS in preparing guidance	Differences in appreciation of issues could exist between MS, need for guidance could differ per MS too. This could make it more complex to achieve in practice.	None	0	+	0	0	No	Yes
C6	Member States using best practices of others	Sharing best practices informally is already promoted, making more use of best practices of others could be done more in the view of multiple	We understand form the aircraft operators, that some MS are more efficient than others in certain areas, sharing more and adopting best	Local legislation and organisational design/communication lines in MS could represents constraints in adapting best practices from others.	None	0	+	0	0	No	Yes

		stakeholder to the project	practices would help to reduce cost								
C7	Member States to work only based on digital documents	In some MS, formal documents have to be submitted in hard copy. In some MS, PDF format or other digital formats are accepted. Working without hardcopy documents is more and more accepted in doing business; it would enable more efficient communication with limitation of risk of documents getting lost.	Reduce processing time and enable more efficient communication in MS where hard copy documents are currently used.	There might be legal issues connected to national legislation (e.g. electronic information should have the same legal status as paper information, however the electronic information must meet certain EU requirements). In some MS it could be required by law to have hard copy documents. This would be very difficult to change.	None	0	0	0	0	No	Yes
D1	Pooling of monitoring, reporting and verification for small emitters	Aircraft operators could form a group for EU ETS purposes. One representative (or consultant) could be responsible for EU ETS compliance for the entire group. If for EU ETS purposes the group could be considered to be one aircraft operator, one MP, one AER, one verification process and one registry account would be allowed to set up.	Significantly reduce the cost of compliance for small emitters for the whole compliance cycle, including verification, but also for MS to regulate way fewer "EU ETS operators".	Could be complex when operators in the group do not have similar processes and type of business. It also requires that the group representative (or consultant) obtains all the required flights and fuel data of the operators. Power of attorney would be required to delegate the responsibilities to the group representatives. Could be complex if operators change group throughout the year. MS would need to keep track of whether aircraft operators are administered via a group or not.	Change in Directive Potential change in MRR, AVR and Registry Regulation	0	+	+++	0	No	No
D2	Pooling of registry compliance (group registry accounts)	Instead of having a separate registry account for each aircraft operator, pooling of aircraft operators account (delegated to consultant or head of the group) could reduce administration time for setting up accounts and registry compliance	Reduce time and out of pocket costs for registry compliance for aircraft operators and for MS to administer a smaller group.	Definition of account holder for aircraft operators would have to change. MS would need to keep track of whether aircraft operators are administered via a group or not. Power of attorney would be required to delegate the responsibilities to the group representatives. Difficulties could arise in transferring free allocation to operators.	Change in Registry Regulation	0	+	+	0	No	Yes
D3	Aircraft operator delegating registry compliance to a consultant	By giving power of attorney, small aircraft operators can engage with consultants to perform the compliance in the registry on behalf of multiple aircraft operators	Reduce time and out of pocket costs for registry compliance for the operators. With the amended Registry Regulation, this is already possible.	Power of attorney is needed to delegate responsibilities to a consultant. Could become complex when operators change consultants.	None	0	0	+	0	Yes	No
D4	Virtual Member State (e.g. Aviation small emitters authority) for all aviation small	Establish a central point of contact for dealing with aviation small emitters. This could be organised in different ways. It could vary to complete administering of all tasks in the compliance cycle to concentrating	One central point of contact for all small emitters would increase efficiency in communication and avoid confusion in the international market about differences between MS for non-EU operators.	This may require setting up a function on EU level; it could be complex to agree on this between all MS. It would have to be agreed who will fund this centralised function. Also, it may require changes in the national allocation for aviation at MS.	Change in Directive and / or bilateral agreements between MS	0	+	+	0	No	No

	emitters	small emitters to a few larger MS.	Administering small emitters centrally would enable benefits of economies of scale to be achieved at MS level.								
D5	Delegation of tasks between Member States	MS with more capacity and knowledge can execute tasks from other Member States without taking over responsibilities. For example one MS could perform the review of all AER of another MS and provide an advice on the acceptance of the reports.	This would increase the efficiency of administering small emitters in aviation without compromising on quality. This could save time, especially for small MS.	Complexities could arise in agreeing on what tasks to delegate to what MS. Agreements would have to be set up between MS about the tasks that would be delegated and about payment of the services rendered by other MS.	Bilateral agreements between MS	0	+	0	0	No	Yes
D6	Change of attribution of small emitters to MS	Attribution to MS is detailed in the Directive and is based on either the MS in which the AOC is provided or the MS where the operator has most of their EU traffic to. Many small emitters do not have an AOC and only fly unscheduled. The proposed suggestion is to allow small emitters more flexibility in choosing the MS to be administered by. This could for example apply to operators operating very few flights (e.g. below 52), operators belonging to a group of operators and operators engaged with a consultant to facilitate compliance for EU ETS.	This would enable small emitters facing language problems with MS and its requirements, in case the operator is not based in the MS by which it is administered. Allowing some flexibility for small emitters belonging to a group or engaged with a consultant would enable the groups or consultant to increase the efficiency of EU ETS compliance. This would save time at the operators' side. It would also save time at the MS as they would need to communicate with fewer different parties about EU ETS.	Differences in organisation of administering aircraft operators exist between MS. Costs also differ between MS. Allowing flexibility could lead to perverse incentives to choose the cheapest MS. Change of attribution would also mean change in potential national allocation for MS when small emitters that applied for free allowances would be regulated by another MS.	Change in Directive (article 18a), list of the Commission mentioned in Article 18a(3)	0	+	++	0	No	No
R1	Simplified aircraft operator holding accounts for small emitters	Under a certain threshold, "compliance only" accounts could for example be introduced for small quantities of allowances. The requirements to open and maintain these accounts could be reduced to make it easier for small operators to comply and for MS to regulate, while the risk of misuse of the registry would not change.	Reduce time and out of pocket expenses for the large group of operators that have not yet opened their account and for small operators to update the account and for MS to validate and check information.	Requires technical change to system, we understand that this would be difficult to harmonise between MS. The Commission already assessed this option and found this to be too difficult to achieve, especially from a security perspective. Therefore the option for facilitation was introduced by the Commission.	Change of Registry Regulation	0	0	++	0	No	No
R2	Extend the threshold for use of the Small Emitter Tool	Currently aircraft operators emitting less than 25,000 tCO_2 are allowed to use the SET to estimate the emissions per flight instead of monitoring actual consumption based on method A or B. For this option, a higher threshold for the use of the SET is suggested.	Some benefits could be achieved in case aircraft operators would be able to report more efficiently using the SET compared to Method A or B. Time could be saved at the side of the operators.	Fewer emissions in EU ETS would be calculated based on actual fuel consumption. This is opposing the principle of increasing accuracy of actual emissions. It might be that limited operators would make use of this option should using the SET not lead to cost reductions compared to method A or B or in case using the SET would lead to	Change of MRR (article 54)	0	0	0	0	No	No

				significantly different estimations compared to actual fuel consumption.							
R3	Allow operators to use the ETS-SF output as basis for EU ETS reporting	Operators using the ETS-SF, have the obligation to formally check the flight data with their own data in their systems. Also, the verifier has to either check whether the check of the operator has been performed correctly or has to compare the sources themselves. Many small emitters do not understand how to do this and how to document, or they are constraint in the time they can make available to do so. The output of the ETS-SF could be viewed as reliable without the need for further checks on flight data and fuel data.	This would reduce time spent on reporting, cross checking and verification time. This could be a trigger for many more aircraft operators to use the ETS-SF, which could lead to a decrease of the fee per operator.	In this option one would accept deviations from actual emissions. We understand that the ETS-SF if very, but not 100% accurate and complete. The acceptable error margin of the ETS-SF would need to be agree upon. In addition, a solution may be needed for EU flights currently not covered by EUROCONTROL, such as flights to and from Iceland, Estonia and overseas territories. This could for example be achieved by information sharing between route charge offices.	Change in guidance	0	0	++	0	Yes	No
R4	Using the current simplification possibility when the ETS-SF is used	The quick guide on verification provides an option for simplified verification if the operator sufficiently performs and documents a cross check between the draft emissions report and the ETS-SF output and if that results in limited amounts of differences	Save reporting time and verification cost especially in case issues arise during verification in cases where the operator does not cross check the ETS-SF output. This would most likely be a trigger for many more aircraft operators to use the ETS-SF.	Small emitters may not have sufficient capacity and/or capabilities to adequately perform and document the check between the ETS-SF output and their own EU ETS flights and fuel data.	None	0	0	+	0	Yes	No
R5	No verification in case the ETS-SF is used	We understand that the quality of the output of the ETS-SF is very high. Both EUROCONTROL and Member States mentioned that only very limited differences exist between the EU ETS emissions reported based on actuals (method A or B) compared to the estimated emissions by the ETS-SF. The accuracy and completeness of the ETS-SF emissions output appears to be above 99%. Should the ETS-SF be considered as reliable source to estimate emissions for small emitters for EU ETS without material misstatements and to produce draft EU ETS reports in the correct formats, verification of the operators' reports would not add value. In this option, verification would not necessary.	Aircraft operators would save time in reporting and verification and would save verification costs.	In this option one would accept deviations from actual emissions. We understand that the ETS-SF if very, but not 100% accurate and complete. The acceptable error margin of the ETS-SF would need to be agree upon. In addition, a solution may be needed for EU flights currently not covered by EUROCONTROL, such as flights to and from Iceland, Estonia and overseas territories. This could for example be achieved by information sharing between route charge offices. In addition, verification on the ETS-SF may be needed to provide reasonable assurance that the output of the ETS-SF is not materially misstated.	Change of Directive (Article 15 and Annex V), Assess whether it is legally possible to change only Annex V if ETS SF is considered as the verification for small emitters. However this should be carefully phrased to be in line with considerations and objectives of Directive)	0	0	++	0	No	No

R6	Attribution to Member State in base country of non-commercial EU operators	Attribution of aircraft operators without an AOC is now based on where the operator flown to most in the past. For non-commercial operators with unscheduled operations based in the EU, it could be beneficial to be administered by the MS of the base country of the aircraft operator.	More efficient communication in local language between operator and MS, easier to get in touch with each other and geographically easier to meet.	This may require changes in the national allocation for small emitters that successfully applied for free allowances.	Change in Directive (article 18a), list of the Commission mentioned in Article 18a(3)	0	+	+	0	No	No
R7	Harmonisation of interpretation of necessary changes to the Monitoring Plan for small emitters	We understand that differences exist between MS about the interpretation of which changes shall lead to an update of the MP and in addition which changes require approval of the Competent Authority. The proposed suggestion is to harmonise the requirements for changes to the MP between MS and to agree on which specific changes should be processed in the MP and which specific changes should be subject to approval by the Competent Authority	Harmonised approach across MS and reduction of time and fees to change the MP.	It could become complex to agree between all MS which specific types of changes should lead to changes in the MP for small emitters and which have to be approved. For example, we understand differences exist between MS in the approach towards changing aircraft. Is a change of aircraft for a small emitter a change in emission source or not? And is this considered to be significant? Additional guidance on this might help.	Potential change to the MRR	0	0	+	0	No	No
R8	Light accreditation for Aviation Small Emitter verifiers	If verifiers only verify small emitters, they could fall under a light regime of accreditation (e.g. when it comes to qualification of staff, risk analysis, verification process)	Reduction of accreditation cost for verifiers, which could lead to less costs for operators.	It could become difficult to agree on EU level on accepting this. Also, local accreditation requirements might contain restrictions to achieve this. It also would become complex in a situation that a small emitters becomes large, this would then mean either a change of verifier or extra accreditation work on the verifier.	Change in the AVR (Annex I) and potential change in national legislation	0	-	+	0	No	No
R9	Provide access to small quantities of allowances (auctioning)	Many aviation small emitters emit a very low amount of CO_2 emissions. With a minimum amount of emissions to be obtained from auctioning much higher than the emissions of many small emitters (e.g. 1,000 tCO_2), it can be difficult for aviation small emitters to obtain only a small quantity of allowances. Lowering the minimum auctioning amount could provide access to allowances easier for aviation small emitters. We also understand that purchasing small quantities of allowances on the market could be difficult.	Aviation small emitters can buy on an auction the low quantities that they need and therefore reduce costs of compliance. In Phase III of EU ETS, small emitters could also buy more allowances the first year which they can use for compliance in future years to solve the issue.	While small quantities may be helpful for small emitters, lowering the minimal amounts on auctions could impair the cost effectiveness of the auctioning process as potentially smaller batches could be auctioned, meaning more transactions and therefore more work.	None	0	0	0	0	No	No

Te1	Include SET in AER Template	By including the SET in the AER template, aircraft operators can build up the list of flights in the reporting template in excel, which can then be automatically linked to the SET output and the aggregated numbers of the report.	In this option, only 1 Excel file would be needed instead of 3. This would enable reduction of the risk of manual errors and reduce the reporting and verification time. Instead of using the SET manually, it could be automatically applied in the reporting template to reduce time spent.	It would require some effort to update the template and MS would need to agree on the template before it would be published.	None	0	0	+	0	Yes	No
Te2	Simplified Monitoring Plan for Small Emitters	Although the MP is already simpler for Small Emitters, compared to large Emitters, the templates could be simplified further. Especially when small emitters use the ETS-SF or the SET and only have a very limited amount of flights, the data management section for example, is perceived to add little value.	This option would lead to more standardisation and efficient preparation and approval of MP for small emitters	It would require some effort to update the template and MS would need to agree on the template before it would be published.	None	0	0	+	0	Yes	No
Te3	Standardised Monitoring Plan for Small Emitters EU wide	Apart from the excel templates adopted by many MS, some require separate input in an online tool. To enable full standardisation, an upload function of the full excel template directly in the online tools without further information required could be built. Also, in some MS the MP has to be submitted in the local language, accepting English could be the standard for aircraft operators	Full harmonisation for very simple MP's for small emitters in all MS would be beneficial for small emitters, so that is does not matter in which MS one reports. This reduces time to fill in additional information in some MS (and differences in cost there) and reduces some potential cost of translation for Aircraft Operators	It could become complex to convince all MS to accept this, especially when IT tools are used currently. In addition, complexity could arise when language of MP's is defined in local language due to national legislation.	None	0	0	+	0	No	No
Te4	Pre-filled MP and AER based for admin information	Following the example of some MS, MP's and AER's could be pre-filled with administrative information as a default, such as name, contact persons, identification numbers, and verifier information.	The option would reduce some duplication of providing information to the MS which is already available at the MS.	MS would need to agree on what field to pre-fill based on what information and it could become complex to achieve for all MS using the excel templates.	None	0	0	+	0	No	Yes
To1	ETS application	Instead of having to use excel templates and other formats, small aircraft operators can use an application on their mobile devices to input ETS information about flights and fuels and admin information. Report could be generated from the app at year end for verification and formal report purposes.	This would be a user friendly way of reporting and compliance. The option could save operators time when fulfilling monitoring and reporting requirements for small emitters, which is currently based for most operators on minimal amounts of information in different systems.	It would become complex to ensure data protection and harmonisation between MS. The app would have to be reliable. It would require operators also to still keep records of flight information available for cross checking and verification.	Changes in national legislation could be necessary to allow for electronic submission. There is EU Legislation that would allow electronic submission provided certain conditions are met. But additional national legislation might in some cases be necessary	0	0	+	0	No	No

					(MPs are a legal document)						
To2	ETS in the "cloud" for small emitters	Fully online and real time management of EU ETS for MS, Operators and verifiers in the same system could be introduced to optimise harmonisation and standardisation.	This would enable more efficient monitoring, reporting and verification in one single system instead of multiple systems used by different parties involved.	It could become complex to convince MS to participate and have limited influence on the system that differs from the current systems. The system has to be designed and implemented and all MS would need to agree on the system. It would be an additional system next to the current systems for large emitters. IT security aspects need to be considered as well.	None	0	-	+	0	No	Yes
To3	Automated workflow with ETS SF output and upload for MS	Currently the ETS-SF output consists of a draft AER in the Excel format. Some MS use IT systems for reporting. An automatic interface between the ETS-SF and the reporting system of MS or specific Excel templates could be created in the correct language with all necessary information automatically filled in for reporting for Small Emitters could be created.	This option would increase the efficiency of reporting for small emitters and reducing the risks of manual errors when filling the IT systems based on the current excel output of the ETS-SF.	Communication between relevant MS and EUROCONTROL would be needed to design the output in the correct format. Per operator, the output would have to be tailored depending on the administering MS. Funding of the changes to the ETS-SF output would have to be agreed.	None	0	0	+	0	No	No
To4	Increase the use of currently available IT systems developed and operated by several MS	All MS could agree on the use of the currently available IT systems for small emitters for reporting emissions.	Using the currently available IT systems (e.g. from the UK and Germany) would lead to a reduction of errors, better harmonisation between MS and could save time at the MS to review MP's and AER's.	It could become complex to convince all MS to use one of the systems currently used. In addition, it could be complex to agree on funding of the use of these systems and training of staff at MS.	None	0	+	+	0	No	Yes
To5	Create a mandatory new IT tool to use for small emitters	A simple and effective mandatory IT tool for aviation small emitters for MP and AER could be designed and implemented.	A simple and standard tool for all small emitters would increase harmonisation of reporting. Cost reduction could be achieved in time spent to report emissions and to review MP's and AER's.	A new tool would have to be designed and implemented. This costs time and money. It could become complex to convince all MS to use a new tool in addition to the existing tools for large emitters. MS would have to agree on funding.	None	0	+	+	0	No	No

C. Detailed overview of other systems regulating emissions in aviation

C.1. Australia's Carbon Pricing Mechanism (AUS CPM) and fuel tax system

Elements	Australia's Carbon Pricing Mechanism (AUS CPM) and fuel tax system
Country/ region	Australia
Type of system Mandatory/ voluntary Downstream/up stream	As of 1 July 2013 eligible applicants (eligible large consumers of liquid fossil fuels) can voluntarily opt-in the carbon pricing mechanism. If they have opted-in, they are exempted from fuel tax credits and excise that apply to fuels used in domestic aviation. A fuel consumer choosing to opt-in must submit an application to the Clean Energy Regulator to be declared a designated opt-in person. The designated opt-in person is an entity liable under the Clean Energy Act and must meet the requirements of the carbon pricing mechanism. Consumers of fuels used in domestic aviation that do not choose to opt-in, are required to pay a carbon charge under the fuel tax and excise system. The carbon pricing mechanism is a downstream approach applicable to opt-in consumers of liquid fuel
Status of system	Operational
Regulating entity	**Carbon pricing mechanism** The Clean Energy Regulator (CER) will administer the scheme, assess emission data to identify entities' liabilities, allocate carbon units, administer the monitoring system, operate the registry, accredit verifiers, monitor and enforce compliance. **Fuel tax system** The fuel tax and excise system is managed by Australian Taxation Office.
Scope of system Fuels covered Exceptions to scope	Fuels covered under the fuel tax and excise system are liquid fossil and gaseous fuels. This includes aviation fuels and kerosene fuels. The fuel tax act contains a definition of fuels covered and the exemptions from fuel tax and excise system. Large consumers of fossil liquid fuels can apply for an opt-in to the carbon pricing mechanism. The applicant must demonstrate that they meet the following conditions: the applicant is able to apply. the applicant is likely to pass the eligibility test. the applicant passes the threshold test (i.e. applicant must satisfy one of eleven thresholds). the applicant has obtained consents as required. The CER decides on the application.

<table>
<tr><th>Elements</th><th>Australia's Carbon Pricing Mechanism (AUS CPM) and fuel tax system</th></tr>
<tr><td></td><td>Under the Opt-in Scheme, the designated opt-in person (either a group, joint venture or consumer) is liable for the potential emissions embodied in liquid fuel for which the group, joint venture or consumers have a fuel tax credit entitlement. It concerns liquid fuel that is part of their opt-in amount. The opt-in amount covers the embodied emissions of specified taxable fuels when they are acquired, manufactured or imported, rather than the actual emissions when the fuels are combusted or emitted. This is because liability under the Opt-in Scheme generally aligns with the point at which a person is entitled to a fuel tax credit under the Fuel Tax Act 2006.

Natural persons are not allowed to apply. Once a designated opt-in person has been declared, they will remain opted-in for the complete financial year.</td></tr>
<tr><td>Distinction between type of aircraft operators</td><td>There is no distinction between types of aircraft operators.</td></tr>
<tr><td>Applicable to international flights</td><td>Both the carbon pricing mechanism and the tax fuel system are only applicable to domestic aviation. Emissions from fuel used for international aviation are not included.</td></tr>
<tr><td>How does the system work</td><td>Carbon charge under the fuel tax system and the excise system is an amount equal to the price of carbon emissions from the use of liquid fuels or gaseous fuels. This charge varies for the different fuels depending on their carbon emissions. Carbon charge amounts will increase annually until 30 June 2015. The rates may then be adjusted every six months from 1 July 2015.

Excise duty rates for these fuels include a hypothecated levy of 3.556 cents per litre to fund the Civil Aviation Safety Authority (CASA) and the carbon charge amount.

Table 1: Excise rates for domestic aviation fuels in cents per litre
<table>
<tr><th>Fuel type</th><th>From 1 July 2012</th><th>From 1 July 2013</th><th>From 1 July 2014</th></tr>
<tr><td>Aviation kerosene</td><td>9.536
(3.556 + 5.98)</td><td>9.835
(3.556 + 6.279)</td><td>10.16
(3.556 + 6.604)</td></tr>
<tr><td>Aviation gasoline</td><td>8.616
(3.556 + 5.06)</td><td>8.869
(3.556 + 5.313)</td><td>9.144
(3.556 + 5.588)</td></tr>
</table>
If a consumer of aviation fuel has opted in, the fuel tax credit rates for liquid fuels that are acquired from 1 July 2013 will no longer be reduced by the carbon charge and the consumer will be able to claim a fuel tax credit for the increased excise equivalent customs duty paid due to the carbon price.

Participants that have voluntarily opted in, must register and open an account in the Australian National Registry of Emissions Unit. There is a yearly compliance cycle. For a fixed price period a distinction is made between interim reporting and final reporting and surrendering of emission allowances. For deadlines of reporting please see the following website: http://www.cleanenergyregulator.gov.au/Carbon-Pricing-</td></tr>
</table>

Elements	Australia's Carbon Pricing Mechanism (AUS CPM) and fuel tax system
	Mechanism/Calendar/Pages/default.aspx Once a person is declared a designated opt-in person (DOIP) they remain that until the Clean Energy Regulator decides that the person is no longer a DOIP. If a DOIP wants to opt-out alternative of the scheme it must notify the Clean Energy Regulator, in the prescribed form, before the 31 May preceding the financial year in which the DOIP wishes the decision to have effect. Some specifics of the Australian emission trading scheme: 01/07/2012 to 30/06/2015: Fixed price phase for the first three years (In 2012–13 it is AUD 23.00 (about 18€) per t CO2e, in 2013–14 it is AUD 24.15 (about 19€) per t CO2e and in 2014–15 it is AUD 25.40 (about 20€) per t CO2e). From 01/07/2015: the price will be set by the market (auctioning and trading) In the fixed Price Period (01/07/2012 to 30/06/2015): Freely allocated units may be traded domestically. Liable entities can purchase units up to their emissions levels. Purchased units cannot be traded or banked. The holders of freely allocated permits will be able to sell them to the Government at a discount. In the flexible Price Period unlimited trading and banking of both international and domestic units. Borrowing of up to 5% of allowances from the following (n+1) compliance year. In the fixed price period domestic offsets (generated from the Carbon Farming Initiative (CFI)) will be available to meet up to 5% of liable entities' obligation. International units are not available for surrender In the flexible price period domestic offsets will be available to meet 100% of emissions obligations. Use of International units will be limited to 50% of liable entities' obligation. Of entities' 100% emissions obligation, only 12.5% may be met with Kyoto units. The remaining 37.5% (of the 50% international units limit) may be met with European Union Allowances (EUAs) or New Zealand Units (NZU).
MRV requirements	Reporting is part of the Mandatory Reporting of GHG emissions, energy production and energy consumption. The legal framework in embedded in National Greenhouse and Energy Reporting Act 2007 (NGER), which has been in force since 2008. The framework is consistent with the UNFCCC/IPCCC guidelines in relation to direct emissions and World Business Council on Sustainable Development (WBCSD) / World Resources Institute (WRI) Greenhouse Gas Protocol approaches on indirect emissions reporting. Reports are checked by the CER. Independent verification will only be carried out in certain cases by registered greenhouse gas and energy auditors. Registered greenhouse and energy auditors are recognised by the CER and must meet specific requirements.
Further information/ web links	{1} Treatment of fuel and transport, http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/Liable-entities/Treatment-fuel-transport/Pages/default.aspx {2} CPM Scheme architecture, http://www.cleanenergyfuture.gov.au/clean-energy-future/securing-a-clean-energy-future/appendices/ {3} Securing a Clean Energy Future, http://www.cleanenergyfuture.gov.au/clean-energy-future/securing-a-clean-energy-future/ {4}http://en.wikipedia.org/w/index.php?title=Carbon_pricing_in_Australia&oldid=540080689 5 http://www.ato.gov.au

C.2. New Zealand Emission Trading Scheme

Elements	New Zealand Emission Trading Scheme
Country/ region	New Zealand
Type of system • Mandatory/ voluntary • Downstream/up-stream	Mandatory to participants owning more than 50,000 litres of obligation fuel in a year at the time it is removed from a refinery Voluntary opt-in possible for participants purchasing more than 10 million litres of obligation jet fuel in a year. From mid-2013 the voluntary opt-in also applies to participants purchasing more than 10 million litres of other liquid fossil fuels. The regulations are currently being drafted. It is an upstream approach focusing on importers of liquid fossil fuels and owners of liquid fossil fuels at production
Status of system	Operational
Regulating entity	The Environmental Protection Authority (EPA) is the administering agency for the emissions trading scheme and runs the New Zealand Emission Unit Registry. Emissions trading scheme policy development is managed by the Ministry for the Environment.
Scope of system • Fuels covered • Exceptions to scope	Please see for participants falling under the scheme under type of systems Fuels covered are all liquid fossil fuels. They include petrol, diesel, aviation gasoline, jet kerosene, light fuel oil, heavy fuel oil and any other liquid fuel that is combusted when used. Some specific products are explicitly excluded: lubricating oil, solvents, chemicals and lighting kerosene. Biofuels and emissions from biofuels are not included
Distinction between type of aircraft operators	There is no distinction between types of aircraft operators.
Applicable to international flights	Emissions from fuel used for international aviation are not included. All fuel used for domestic flights is covered by the ETS, regardless of which airline buys the fuel.
How does the system work	Mandatory participants and participants that have voluntarily opted in, must register and open an account in the New Zealand Unit Register. There is a yearly compliance cycle. At the end of the calendar year each participant will draft an emissions return that determines the amount of units to be surrendered. The emission return must be submitted to the CA three months after the calendar year has ended. Some specifics of New Zealand's emission trading scheme: • There is no CAP established, though amended legislation provides the option for including a cap. • There is no free allocation for mandatory and voluntary participants producing and importing liquid fossil fuels. These fuels are deemed not to be trade exposed which implies that there is no risk of carbon leakage and no free allocation needed. • NZ units and international credits deriving from the Kyoto protocol can be used for compliance • There is a fixed price of NZ$25 (about € 15.50)
MRV requirements	There are specific calculation methodologies outlined in the Climate Change Liquid Fossil Fuel Regulations. This includes formulas and standard emission factors for each fuel that is covered under the regulation. Participants may alternatively apply for a unique emission factor which involves sampling and analysing the activity specific emission factor. In those cases the following requirements apply: The participant must meet the eligibility criteria and determine the emission factor according to high level requirements

Elements	New Zealand Emission Trading Scheme
	The results of an activity-specific prescribed sampling and testing regime must have been verified by a recognised verifier which checks against the monitoring and sampling standards The participant sends in the completed application form, the verification opinion statement and additional information to the CA for approval. Verification is only required when a unique emission factor is used. Recognition of verifiers is carried out by the EPA which subsequently monitors the verifier's performance.
Further information/ web-links	{1} http://www.mfe.govt.nz/publications/climate/seip-reporting-guidance/index.html {2} http://www.mfe.govt.nz/publications/climate/seip-reporting-guidance/seip-reporting-guidelines.pdf {3} New Zealand EPA ETS 2011 Report for the period 25 June 2011 to 20 June 2012 http://www.epa.govt.nz/Publications/Section_89_CE_Reporting2012.pdf {4} Amended (2012) Climate Change Response Act, http://www.legislation.govt.nz/bill/government/2012/0052/latest/versions.aspx {5} Emissions Trading Scheme Review Panel (2011). Doing New Zealand's Fair Share. Emissions Trading Scheme Review 2011: Final Report. Ministry for the Environment. http://www.climatechange.govt.nz/emissions-trading-scheme/ets-review-2011/index.html {6} Regulatory Impact Statements, http://www.climatechange.govt.nz/publications/ris/ {7} NZIER 2011 Macroeconomic impacts of the NZ ETS report, http://www.climatechange.govt.nz/emissions-trading-scheme/ets-review-2011/supporting-info/macro-economic-impacts-of-the-nzets.pdf {8} ETS Review papers, http://www.climatechange.govt.nz/emissions-trading-scheme/ets-review-2011/supporting-info/

C.3. Swiss emission trading scheme and fuel tax system

Elements	Swiss emission trading scheme and fuel tax system
Country/ region	Switzerland
Type of system • Mandatory/ voluntary • Downstream/up-stream	The revised CO_2 Act, which came into force on 1 January 2013, gives the Federal Council the option of requiring aircraft operators to participate in the Swiss emissions trading system. The Swiss Federal Department of Environment, Transport, Energy and Communication has drafted legislation to collect Tonne-Kilometre data for calculating the quantity of emission allowances. As from 2014 the ETS would be mandatory for aircraft operators performing flights to and from Switzerland. The legislation is similar to EU ETS legislation, though there are some differences. Because of ICAO developments the legislation is not yet enacted. A mandatory CO_2 tax is imposed on the manufacture, production and import of aviation fuels. Companies can apply for a reduction of the CO_2 tax if they commit themselves to reduce GHG emissions to a certain amount by 2020 and regularly report on the reduction of GHG emissions. The Federal Council determines the extent of the reduction based on emission targets and allocates emission reduction certificates to the company concerned. The CO_2 tax law provides specific conditions for allocating these certificates. Sanctions are imposed if the companies do not meet the requirements to reduce GHG emissions. In the current legislation a reduction of the CO_2 tax can only be requested by specific stationary companies listed in the CO_2 Act. ETS companies are exempt from CO_2 tax, and this will likely apply to aircraft operators falling under the ETS scheme as from 2014. The Swiss emission trading scheme for aviation would be a downstream approach whereas the CO_2 tax imposed on the manufacture, production and import of aviation fuels is a upstream approach.
Status of system	Operational (Inclusion of aviation in the Swiss emission trading scheme as from 2014, pending on ICAO developments and linking discussions with the European Commission)
Regulating entity	Federal Office of Environment
Scope of system • Fuels covered • Exceptions to scope	Fuels covered are all fossil fuels including aviation fuels and kerosene fuels.
Distinction between type of aircraft operators	There is no distinction between types of aircraft operators.
Applicable to international flights	The emission trading scheme will apply to all flights from and to aerodromes in Switzerland. However the latter depends on ICAO developments according to news published on several Swiss websites (e.g. website of Federal Office for Environment). The CO_2 tax is applicable to domestic aviation fuels
How does the system work	The emission trading scheme for aviation is similar to EU ETS. A data collection phase based on verified Tonne-Kilometre data was planned in 2013. The data collection process was to follow the same procedure as in EU ETS (e.g. Tonne-Kilometre data monitored according to a monitoring plan for Tonne-Kilometre data). The data collection has been put on hold because of ICAO and EU ETS developments. The CO_2 tax fee is 36 francs per tonne of CO_2. The Federal Council may increase it to a maximum of 120 francs if the interim targets for the fuel concerned are not met. Fossil fuel importers are required by 2020 to compensate at least 10 per cent of transport-generated CO_2 emissions with measures in Switzerland. The Ordinance sets out the requirements for these measures.

Elements	Swiss emission trading scheme and fuel tax system
	Some specifics of Swiss emission trading scheme: • Large companies carrying out activities listed in the CO_2 Act are required to participate in the ETS scheme. The type of activities for installations are largely similar to EU ETS activities (though there are differences) • Medium sized stationary companies can voluntarily opt-in the ETS scheme. • For aviation it would largely have the same coverage as EU ETS aviation. • The ETS is based on the cap and trade principle. This cap is lowered every year. Emission allowances are issued every year to the companies participating in the ETS and can be traded. • There is an Emission Trading Registry where all participants must have an account. • Free allocation (see above for free allocation in ETS aviation based on t-km data) and auctioning applies • ETS companies are allowed to surrender a limited number of certificates issued under the Kyoto protocol (internal credits) for compliance provided the projects meet specific quality criteria. • The compliance cycle is similar to the EU ETS scheme (the monitoring report must be submitted by 31 March of each year)
MRV requirements	Emission trading scheme requires operators to submit a monitoring plan and monitoring (emissions) report to Federal Office of Environment. The monitoring report data must be included in a standard format using software. The FOEN can have the monitoring reports verified by an independent third party to ensure that the reports are in line with the monitoring plan and that the emissions are correctly measured or calculated. The ETS scheme for aviation would have MRV requirements similar to EU ETS. It is not clear yet what specific requirements apply. Third party verification would likely be required.
Further information/ web-links	http://www.bafu.admin.ch/emissionshandel/05545/index.html?lang=en http://www.bafu.admin.ch/emissionshandel/05570/index.html?lang=en http://www.bafu.admin.ch/emissionshandel/12448/index.html?lang=en http://www.admin.ch/opc/de/classified-compilation/20120090/index.html http://www.admin.ch/opc/de/classified-compilation/20091310/index.html

C.4. United States federal excise system

Elements	United States federal excise system
Country/ region	United States of America
Type of system • Mandatory/ voluntary • Downstream/up-stream	A federal excise tax system and state excise systems apply in the US. Different tax rates and requirements apply for both systems. For this quick study only the federal tax excise system was researched. Tax is imposed on aviation gasoline and jet fuel (also called kerosene for aviation). The tax on aviation gasoline is imposed on the removal, entry or sale of gasoline. All removals of gasoline at a terminal rack are taxable. The federal tax system is a complex system where a number of persons can be held liable depending on whether specific conditions have been met, what type of fuel is used and which parties are involved. For aviation gasoline this includes for example the position holder for the gasoline, the terminal operator if this is different from the position holder, the refiner, the enterer of fuel, the position holder of bulk transfer of gasoline from a terminal or refinery or the entry of gasoline by bulk transfer into the US, the operator of the facility, the buyer, the blender in the case of removal or sale of blended gasoline. The tax on kerosene for aviation is imposed on the removal of kerosene directly into the fuel tank of an aircraft, removal into an aircraft from a qualified truck, tanker or tank wagon and removal of kerosene directly from a terminal into the fuel tank of an fractional ownership program aircraft[18]. Different tax rates apply. The tax system for kerosene is a complex system where again different persons can be held liable depending on certain conditions. If the kerosene is removed directly into the fuel tank of an aircraft for use in commercial aviation, the operator of the aircraft in commercial aviation can be held liable for the tax on the removal at the rate of $.044 per gallon. This does not apply to international aircraft operators. However also the position holder of the fuel can be held liable under specific conditions. In the case of fuel used in a fractional ownership program aircraft the fractional ownership program manager is liable for the tax.
Status of system	Operational
Regulating entity	IRS
Scope of system • Fuels covered • Exceptions to scope	Fuels covered under the fuel tax and excise system are aviation gasoline and jet fuel (kerosene for aviation). Aviation gasoline means all grades of gasoline suitable for use in aviation reciprocating engines and covered by ASTM specifications or military specification. In some cases a credit or refund can be requested by ultimate purchasers: e.g. foreign trade, helicopters, fixed-wing ambulance uses, military aircraft, aircraft by an aircraft museum. Different parties can request a refund or credit: in some cases the ultimate vendor can request a refund. For kerosene for aviation there are different requirements on refund for commercial use or non-commercial use.
Distinction between type of aircraft operators	There is a distinction between aircraft operators operating for commercial use and aircraft operators for non-commercial use in the case of tax imposed on jet

[18] Fractional ownership aircraft program is a program under which:
- A single fractional ownership program manager provides fractional ownership program management services on behalf of the fractional owners;
- There are one or more fractional owners per fractional program aircraft, with at least one fractional program aircraft having more than one owner;
- For at least two fractional program aircraft, none of the ownership interests in the aircraft are less than the minimum fractional ownership interest or held by the program manager;
- There exists a dry-lease aircraft exchange arrangement among all of the fractional owners; and there are multi-year program agreements covering the fractional ownership, fractional ownership program management services, and dry-lease aircraft exchange aspects of the program.

Elements	United States federal excise system
	fuel. Commercial aviation is defined in legislation: it means any use of an aircraft in the business of transporting persons or property by air for pay. There are however some exceptions such as skydiving, transportation by seaplane, any use of an aircraft owned or leased by a member of an affiliated group and unavailable for hire by nonmembers, any use of an aircraft that has a maximum certificated take-off weight of 6,000 pounds or less, any use where the surtax is imposed on fuel used in a fractional ownership program aircraft .
Applicable to international flights	Tax on fuels is not applicable to international flights. There is no tax on kerosene removed directly into the fuel tank of an aircraft for use in foreign trade.
How does the system work	Different tax rates are imposed depending on the type of fuel used. ▪ The tax on aviation gasoline is $ 0.194 per gallon. When used in a fractional ownership program aircraft, gasoline is subject to a surtax of $ 0.141 per gallon. ▪ For kerosene removed directly from a terminal into the fuel tank of an aircraft for use in non-commercial aviation, the tax rate is $ 0.219. The rate of $ 0.219 also applies if kerosene is removed into any aircraft from a qualified refueler truck, tanker, or tank wagon that is loaded with the kerosene from a terminal that is located within an airport. ▪ For kerosene removed directly into the fuel tank of an aircraft for use in commercial aviation, the rate of tax is $ 0.044 per gallon. For kerosene removed into an aircraft from a qualified refueler truck, tanker, or tank wagon, the $ 0.044 rate applies only if the truck, tanker, or tank wagon is loaded at a terminal that is located in a secured area of the airport. ▪ For kerosene removed directly into the fuel tank of an aircraft for a use that is exempt from tax under section 4041(c) (such as use in an aircraft for the exclusive use of a state or local government), the rate of tax is $ 0.001. ▪ There is no tax on kerosene removed directly into the fuel tank of an aircraft for use in foreign trade. ▪ For kerosene removed directly from a terminal into the fuel tank of an fractional ownership program aircraft after March 31, 2012, a surtax of $ 0.141 per gallon applies.
MRV requirements	There are no MRV requirements. Tax returns must be submitted using specific formats. For some cases a credit or refund may be requested by the ultimate purchaser. In some cases a certificate is required from the aircraft operator.
Further information/ web links	http://www.irs.gov/publications/p510/ch01.html#en_US_201207_publink1000116837 http://www.irs.gov/publications/p510/ch02.html#en_US_201207_publink1000116950 http://www.nbaa.org/admin/taxes/federal/fet/

D. List of abbreviations

AVR	Accreditation and Verification Regulation
AOC	Air Operating Certificate
CA	Competent Authority
ETS-SF	EUROCONTROL's ETS Support Facility
EU ETS	European Union Emission Trading System
GHG	Greenhouse Gas
MRR	Monitoring and Reporting Regulation
MTOM	Maximum Take-Off Mass
PSO	Flights performed in the framework of public service obligations
SET	EUROCONTROL's Small Emitter Tool