



Department for
Business, Energy
& Industrial Strategy

ASSESSMENT OF COSTS TO UK PARTICIPANTS OF COMPLIANCE WITH PHASE III OF THE EU EMISSIONS TRADING SYSTEM



August 2016

This document is available in large print, audio and braille on request. Please email correspondence@beis.gov.uk with the version you require.

ASSESSMENT OF COSTS TO UK PARTICIPANTS OF COMPLIANCE WITH PHASE III OF THE EU EMISSIONS TRADING SYSTEM

Acknowledgements

We wish to thank all those within DECC who supported the design and delivery of this research, and those elsewhere in Government and associated agencies that supported the process. We also wish to thank the outside organisations who supported the scoping and design stages of the research by attending focus workshops. We pay special thanks to the Emissions Trading Group, and trade bodies and industry organisations who helped raise awareness and encourage participation in the survey within their networks, and finally wish to thank all of those in scope of the policy who gave their time to participate in the research and provide data relating to their compliance costs.

Research conducted by: Databuild Consulting, CAG Consultants and Verco on behalf of DECC.

Report Author: Adrian Talbot

© Crown copyright 2016

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence.

To view this licence, visit www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Any enquiries regarding this publication should be sent to us at correspondence@beis.gov.uk.

This publication is available for download at www.gov.uk/government/publications.

Glossary

Terminology used within this report

95% confidence interval	A 95% confidence interval is a range of values within which we can be 95% certain the true mean of the population lies, taking into account the sample size and variation in responses. This means that had the study been conducted 100 times, a point estimate would lie within this range of values 95 of those times. Interval width depends on the sample size and the variation in responses. The larger the sample size, the narrower the confidence interval, the higher the variation, the wider the interval.
Additional / attributable costs	In this context, costs (or the portion of total costs) that were reported by respondents to be additional / attributable to the EU ETS (i.e. they were only incurred because of needing to comply with this policy). Respondents were asked to indicate if any portion of costs was not additional (e.g. costs were incurred as a result of compliance with another policy) and any portions not additional to EU ETS were excluded from the analysis included in this report.
Allowance	An allowance to emit one tonne of carbon dioxide equivalent (CO ₂ e). Allowances must be purchased by operators to cover the emissions of their installations in scope of the policy. The costs to operators of purchasing allowances are <i>not</i> an administrative cost and thus were not in the scope of this research.
ASHE	Annual Survey of Hours and Earnings
Aviation – full compliance	Refers to the standard compliance approach that aviation operators within scope of the EU ETS need to follow. Operators with low emissions are eligible for a simplified procedural approach to compliance – see <i>aviation – simplified procedure</i> .
Aviation – simplified procedure	Refers to an approach to compliance that can be followed by aviation operators with low emissions – meaning they are eligible for simplified monitoring, reporting and verification.
CO ₂ e	Carbon dioxide equivalent (emissions)
Costs of compliance	The administrative costs (the administrative time and costs) to an operator of activities involved in compliance with the EU ETS. This study <i>did not</i> attempt to identify or quantify certain substantive compliance costs which were out of scope of the work e.g. the price of allowances or the cost of measures to reduce emissions.
CRC	Carbon Reduction Commitment Energy Efficiency Scheme
<i>De minimis</i> source stream	Group of minor source streams jointly emitting < 2% of total emissions (up to max of 20,000 tonnes) for an installation.
ESOS	Energy Savings Opportunity Scheme

ETSWAP	ETSWAP (Emissions Trading Scheme Workflow Automation Project) is the web-based system operated by the UK Environment Agency for emitters to manage, verify and report their emissions of Carbon Dioxide (and in the future, other Greenhouse Gases), as required by the EU ETS (European Union Emissions Trading System)
EU ETS	European Union Emissions Trading System
Eurocontrol	The European Organisation for the Safety of Air Navigation, an intergovernmental Organisation with 41 Member States. Eurocontrol has worked closely with the European Commission and EU member states to support the scope introduction of aviation operators within the policy. Eurocontrol provides the European Commission with up to date guidance on operators which are in scope of the policy and historic emissions data. They have developed a tool which low emissions operators can use to estimate their emissions, along with support facilities for States' Competent Authorities and the operators themselves
External costs	The portion of compliance costs that the operator of an installation meets externally – they outsource certain compliance activities, rather than completing these tasks internally within the organisation
GHG	Greenhouse gas
Installation	Stationary technical unit where one or more EU ETS Directive Annex I activities, plus any other directly associated activities that could have an effect on greenhouse gas emissions and pollution, are carried out. For aviation operators, the term 'installation' does not apply – emissions are regulated at the operator level.
Internal costs	The portion of compliance costs that the operator of an installation meets internally (rather than outsourcing these costs to an outside organisation to complete compliance related tasks)
Main scheme	Refers to the main stationary scheme for the purposes of compliance; installations in the main scheme with emissions >25kT CO ₂ e that are ineligible for the Small Emitters opt out scheme, or installations <25kT CO ₂ e that chose against joining the Small Emitter scheme.
Minor source stream	Group of source streams jointly emitting < 10% of total emissions (or <100,000 tonnes) for an installation.
MSR	Market Stability Reserve; an element to be introduced in Phase IV of the EU ETS aimed at managing the surplus of EU allowances, scheduled to commence in 2021
New entrants reserve	The New Entrants Reserve (NER) is a reserve of free allowances, set aside for new operators or existing operators who have significantly increased capacity, and allocated to those who successfully apply to the reserve.
Offshore installations	For stationary emitters, this refers to installations located offshore e.g. oil rigs
One-off activity costs	Setup activities that were only undertaken to underpin ongoing compliance activities; either shortly before or during the beginning of Phase III

Ongoing activity costs	Costs that will be incurred in the annual compliance cycle - within each of the eight years of Phase III
ONS	Office for National Statistics
Onshore installations	For stationary emitters, this refers to land-based installations
Operator	The organisation that owns and is responsible for the operation of an installation; for aviation, policy compliance sits at the operator level, while for stationary installations a single operator can be responsible for multiple installations.
Other costs	Costs typically not falling into the internal or external categorisation, which tend to be costs that were confirmed were fully or partially attributable to the EU ETS for items such as software and ongoing licences, and metering and calibration equipment (including parts needed for ongoing repair and maintenance)
Phase III	Third phase of the EU ETS, runs from 1 Jan 2013 to 31 Dec 2020.
Phase IV	Fourth phase of the EU ETS, which will run from 1 Jan 2021 to 31 Dec 2030.
SCM	Standard Cost Model – a methodology to allow for the estimation of policy compliance costs.
Small Emitters opt out Scheme	Refers to the Small Emitters and Hospitals Opt out scheme, a scheme introduced in Phase III that operators of installations with <25kT CO ₂ e could choose to opt into for that installation. Certain key compliance tasks in the main scheme (such as mandatory verification) are not a compliance requirement for installations in this scheme.
SOC 2010	Standard Occupational Classification - a common classification of occupational information in the UK
Stationary emitters	Those stationary installations, both offshore and onshore, in the scope of the EU ETS i.e. not aviation operators. Stationary emitters include both those in the 'main' scheme and those in the Small Emitters and Hospitals Opt out scheme.
Surrendering / trading	In the context of this report, relates to compliance costs (i.e. time costs for those involved) associated with surrender and trading of allowances. The actual purchase costs of allowances are <i>not</i> in scope of this research.
tCO ₂ e	Tonnes of carbon dioxide equivalent
Weighting	A statistical technique used to correct for the effects of over- or under-representation of specific groups within the achieved sample of a research exercise (in comparison to the population)

Contents

Glossary	2
Contents	5
Executive summary	7
Background	7
Findings	7
Stationary emitters	8
Aviation operators	10
Recommendations	11
1 Introduction	13
1.1 Background and objectives	13
1.2 Methodological summary	14
1.3 This report	14
2 Costs of compliance for stationary emitters in EU ETS Phase III	16
Chapter summary	16
2.1 Costs of compliance for stationary installations in the main scheme	18
2.2 Costs of compliance for installations in the Small Emitters and Hospitals opt out scheme	24
2.3 Comparison between main scheme and those in the Small Emitters opt out scheme	30
2.4 Further analysis	33
3 Costs of compliance for aviation operators in EU ETS	38
Chapter summary	38
3.1 Costs of compliance for those needing to achieve full compliance (those ineligible for simplified procedures)	39
3.2 Costs of compliance for aviation operators able to comply through simplified procedures	42
3.3 Comparison between those needing to achieve full compliance and those able to follow simplified procedure(s)	46
Appendix A: Process maps	48
Main scheme	48
Small Emitter and Hospital Opt out scheme	48
Aviation scheme (Full compliance)	49

Aviation scheme (simplified procedure)	49
Appendix B: Suggested EU ETS simplification ideas from scoping workshop with external stakeholders	50
Appendix C: Methodology Appendix	51
Scheme populations of EU ETS participants and the sample completing the survey	57
Response rate and non-response	59
Limitations	59
Appendix D: Further research findings	62
Internal costs of compliance – costs per role	62
Breakdown of grouped activities for main scheme installations	67
Further detail relating to variance of cost estimates for stationary schemes	70
Qualitative data – simplification suggestions, feedback on scheme and Phase IV suggested changes	72
Comparing estimated costs of compliance for stationary emitters to the Aether research	78
Conclusions	1

Executive summary

Background

A consortium led by Databuild in partnership with CAG Consultants and Verco were commissioned by the UK Department of Energy and Climate Change (DECC) to undertake primary research to:

- Identify the types and amounts of administrative costs associated with participating in the EU ETS (Phase III);
- Identify areas where compliance requirements might be simplified with the aim of reducing administrative costs (without damaging the environmental integrity of the scheme).

All participants in Phase III of the EU ETS were invited to participate in an electronic survey during late 2015 and early 2016 to provide information relating to policy compliance costs. Data was included in the analysis for 248 stationary emitters and 16 aviation operators. The costs explored within the research excluded items such as the cost of allowances and focused on the time and money that organisations were spending to comply with the policy on one-off activities, such as registration, and activities within the annual compliance cycle, such as collection and reporting of monitoring data. For activities within the ongoing compliance cycle, respondents were asked to provide data for the 2014 compliance year.

Findings

The findings from the research are summarised below. Average costs of compliance are reported throughout. It should be noted that response rates from aviation operators were low in comparison to those with installations in stationary schemes, owing in part to the fact that many primary respondents are based abroad.

The key findings from the report include:

- **There is significant variation in the administrative costs of compliance** – ranging from those reporting figures in the range of a few thousand through to those reporting ~£100k for a single installation;
- **Costs per tonne CO₂e are disproportionately high for smaller emitters** – large emitters above 500kt CO₂e typically experience costs of £0.03 per tonne CO₂e, whilst smaller emitters in the main scheme below 25kt CO₂e experience average compliance costs of £2.83 per tonne CO₂e. This means that proportional administration costs are significantly higher for smaller emitters, whilst larger emitters are able to take advantage of economies of scale to keep costs down. For example, those in the opt out scheme account for 1% of total emissions but 10% of total average yearly compliance costs;
- **Costs of compliance appear to be largely driven by the complexity of the circumstances for the installation**, and the impact this has on the extent of monitoring and verification activities this requires. This means the costs of compliance can be significantly

higher for one installation than another in particular circumstances, despite the emissions involved being similar in scale;

- **Monitoring of *de minimis* sources¹ is a particular burden** - *De minimis* sources of emissions were reported to be 50% of the average costs of one ongoing compliance sub-task, monitoring and reporting, despite accounting for less than 2% of emissions;
- **The results of the research suggest that those installations choosing to be included in the Small Emitter Opt out scheme do experience lower costs of compliance**, and ergo that the introduction of the scheme has resulted in lower total compliance costs for the full population of stationary emitters.

Stationary emitters

There is significant variation in the administrative costs of compliance – ranging from those reporting figures in the range of a few thousand pounds through to those reporting ~£100,000 for a single installation.

Costs of compliance appear to be largely associated with the complexity of the circumstances for the installation, and the impact this has on the extent of monitoring and verification activities required. This means the costs of compliance can be significantly higher for one installation than another, despite having a similar scale of emissions. The data suggest that higher complexity tends to equate to a greater need to outsource compliance activities, which also drives higher compliance costs. There is a complex interplay of factors at work including scale of emissions and the proportion of monitoring / reporting / maintenance related to small / *de minimis* sources. Reported average costs of compliance for stationary emitters are provided below.

Table 1: Average costs of compliance for stationary emitters

		Stationary schemes	
		Main scheme (installations)	Small Emitters (in opt out) (installations)
Number of installations		763	229
Included within analysis		186	62
Average one-off costs ² – e.g. setup costs associated with activities like registration, that are only incurred once in the phase		£13,200	£6,200
Average ongoing costs	Ongoing annual costs (for activities such as	£17,700	£3,900

¹ These are defined in the Monitoring and Reporting Decision, and refer to source streams jointly emitting < 2% of total emissions (up to max of 20,000 tonnes per installation)

² Costs will vary depending on when an installation joined the scheme, with higher costs expected for those new in Phase III compared to those continuing to be in scope of the policy from Phase II.

– that are incurred in each annual compliance cycle	<i>data collection) excluding annual fees paid to the regulator</i>		
	<i>Annual fees</i>	<i>£2,900</i>	<i>£2,700</i>
Average total cost at end of first year of Phase III (registration and first annual compliance cycle)		£33,700	£12,700
Projected average compliance cost per installation for full Phase III 2013 – 2020 (8 years) ³		£177,700	£58,600
Projected average compliance cost per installation per year over Phase III		£22,200	£7,300
Projected total costs in Phase III for all installations		£135.6m	£13.4m

Note: Cost figures presented above have been rounded to the nearest hundred.

For stationary emitters, Table 2 provides weighted average compliance costs per tonne CO₂e emitted, provided against emissions bands.

Table 2: Weighted average costs per tonne of CO₂e by emissions bands⁴

Scheme / emissions band (Tonnes CO ₂ e)	Average £ / Tonne CO ₂ e
Small Emitters opt out <25,000	£2.19
Main <25,000	£2.83
Main 25,000-50,000	£0.59
Main 50,000-500,000	£0.34
Main >500,000	£0.03

The table above demonstrates that those in the opt out and those at the lower end of the spectrum in the main scheme face much higher compliance costs per tonne of CO₂e than they

³ Figures are not discounted

⁴ Analysis in Table 2 only includes single installations (for ease of completion, where respondents were responsible for multiple installations, data were provided in the same survey response)

emit. Considering emissions and costs for all installations within scope of the scheme, the average cost per tonne of CO₂e was found to be £0.14/tCO₂e. This reflects the fact that emissions from larger emitting installations (operators of whom typically experience efficiencies and thus a lower average cost per tonne) sum to a much higher volume than the sum of emissions from those at the other end of the scale e.g. small emitters in the opt out scheme⁵.

Aviation operators

Reported costs of compliance are provided in the table below for aviation operators.

Table 3: Average costs of compliance for aviation operators

		Aviation schemes	
		Main scheme – full compliance (operators)	Main scheme - simplified procedure for small emitters ⁶ (operators)
Number of operators		55	106
Included within analysis		5	11
Average one-off costs – e.g. setup costs associated with activities like registration, that are only incurred once in the phase		£7,800	£9,400
Average ongoing costs – that are incurred in each annual compliance cycle	Ongoing annual costs (for activities such as data collection) excluding annual fees paid to the regulator	£11,000	£5,600
	Annual fees	£2,700	£2,600
Total costs at end of first year of Phase III (registration and first annual compliance cycle)		£21,500	£17,600

⁵ As noted earlier in the summary, analysis of data suggests that those in the opt out scheme account for only 1% of total emissions but 10% of total average yearly compliance costs experienced by the population of stationary emitters in the scope of the policy, based on cost estimates from respondents.

⁶ Certain organisations are eligible to use the small emitter’s tool, and some are also eligible to generate their emissions report directly from Eurocontrol data (meaning no input from the operator and no verification required). Respondents self-selected the most appropriate survey template to complete based on their knowledge of whether they were eligible for any ‘simplified procedure’ within their activities to achieve policy compliance.

Projected Average compliance cost per operator for full Phase III 2013 – 2020 (8 years) ⁷	£117,200	£74,700
Projected Average compliance cost per operator per year over Phase III	£14,700	£9,300
Projected Total costs in Phase III for all operators	£6.4m	£7.9m

Note: Cost figures presented above have been rounded to the nearest hundred.

It has not been possible to conduct in-depth analysis on costs of compliance for aviation given the low response rate. In light of this the insights that can be drawn from these findings **should be interpreted as indicative**. A comparison of the average costs shown above suggests that costs for those operators able to comply through the simplified procedure are just over a third lower than those who need to achieve full compliance, across the full duration of Phase III. Further research to explore costs of compliance with aviation operators is warranted to provide firmer conclusions.

Recommendations

The findings of the research suggest that there is scope to reduce the administrative complexity of the EU ETS, particularly for smaller emitters. With this in mind, EU policymakers could consider the following substantive changes to ETS compliance to reduce administrative burdens whilst maintaining the environmental integrity of the scheme:

- 1. Exemption for *de minimis* sources of emissions** – As indicated above, it is estimated that monitoring and reporting of *de minimis* sources of emissions accounts for 50% of the average costs of monitoring and reporting, despite accounting for less than 2% of emissions.
- 2. Exemption for ‘ultra-small’ emitters** – Our research demonstrates that costs of compliance are considerably higher per tonne of CO_{2e} for the smallest emitters, therefore there may be merit in considering the introduction of a threshold below which installations would not have to participate in either the main EU ETS or the Small Emitter Opt out, to eliminate costs for the very smallest of emitters, which have been referred to here as ‘ultra-small’ emitters for illustrative purposes. Such a threshold could be set at a low level to keep the level of emissions excluded from the EU ETS and the Small Emitter Opt out to a minimum.
- 3. Automatic surrender of allowances** – Our research indicates that the average UK installation spends **£617** per year on administration related to surrendering and trading of allowances. This could be reduced significantly if installations were given the option to automatically surrender their allowances.

⁷ Figures are not discounted

- 4. Increased threshold for Small Emitter Opt out** - Currently, only installations with emissions lower than 25kt CO₂e are able to join an opt out scheme (if applicable to their Member State). This threshold currently covers only 3% of emissions (assuming all Member States established an opt out and all eligible installations took part). A doubling of the threshold from 25kt to 50kt would increase this figure to just 6% of EU ETS emissions⁸. Alternatively (or additionally) policymakers could consider raising or removing the 35MW thermal input threshold, to enable installations with high capacity but low emissions to benefit from joining the opt out. Our analysis suggests that small emitters benefitted from joining the opt out, with reduced compliance costs. Average costs/ tonne CO₂e are lower for installations in the Small Emitter Opt out (£2.19) than equivalent installations in the main ETS (£2.83). Note that an increased threshold for the Small Emitter Opt out would allow installations to move from the main scheme to the Small Emitter Opt out; this is different from an exemption for 'ultra small' emitters mentioned above, under which installations would be out of scope of both the main scheme and the Small Emitter Opt out.
- 5. Enable opt out during the trading period** – Given the benefits of joining the Small Emitter Opt out, it may also be beneficial to consider the frequency with which installations are allowed to opt out. In Phase III, installations were only allowed to opt out once at the beginning of the Phase. Qualitative evidence suggests that many installations that were ineligible to join the opt out at the beginning of the phase, have since become eligible, and could therefore benefit from a more flexible approach.

⁸ Estimates based on 2014 data, not taking into account the thermal input threshold of 35MW, which may exclude some of these installations from participating in the opt out

1 Introduction

1.1 Background and objectives

The EU Emissions Trading System (EU ETS) was introduced in 2005 in order to help EU member states achieve their commitments under the Kyoto Protocol. Currently in its third Phase (2013-2020), the EU ETS caps greenhouse gas emissions from power stations, industrial plants and the aviation industry, across the EU.

It is important to keep compliance costs associated with carbon mitigation policies to a minimum to ensure that available funds are spent on actual project implementation rather than unnecessary administrative costs. In the case of EU ETS, some complexity and cost to business is inevitable, given the need for a robust system to transpose the requirements of an EU-wide market mechanism into national-level regulations, and to address the number and diversity of participants in the EU ETS fairly. But some of the complexity and cost introduced by the scheme may be unnecessary.

A number of steps have been taken during Phase III to reduce complexity and burden where opportunities have been identified (notably through the introduction of the small emitters opt out scheme), but DECC believes there is further opportunity to reduce the burden of the scheme to business.

To inform future policy and UK input into the development of Phase IV, DECC is keen to understand the impact and effectiveness of steps implemented in Phase III to reduce the administrative costs of compliance, and to explore where and how the administrative burden of the EU ETS could be further reduced without damaging the integrity and effectiveness of the scheme. A consortium led by Databuild in partnership with CAG Consultants and Verco were commissioned by DECC to conduct research to provide useful insight to inform DECC's understanding in these areas.

The overarching objectives of this study were to:

- Identify the types and amounts of administrative costs associated with participating in the EU ETS (Phase III);
- Identify areas where compliance requirements might be simplified with the aim of reducing administrative costs (without damaging the environmental integrity of the scheme).

Under these overarching objectives, the study was required to:

- Capture and quantify the administrative time and costs which may have been incurred by stationary installations and aviation operators;
- Assess the effectiveness of actions thus far undertaken to reduce administrative burdens;
- Assess whether there are areas of the ETS that could be further simplified to reduce administrative burdens on installations and operators;

- Gather evidence from participants on the possible impact of the European Commission's proposals for Phase IV of the EU ETS to understand whether/how they will impact on administrative burdens, and/or how they can be amended to reduce burdens⁹.

It is important to note that this study was concerned with administrative costs and did not attempt to identify or quantify other policy costs such as the price of EU allowances or the cost of measures to reduce emissions.

1.2 Methodological summary

Between October 2015 and February 2016 Databuild and partners held scoping workshops to understand DECC's aims from the survey work and to gather insight from the department and wider stakeholders (such as trade bodies and those organisations that need to comply with EU ETS). These workshops were used to develop process maps for individual schemes, which helped inform survey development – these maps are included in Appendix A.

An electronic survey was then developed and distributed to all EU ETS Phase III participants for self-completion. The survey comprised both quantitative and qualitative questions; respondents were asked to provide the number of hours that were spent for each individual task of compliance, as well as insight on how compliance affects their organisation and on how the whole process could be made less burdensome. The survey's approach to exploring costs of compliance was broadly aligned with the Standard Cost Model (SCM) methodology.

Completed responses were reviewed throughout the fieldwork and analysis period to understand acceptable ranges of data and investigate any suspicious data that may adversely influence the analysis.

Based on the analysis, we are able to report average costs across individual tasks, as well as estimates of the average total cost incurred by the end of the first year of Phase III and in Phase III as a whole.

The research results are subject to certain risks/limitations, including risks of inaccuracies due to human error, bias, or ineffective data collection; the small sample size and high variation in the costs of compliance leads to relatively wide confidence intervals around the sample mean. Stringent quality checking of responses were in place within the consortium to ensure that the data that was included in the analysis was as robust as possible and was queried with respondents to ensure the accuracy of estimates.

The full methodology for the work (including limitations) can be found in Appendix C.

1.3 This report

The report is structured as follows:

- **Section 2** reports on the costs research findings for stationary emitters;
- **Section 3** reports on the costs research findings for aviation operators.

⁹ Proposals for Phase IV of the scheme include: the already agreed introduction of the Market Stability Reserve (MSR) to begin in 2018 (which is intended to provide more flexibility in market response to mitigate future over-supply issues); tightened EU ETS cap in line with EU's 2030 40% GHG reduction target; a new Innovation Fund to finance research and development in low carbon technologies; a 57%/43% split between auctioning and free allocation of allowances to participants; and the continuation of the option for Member States to opt out small installations with emissions less than 25,000 tonnes of CO₂ equivalent, and a rated thermal input below 35MW (where they carry out combustion activities).

- **Appendix A** includes the process maps that were developed for each individual scheme within scoping stages of this research
- **Appendix B** contains suggested simplification steps which emerged from the scoping workshops
- **Appendix C** details the research methodology
- **Appendix D** contains additional research findings, including examination of qualitative survey responses.

Throughout sections two and three:

- One-off activity costs refer to setup activities that were only undertaken to underpin ongoing compliance activities; either shortly before or during the beginning of Phase III;
- Ongoing activity costs refer to costs that will be incurred within each of the eight years of Phase III. Respondents were asked to provide data in relation to the 2014 compliance year, and asked to comment and explain if there was anything related to compliance that would mean that costs in 2014 were atypical¹⁰;
- The costs which are reported are additional – that is, respondents were asked to confirm that they arose as a specific result of compliance with EU ETS (rather than being costs that would have been incurred anyway or with compliance for other policies in mind).

¹⁰ In places within the report we have combined one-off and ongoing costs to examine total costs for the period up to the end of the first year of Phase III; this is consistent with the approach used in other cost of compliance studies, including the forthcoming assessment of the costs of compliance with Phase 2 of the Carbon Reduction Commitment, to reflect the additional burden incurred in registration years.

2 Costs of compliance for stationary emitters in EU ETS Phase III

Chapter summary

The table below provides an at-a-glance summary of the administrative costs of compliance for the stationary emitters' schemes:

		Main scheme	Small Emitters opt out
Number of installations		763	229
Average one-off costs ¹¹ – e.g. setup costs associated with activities like registration, that are only incurred once in the Phase		£13,200	£6,200
Average ongoing costs – that are incurred in each annual compliance cycle	<i>Ongoing annual costs (for activities such as data collection) excluding annual fees paid to the regulator</i>	£17,700	£3,900
	<i>Annual fees</i>	£2,900	£2,700
Total costs at end of first year of Phase III (registration and first annual compliance cycle)		£33,700	£12,700
Average compliance cost per installation for full Phase III 2013 – 2020 (8 years) ¹²		£177,700	£58,600
Average compliance cost per installation per year over Phase III		£22,200	£7,300
Total costs in Phase III for all installations		£135.6m	£13.4m

¹¹ Costs will vary depending on when an installation joined the scheme, with higher costs expected for those new in Phase III compared to those continuing to be in scope of the policy from Phase II.

¹² Figures are not discounted

Note: Cost figures presented above have been rounded to the nearest hundred.

Key findings from the quantitative survey analysis for stationary emitters were that¹³:

- Data suggests that costs of compliance are lower for those in the opt out scheme than for similar sized installations in the main scheme:
 - While not statistically significant, average compliance costs for those in the opt out scheme are lower than average costs for those with under 25 ktCO₂e in the main scheme;
 - When taken alongside qualitative insights (see chapter 4), and acknowledging the fact that certain compliance steps are removed entirely (e.g. mandatory verification) for installations in the opt out scheme, the data appears to indicate that simplification has resulted in lower administrative costs of compliance overall for those in the opt out scheme.
- Key differences between how those in the main scheme and opt out scheme approached compliance were found to be that:
 - Main scheme installations report a much higher proportion of external costs in comparison to those in the opt out – 41% of costs incurred by the end of the first year of Phase III, compared with 15% for those in the opt out. The data supports that small emitter compliance is less complex and less frequently requires external support (also linked to the removal of requirements such as verification of emissions for those in the opt out);
 - While not statistically significant, those in the opt out have reported higher involvement of senior individuals in completing compliance activities, with some respondents linking this to the fact that the policy was new for Phase III.
- Other findings from the further analysis were that:
 - Compliance costs appear to rise alongside emissions to a point, before falling for the very largest emitters, suggesting that some efficiencies do arise at the high end of the emissions scale;
 - *De minimis* sources were reported to be 50% of the average costs of monitoring and reporting; some installations reported very high *de minimis* compliance costs, and this tallies with evidence provided during the scoping workshops;
 - Offshore installation compliance costs appear to be much higher than land-based installations (though few survey responses were received from offshore installations).

¹³ Various caveats are discussed within the main body of the chapter, such as where findings are more indicative due to smaller sample sizes.

2.1 Costs of compliance for stationary installations in the main scheme

2.1.1 Costs of compliance

In total 78 organisations responded to the survey. Data from 72 of these was included in the final analysis, which accounted for 186 individual installations out of a total of 763 installations which are in the main stationary emitter scheme of the EU ETS in Phase III.

Organisations within the scope of the main stationary scheme of Phase III of the EU ETS reported, per installation, average costs of compliance as follows¹⁴:

- £13,170 of one-off costs – e.g. familiarisation, registration and setting up monitoring and reporting systems. These occurred once;
- £17,683 of annual ongoing costs¹⁵ – e.g. costs of collecting data;
- £2,886 of annual fees¹⁶.

These costs equate to the following¹⁷:

- £177,719¹⁸ average total cost per main scheme installation for the full eight years of Phase III; this represents an average cost of £22,214 per year for Phase III;
- Total costs for all 763 installations in Phase III for the full eight years of £135.6m.

Error! Reference source not found. below shows the breakdown of average one-off costs between internal, external and other costs for installations in the main scheme. **Error! Reference source not found.** does the same for ongoing costs.

Internal costs are costs borne internally related to compliance activities, while external costs represent costs borne externally where participants have outsourced compliance activities to e.g. external consultants¹⁹.

These figures, and all other unless otherwise stated, exclude fees (because these are based on a fixed assumption) for purposes of analysing and comparing the components of costs that are variable (such as the proportion of internal costs in comparison to external).

¹⁴ Data were weighted based on emissions band to correct for under-representation of installations at the lower end of the emissions spectrum and over-representation of installations at the higher end

¹⁵ Based on data for the 2014 compliance year

¹⁶ This includes subsistence fees and costs for permit variations. A weighted average for subsistence fees, based on the profile of the population, was arrived at following analysis of fees and charges supplied by the Environment Agency. Other costs have been excluded from the analysis as they were, for all intents, insignificant (i.e. low cost and / or incurred in relatively few cases).

¹⁷ Assuming no efficiencies emerge over time

¹⁸ Discount factors have not been applied in the calculation of any projections for the full period of Phase III.

¹⁹ Organisations reported internal and external costs across the board of compliance sub-activities, though there are activities where external costs are more frequently found such as external verification, where the policy requires external audit and checking of figures prior to submission of data to the regulators.

Figure 1: Breakdown of average one-off costs into internal, external and other costs – main scheme (N=763, n=186²⁰)

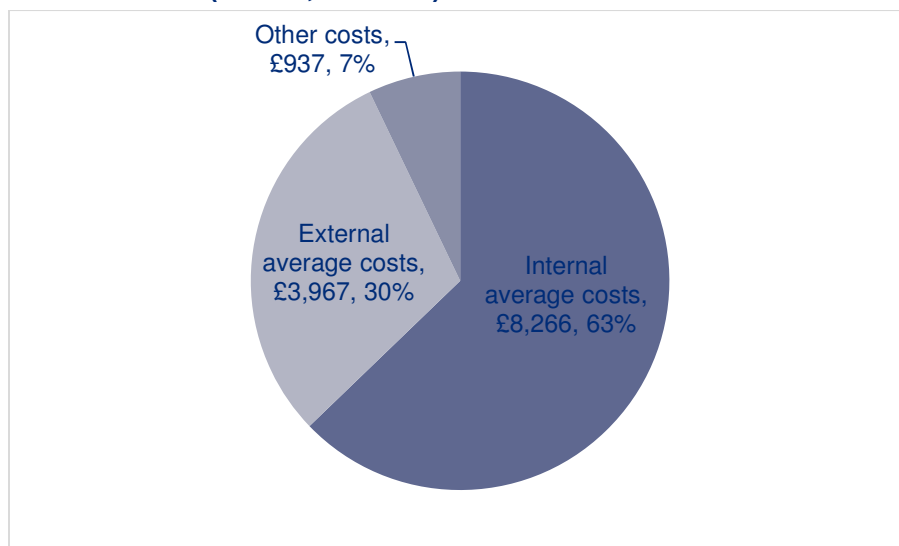
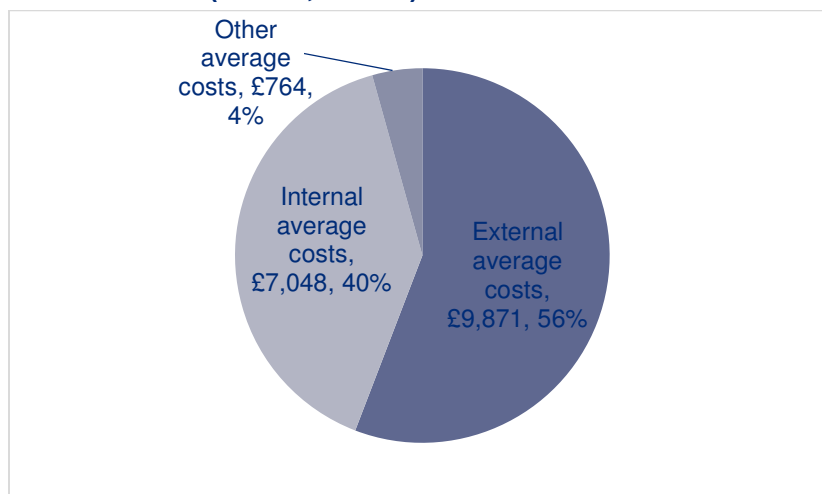


Figure 2: Breakdown of ongoing annual costs into internal, external and other costs – main scheme (N=763, n=186)



The figures above demonstrate that the key difference between how installations comply with one-off and ongoing activity requirements is that a larger proportion of compliance is met via external sources for ongoing activities. One driver for greater costs being met externally is the mandatory requirement for external verification within the ongoing cycle.

- Just under two-thirds of total one-off costs were borne internally, though a sizeable proportion (30%) were met externally;
- 40% of total costs were borne internally, and over half (56%) were external costs.

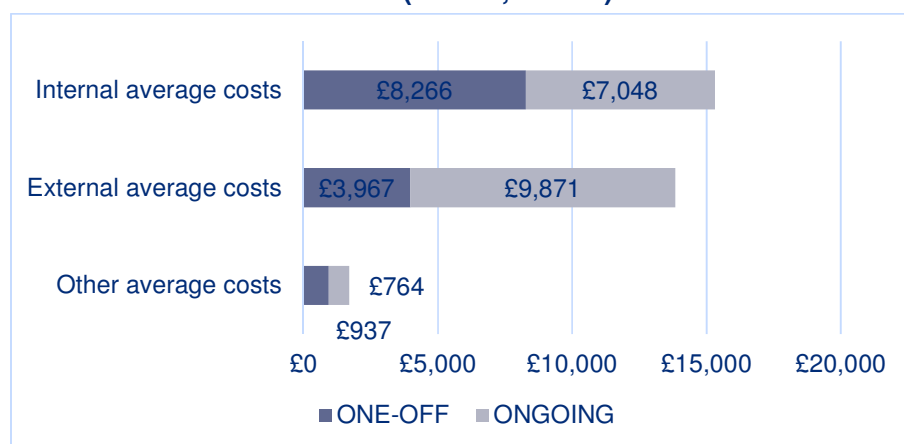
²⁰ 'N' refers to the population and 'n' refers to the sample size

For all 763 participants, the breakdown of total administrative costs for the full eight years of Phase III is estimated to be as follows:

- £49.3m costs met internally;
- £63.3m costs met externally;
- £5.4m other costs;
- £16.7m in subsistence fees.

Based on responses to the survey, the average total administrative cost of compliance by the end of the first year²¹ for main scheme stationary installations in EU ETS Phase III was £33,739. To examine how organisations respond to compliance at the start of the Phase, Figure 3 compares average one-off and ongoing costs incurred by the end of the first year. Figures exclude fees (because these are based on a fixed assumption) to focus on analysing the variable components e.g. the split between internal, external and other costs in the figure below.

Figure 3: Split of average one-off and ongoing costs incurred by the end of the first year of Phase III – main scheme (N=763, n=186)



This figure shows that:

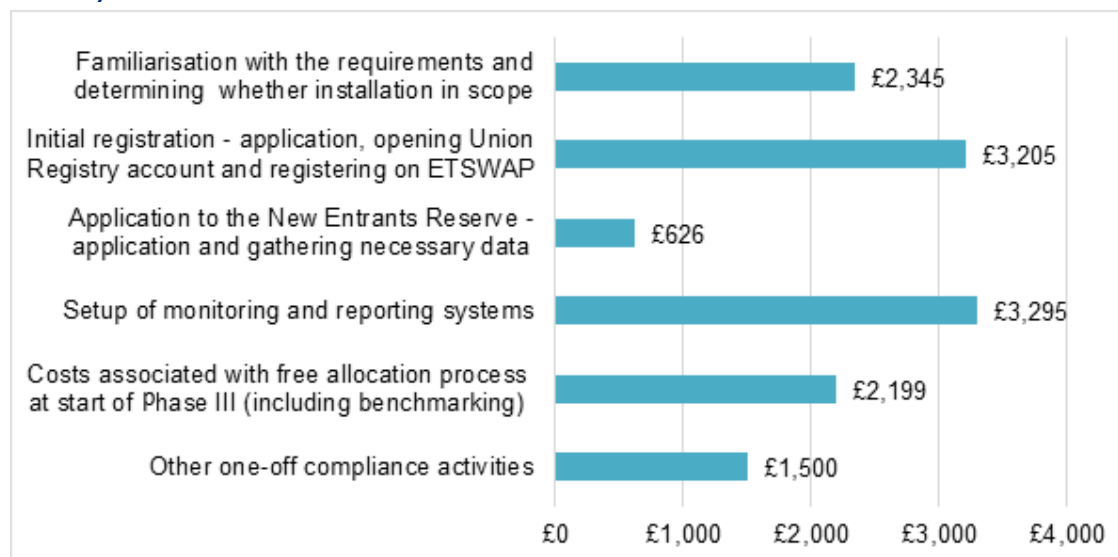
- In total, ongoing costs were a larger proportion of the total end of first year costs than one-off costs, and internal costs (one-off and ongoing) were the highest single cost component by the end of the first year:
 - For internal costs, one-off costs represent 54% of the total, and ongoing costs represent 46%;
 - For external costs, one-off costs represent 29% of the total, and ongoing costs represent 71%.
- Other one-off costs were very similar in scale across both stages, though slightly higher for one-off activities.

²¹ One-off setup costs, the first full annual compliance year and fees for the first year

2.1.2 Average costs of one-off tasks for main scheme stationary installations

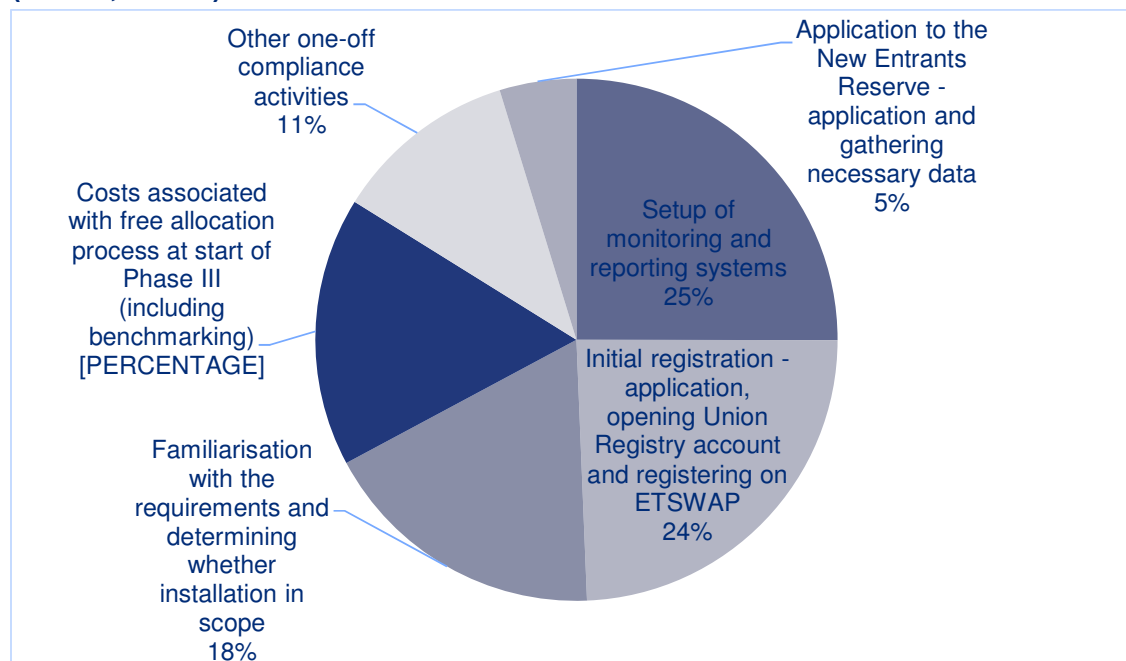
The total costs associated with individual one-off sub-tasks²² is shown in Figure 4 and Figure 5.

Figure 4: Comparison of average total one-off activity costs – main scheme (N=763, n=186)²³



[Costs total - £13,170]

Figure 5: Proportion of average one-off costs against individual tasks – main scheme (N=763, n=186)



²² Grouped for comparison

²³ Note that these are averages, and represent overall averages for activities where only a subset of people would need to complete particular tasks (such as costs associated with entry to the New Entrants Reserve).

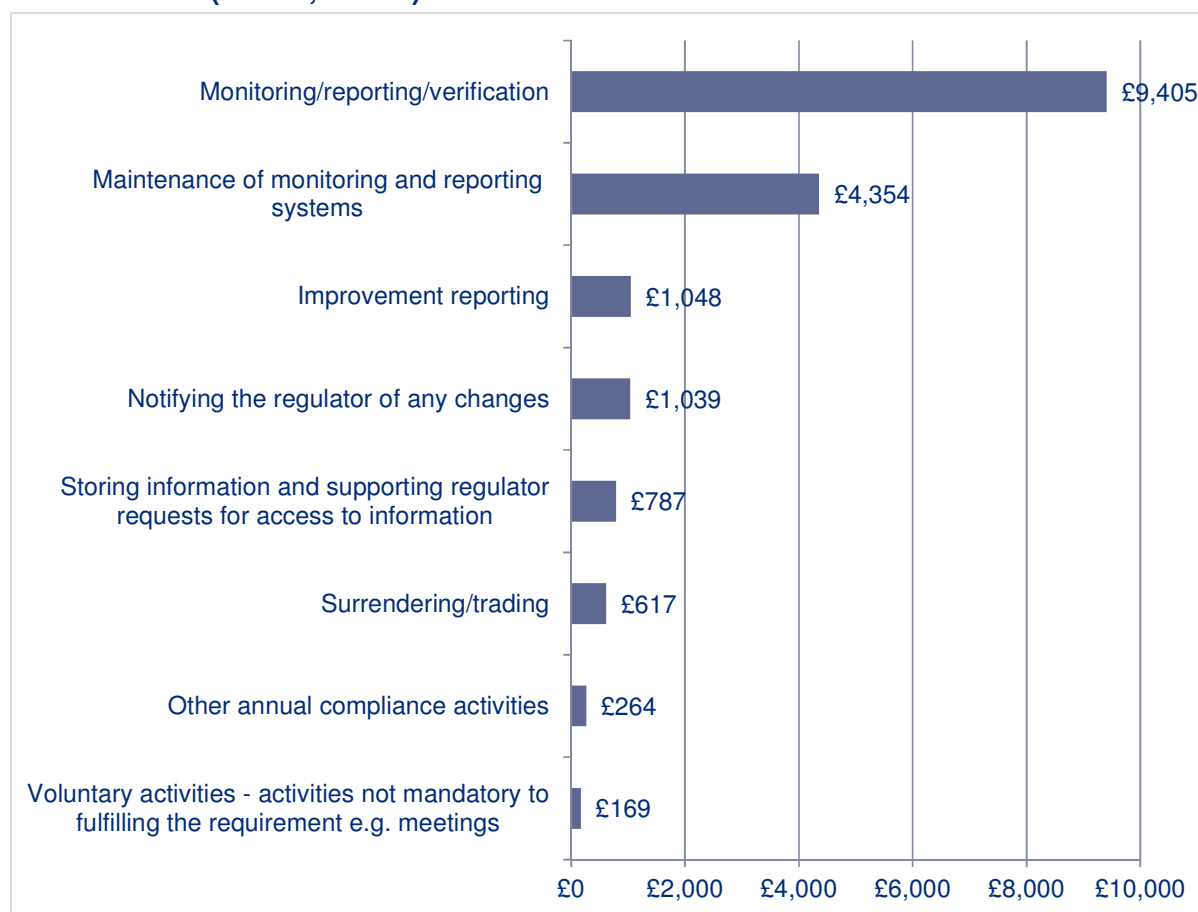
Commenting on the breakdown of costs:

- The most costly one-off tasks overall were setup of monitoring and reporting systems (£3,295) and initial registration (average cost of £3,205 per installation);
- 84% of average costs were associated with four main activities, when individual components were grouped; familiarisation, initial registration, setup of monitoring and reporting systems and free allocation;
- Examining the wider data, the area in which respondents reported the highest proportion of costs met externally was the free allocation process at the beginning of Phase III. This suggests that this was an area that organisations find more challenging, reflected in the fact that on average a higher proportion of the cost is being outsourced.

2.1.3 Ongoing tasks for main scheme stationary installations

The total costs associated with individual ongoing sub-tasks²⁴ is shown in Figure 6 and Figure 7.

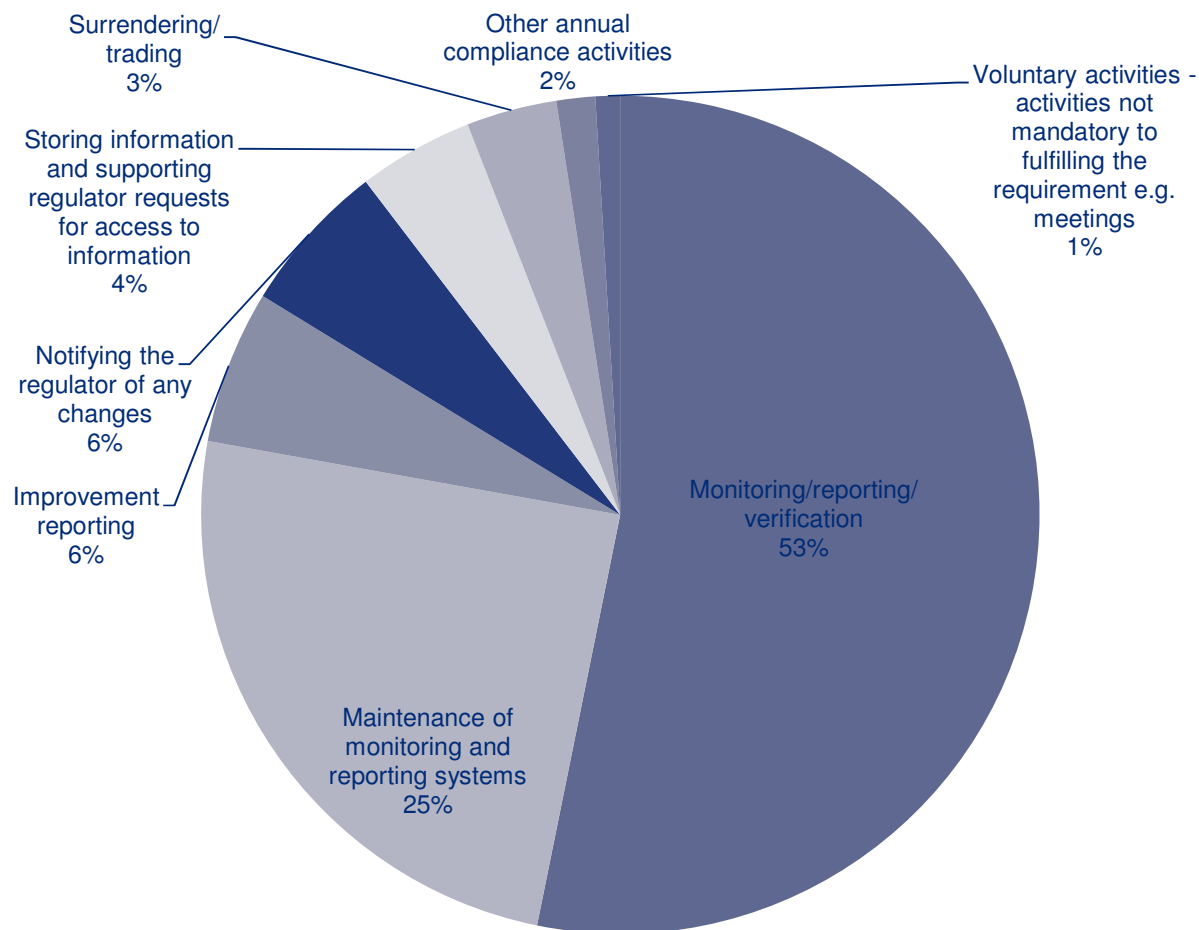
Figure 6: Comparison of total average ongoing annual activity costs by individual task – main scheme (N=763, n=186)



[Costs total - £17,683]

²⁴ Grouped for comparison

Figure 7: Proportion of total average ongoing annual costs by individual tasks – main scheme (N=763, n=186)



Commenting on the breakdown of costs:

- Monitoring, reporting and verification is – very markedly – the group of tasks associated with the highest costs (53%). Maintenance of monitoring and reporting systems is then the second most costly activity, representing a quarter of cost, but less than half of the cost of monitoring, reporting and verification. These two activities make up 78% of average reported ongoing costs;
- Examining the wider data we can see that external costs were highest as a proportion of total costs for tasks associated with monitoring, and with verification (55% and 75% of the total costs respectively - consistent with our sector knowledge that organisations frequently outsource these tasks, and that all must undertake external verification); they were lowest for activities such as surrendering allowances.

2.2 Costs of compliance for installations in the Small Emitters and Hospitals opt out scheme

2.2.1 Costs of compliance

28 organisations responded to the survey, of which data from 27 were included in the analysis. This represents 62 installations from a total of 229 installations which are included within the scope of Phase III of the EU ETS and opted in to the Small Emitters and Hospitals opt out scheme for the purposes of compliance. Organisations within the scope of the opt out scheme reported, per installation, average costs of compliance as follows:

- £6,177 of one-off costs – e.g. familiarisation, registration and setting up monitoring and reporting systems;
- £3,871 of ongoing annual costs – e.g. costs associated with collecting data;
- £2,676 of annual subsistence fees²⁵.

These costs equate to an estimated total compliance cost for all operators in the scheme of:

- £58,557 per installation for the full eight years of Phase III; this represents an average cost of £7,319 per year for Phase III;
- Total costs for all operators in Phase III for the full eight years of £13.2m.

Overall, reported average costs were found to be accurate to **±40.89% at the 95% confidence level**. Lower sample sizes included in this analysis are a key contributor to the observed variance.

Figure 8 below shows the breakdown of average one-off costs between internal, external and other costs for installations in the main scheme. Figure 9 does the same for ongoing costs.

As for main stationary scheme installations, these figures, and all other figures unless otherwise stated, exclude fees (because these are based on a fixed assumption) for purposes of analysing and comparing the components of costs that are variable (such as the proportion of internal costs in comparison to external).

²⁵ Assumed costs of £2,550 per annum as the annual subsistence charge and a small additional component representing permit variation charges. Other costs have been excluded from this analysis as they are (for all intents) insignificant (i.e. low cost and / or incurred in relatively few cases).

Figure 8: Breakdown of average one-off costs of compliance into internal, external and other costs – Small Emitters opt out scheme (N=229, n=62)

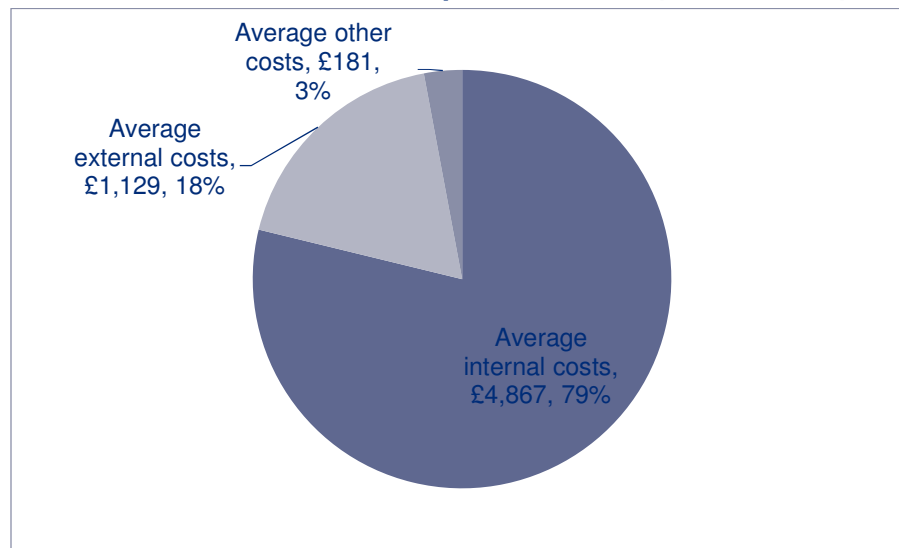
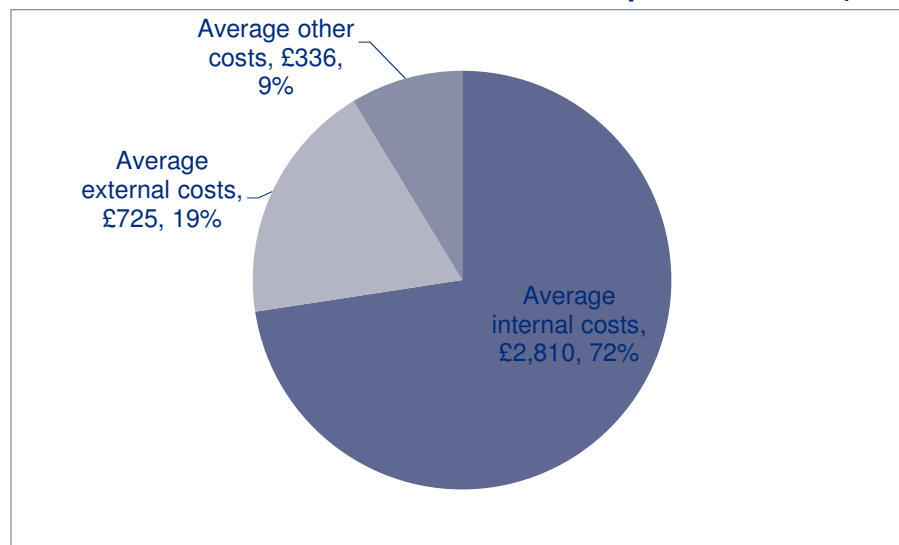


Figure 9: Breakdown of average ongoing annual costs of compliance into internal, external and other costs – Small Emitters opt out scheme (N=229, n=62)



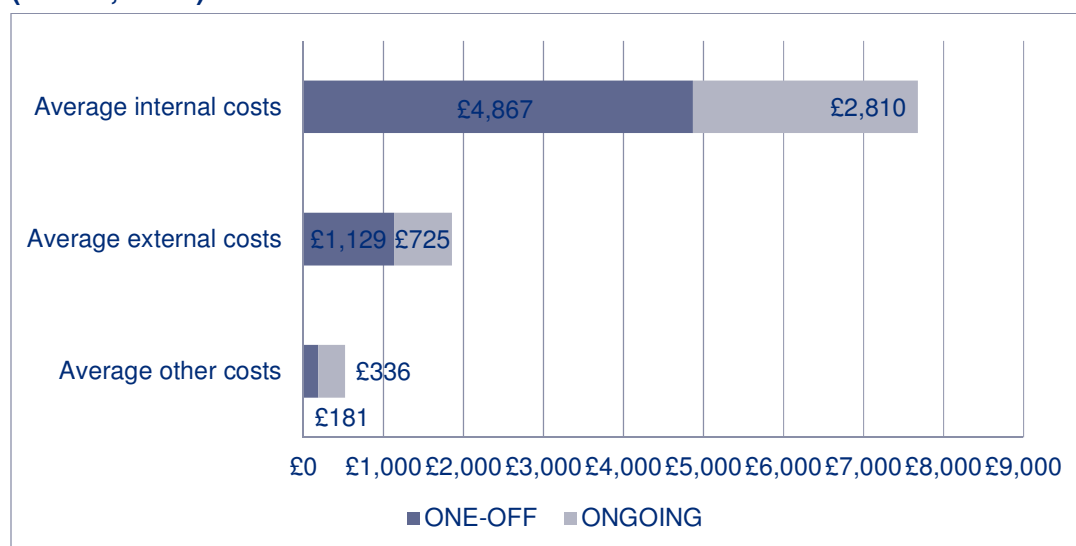
These figures demonstrate that the proportion of external costs were broadly comparable for both one-off and ongoing activities. The data suggests that this is due to less complexity (and thus need for external support) within the annual compliance cycle, alongside the removal of steps which are mandated to require external support, such as verification of emissions data.

For all 229 participants, the breakdown of total administrative costs for the full eight years of Phase III was estimated to be as follows:

- £6.3m costs met internally;
- £1.6m costs met externally;
- £658k of other costs;
- £4.7m in subsistence fees.

Based on responses to the survey, the average total administrative cost of compliance for EU ETS participants in the opt out scheme was £12,725 (including £2,550 of subsistence charges) by the end of the first year. This gives a range of average first year costs from £8,615 to £16,833 (based on the weighted average of £12,725). To examine how organisations respond to compliance at the start of the Phase, Figure 10 compares average one-off and ongoing costs incurred by the end of the first year. Figures exclude fees (because these are based on a fixed assumption) to focus on analysing the split between variable elements of costs e.g. internal, external and other costs in the figure below.

Figure 10: Split of average one-off and ongoing costs incurred by the end of the first year of Phase III into internal, external and other costs – Small Emitters opt out scheme (N=229, n=62)



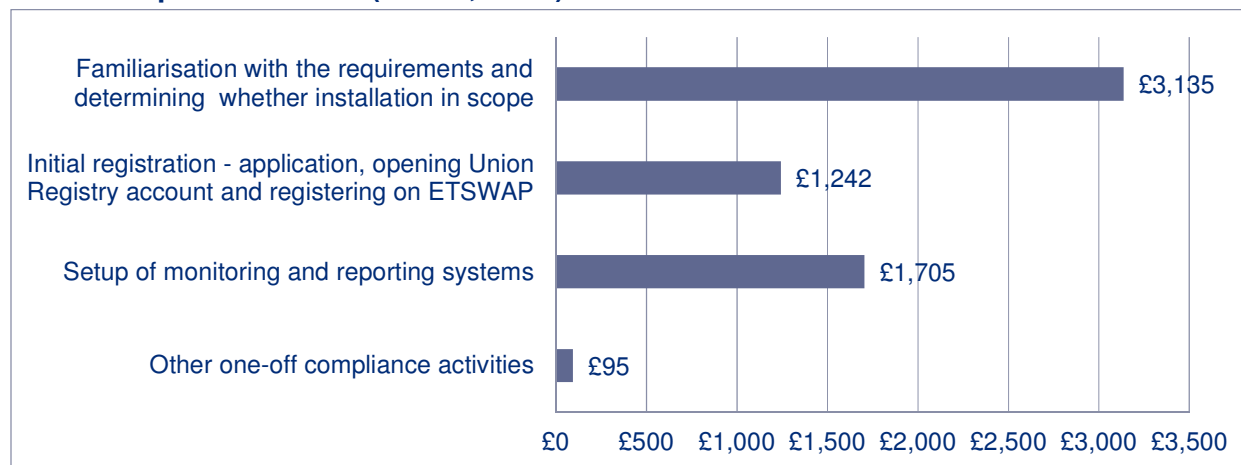
These figures show that:

- In total, one-off costs were higher than the first year's ongoing costs, suggesting that while installations may incur proportionally higher set up costs (particularly as this scheme was new in Phase III), they can then expect to experience lower ongoing costs:
 - For internal costs, one-off costs represent 78% of the first year total and ongoing costs represent 73%;
 - For external costs, one-off costs represent 18% of the first year total and ongoing costs represent 19%.
- For both one-off and ongoing costs, internal costs comprise 76% of the total costs. Total internal costs within the first year are over four times the total combined external costs.

2.2.2 One-off tasks for those in the Small Emitters opt out scheme

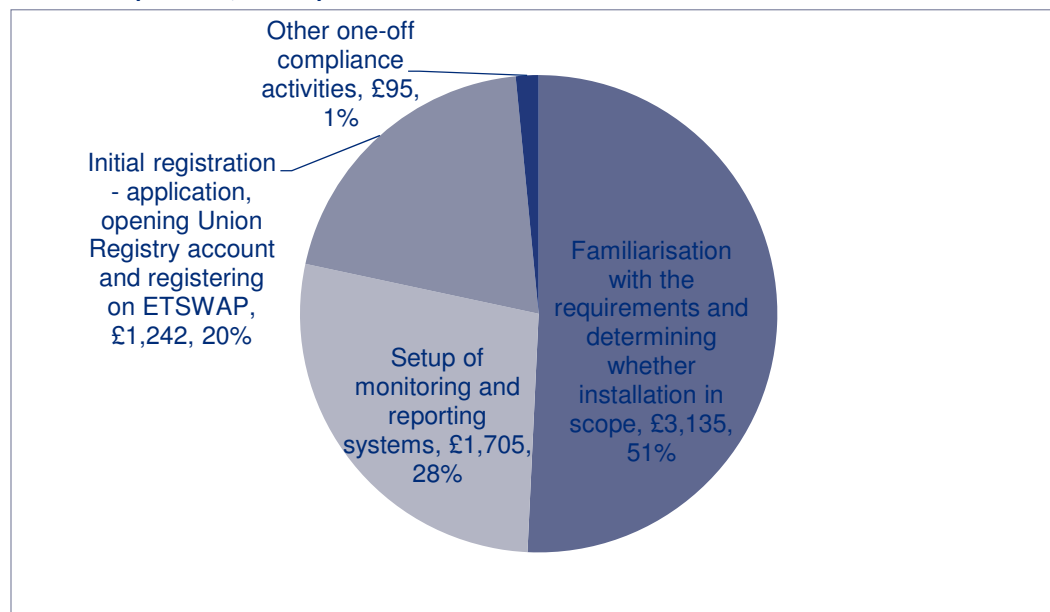
The total costs associated with individual sub-tasks²⁶ is shown in Figure 11 and Figure 12.

Figure 11: Comparison of average one-off activity costs by individual task – Small Emitters opt out scheme (N=229, n=62)



[Costs total - £6,177]

Figure 12: Proportion of average one-off costs by individual task – Small Emitters opt out scheme (N=229, n=62)



Just under a fifth of ongoing costs are external, with higher proportions observed for setup of monitoring systems (29%) and initial registration (16%).

The fact that fewer tasks are required of those in the opt out scheme compared to the main scheme reflects in the number of activities in the above figures. Familiarisation represented just

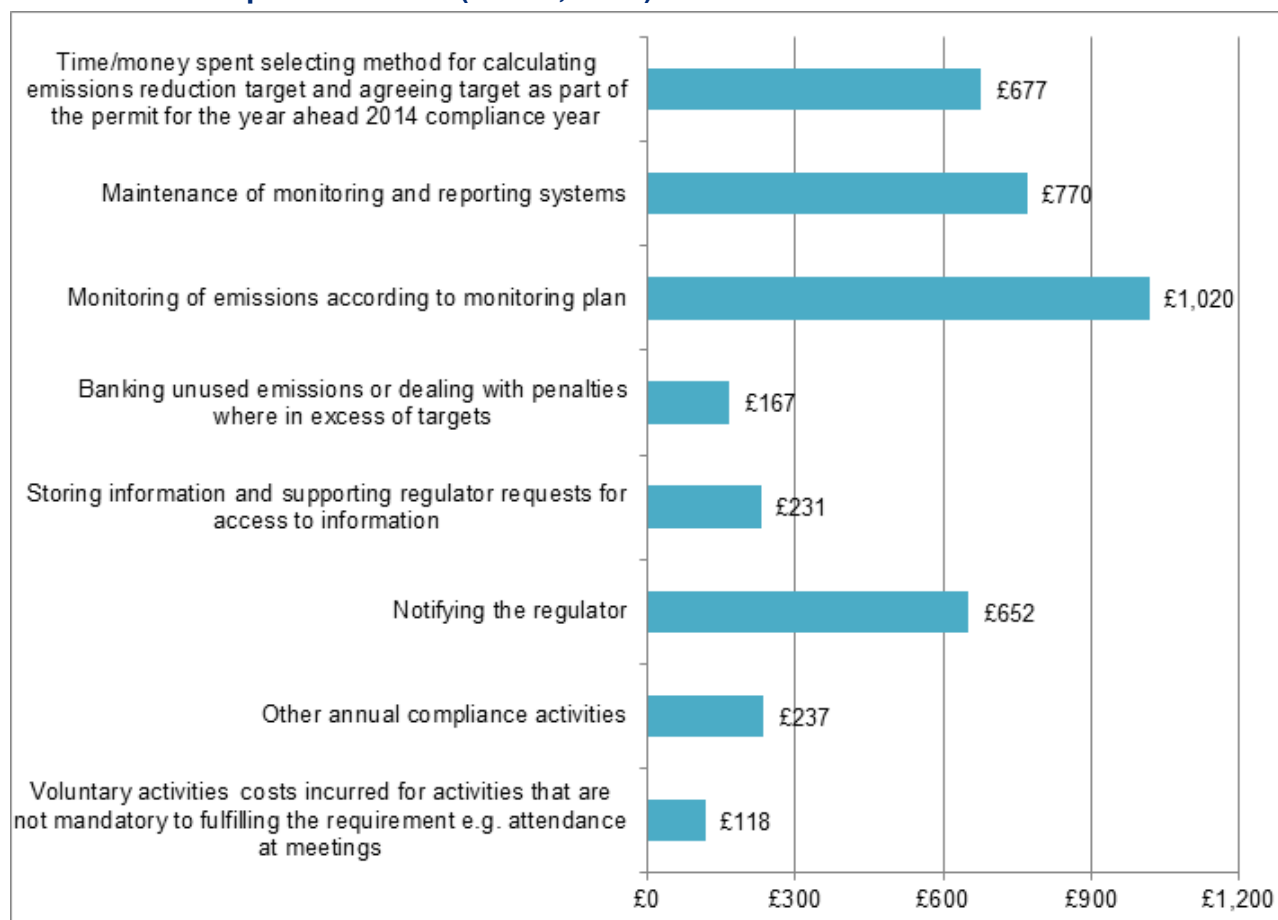
²⁶ Grouped for comparison

over half of average total one-off costs, with setup of systems accounting for over a quarter of total costs.

2.2.3 Ongoing tasks for those in the Small Emitters opt out scheme

The total costs associated with individual sub-tasks²⁷ is shown in Figure 13 and Figure 14

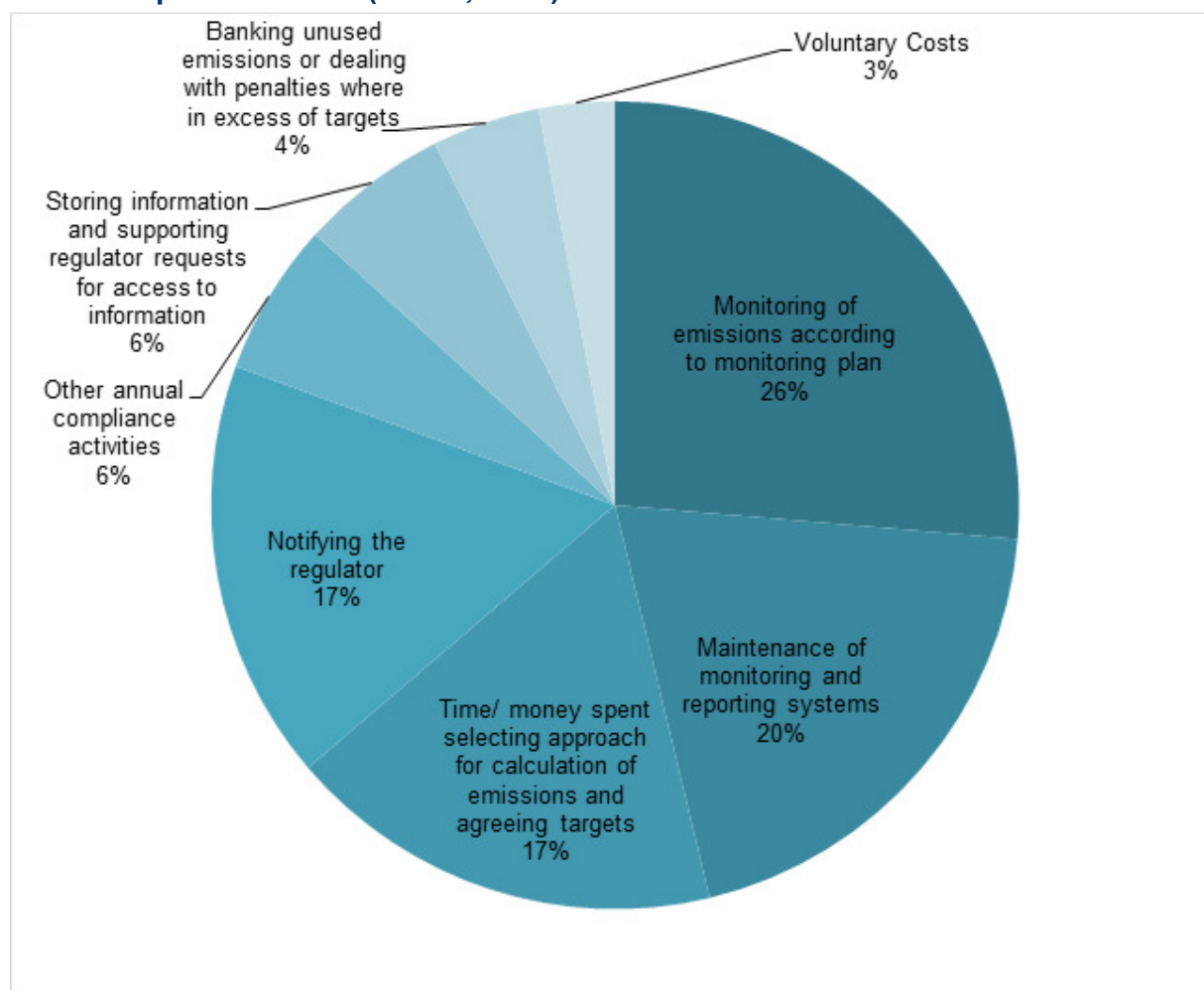
Figure 13: Comparison of total average ongoing annual activity costs by individual task – Small Emitters opt out scheme (N=229, n=62)



[Costs total - £3,871]

²⁷ Grouped for comparison

Figure 14: Proportion of average annual ongoing costs by individual task – Small Emitters opt out scheme (N=229, n=62)



These figures demonstrate that while monitoring of emissions is still the most costly activity, the absence of steps such as mandatory verification mean that total costs are lower than observed in the main scheme²⁸. Maintenance of systems is again the second most costly activity, with a comparable proportion of costs associated with this. Interestingly, notifying the regulator is a sizeable proportion of total costs for those in the opt out – which may be related to the fact that the scheme is new (and may suggest that this scale of cost is atypical) – though this would need to be tested in subsequent years to draw any firm conclusions.

²⁸ Though, some organisations noted they undertake verification on a voluntary basis.

2.3 Comparison between main scheme and those in the Small Emitters opt out scheme

Some points of comparison have already been drawn in section 2.2. This section contains figures to compare data from the two schemes alongside each other. Higher overall variance for small emitter cost estimates should be borne in mind when interpreting this data.

Figure 15: Comparison of average one-off costs split by internal, external and other costs

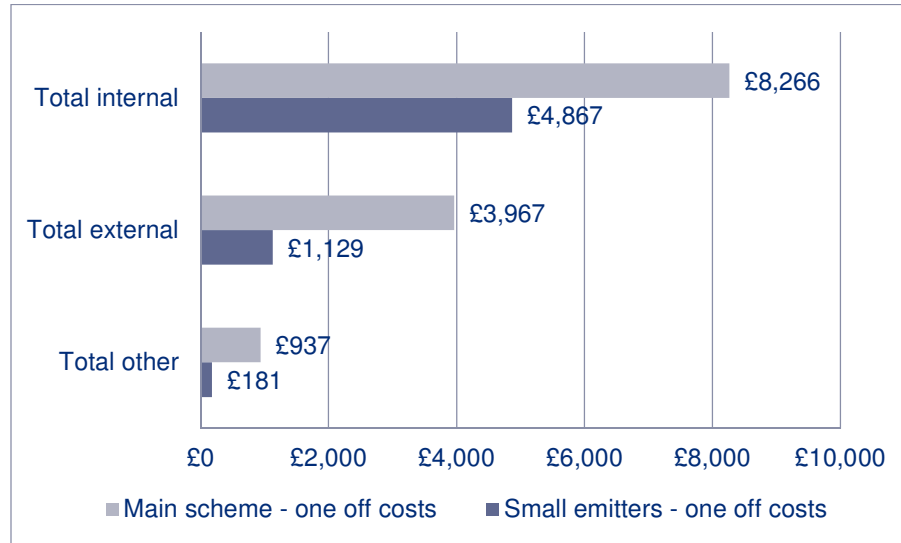


Figure 16: Comparison of average ongoing annual compliance costs split by internal, external and other costs

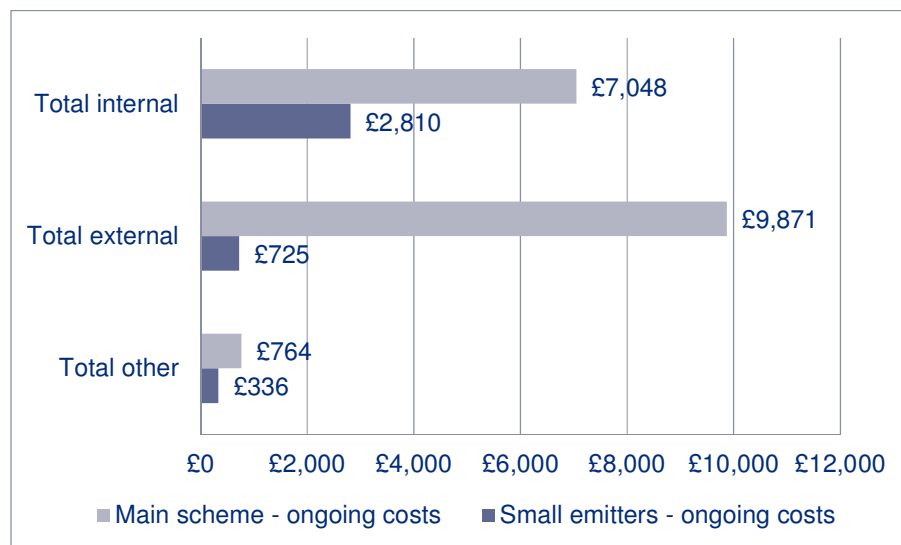
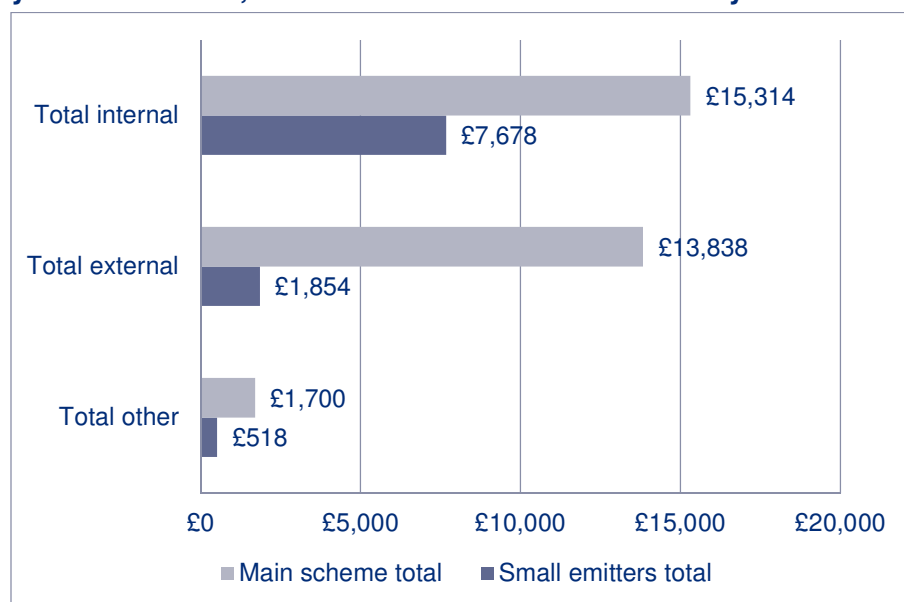


Figure 17: Comparison of total average compliance costs incurred by the end of the first year of Phase III, for installations in each stationary scheme

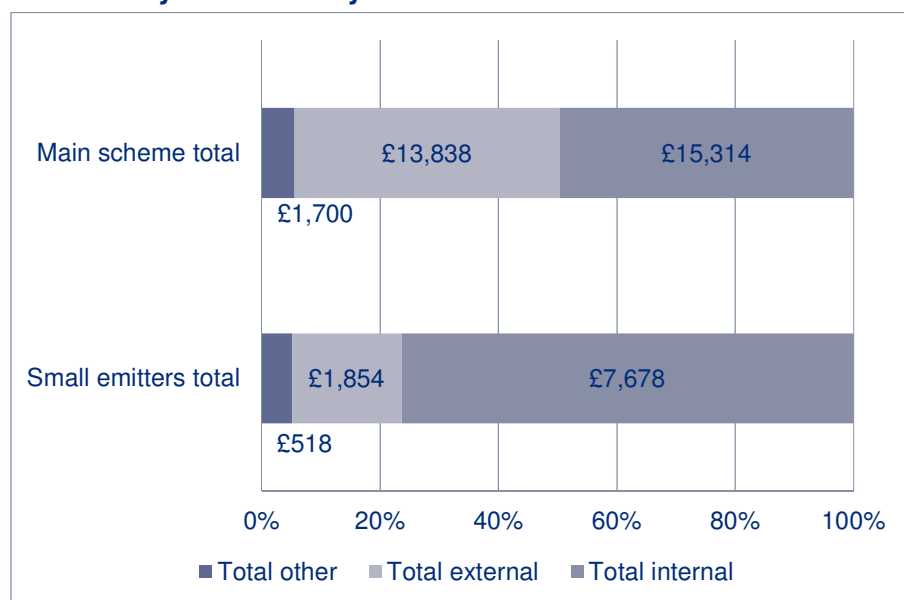


- The figures above demonstrate that while small emitter and main scheme one-off costs are more similar, ongoing costs appear to be particularly high for the main scheme when compared to the small emitter data. External costs within the annual compliance cycle are noticeably higher for the main scheme in comparison to the opt out, which appears to be driving this contrast;
- Broadly, we can observe that total average end of first year costs²⁹ are 67% lower for those in the opt out, in comparison to the main scheme. This reflects the fact that some compliance stages have been removed altogether, and others are less complex due to the fact that the costs of compliance are generally lower for smaller installations (as is clear from comparison to installations just above the threshold for the opt out scheme).
 - Average internal costs are 50% lower for those in the opt out, while showing greater involvement of directors and administrators overall;
 - Average external costs are 87% lower for those in the opt out.

Figure 18 helps further visualise the differences between how organisations in each individual scheme are meeting internal costs.

²⁹ excluding subsistence fees, which are on average higher for main scheme

Figure 18: Proportional composition of cost breakdown between schemes, total costs incurred by end of first year of Phase III



This further illustrates the degree to which those in the opt out are meeting a higher proportion of costs internally – 76% of costs, as opposed to 50% for the main scheme, while only 18% of small emitter average costs are external, compared to 45% for the main scheme.

Data were also analysed to examine the costs of compliance of installations in the Small Emitters and Hospitals Opt out scheme, and installations in the main scheme that are just above the threshold of 25,000 tCO₂e. In particular, we compared operators with one single installation³⁰ in the main scheme whose emissions are between 25,000 and 50,000 tCO₂e with operators with one single installation in the Small Emitters and Hospitals opt out scheme. As the table below shows, installations in the main scheme appear to bear higher costs than their counterparts in the small emitter scheme. Whilst this difference is not statistically significant due to the small sample sizes, this difference indicates that the main scheme’s additional tasks make compliance to EU ETS more burdensome (rather than installations reporting higher costs in the main scheme for the same activities). This is further corroborated by the fact that when the main scheme’s additional tasks (such as mandatory verification) are not included in the analysis; the average of compliance for these two groups is nearly identical.

³⁰ For ease of response, those with multiple installations in the same scheme were instructed to provide collated compliance data for all installations in the same scheme within the same survey response. While respondents suggested this made it easier for them to respond, this provides challenges in unpacking the data for analysis at the individual installation level. Therefore, for this analysis, only those responding with data in relation to single installations were included.

Table 4: Average costs of compliance by emission bands

Category	Number of cases	Average cost for emissions band	Average cost without additional main scheme's tasks
Small Emitters opt out	21	£13,214	£13,214
Main 25,000-50,000 tonnes CO ₂ e emissions	9	£18,449	£13,817

As a final observation and considering total costs, analysis of data suggests that Small Emitters in the opt out scheme account for 1% of total emissions but 10% of total average yearly compliance costs experienced by the population of stationary emitters in the scope of the policy, based on cost estimates from respondents.

2.4 Further analysis

Within this further analysis, we have explored average total costs (including one-off and ongoing activities) incurred by installations by the end of the first year of Phase III.

2.4.1 Average costs by emissions band

In this section we explore reported costs for single installations³¹; installations where data were reported for an individual installation (and not reported collectively e.g. several installations' worth of data in the same response – which in many cases included installations that varied in terms of size of emissions).

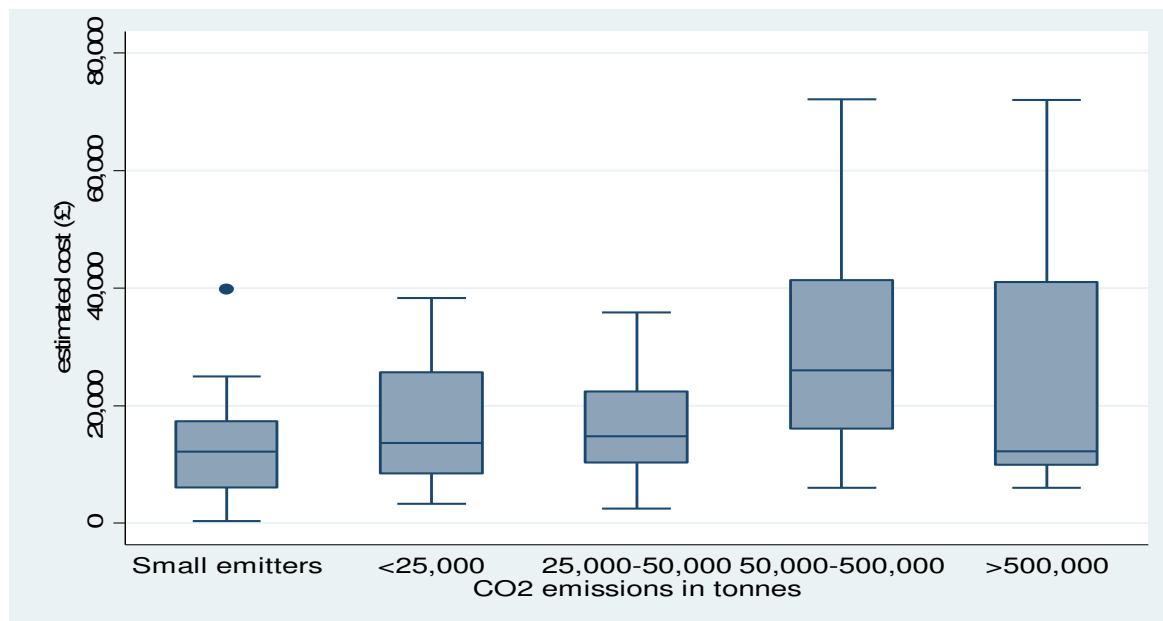
Table 5 contains average costs, and Figure 19 displays a boxplot of banded emissions against the estimated costs reported by installations.

Table 5: Average costs of compliance by emissions band for single installations

Category	Number of cases	Average cost for emissions band
Small Emitters in opt out scheme	21	£13,214
Main <25,000t CO ₂ e	18	£17,752
Main 25,000-50,000 CO ₂ e	9	£18,449
Main 50,000-500,000 CO ₂ e	15	£36,441
Main >500,000 CO ₂ e	9	£30,471

³¹ See footnote 31.

Figure 19: Banded emissions vs. cost (stationary emitters)³²³³



From this graph we observe low median costs for the largest emitters, but high variance, driven by inherent levels of complexity for some of these installations where certain tasks have significantly higher costs associated with them, and also including offshore operators for whom reported costs were much higher but were few in number. Many large emitters also reported a greater degree of complexity (and associated costs) for *de minimis* sources.

In general, larger emitters are more likely to have in place advanced reporting and monitoring systems. This is consistent with our analysis which, while based on small samples, shows a curvilinear relationship with average costs higher for medium-sized emitters compared to the largest emitters.

Due to small sample sizes, the differences between groups are not statistically significant³⁴. However we can observe lower average reported costs for those in the opt out in comparison to those with <25kt emissions in the main scheme. Figure 19 also demonstrates the sheer scale of variance for the largest emitters (and interestingly that the median value for the top emissions band was below the median for other bands). Table 6 presents average costs per tonne CO₂e emissions based on this data.

Table 6: Average costs per tonne emissions, by scheme / emissions band

³² The first box represents those in the opt out scheme, the next four are main scheme – so the <25,000 band only includes those with lower than 25kt CO₂e emissions in the main scheme (i.e. those that didn't opt out).

³³ The horizontal line inside the each box represents the median, whilst the box itself represents the central 50% of responses that lie between the 25th and the 75th percentile. The vertical lines represent the total range of responses, between the lowest and the greatest value. Where there are outliers, they are represented by dots.

³⁴ Though the difference between those in the opt out scheme and the total average main scheme compliance cost estimates is statistically significant.

Scheme / emissions band (Tonnes CO ₂ e)	Average £ / Tonne CO ₂ e
Small Emitters opt out <25,000	£2.19
Main <25,000	£2.83
Main 25,000-50,000	£0.59
Main 50,000-500,000	£0.34
Main >500,000	£0.03

While this analysis was only able to examine responses from operators with a single installation³⁵ this table suggests much higher costs per tonne of emissions for smaller emitters (both those in the opt out scheme, and at the low end of emissions in the main scheme). The weighted³⁶ average total costs for both stationary schemes is £1.73/tCO₂e. Considering emissions and costs for all installations within scope of the scheme, the average cost per tonne of CO₂e was found to be £0.14/tCO₂e. This reflects the fact that emissions from larger emitting installations (operators of whom typically experience efficiencies and thus a lower average cost per tonne) sum to a much higher volume than the sum of emissions from those at the other end of the scale e.g. those in the opt out.

2.4.2 *De minimis*³⁷ sources

During one of the scoping workshops it was reported that a disproportionate amount of effort is expended on tracking small sources, with one participant suggesting that under 1% of emissions could take up to half of the time they are spending in total on monitoring emissions. Compliance cost indications from the survey suggest that for main scheme participants:

- There are indeed organisations that are reporting high one-off and ongoing costs associated with *de minimis* sources; estimates ranged from the relatively low, such as 10%, to at the highest extreme one respondent suggesting that 97.56% of reported total compliance costs are associated with monitoring these sources. Examining tasks where in particular we would expect significant *de minimis* costs to be identified by respondents (Table 7):
 - Approximately 16% of the average total costs associated with maintenance of monitoring and reporting systems relate to *de minimis* sources;
 - Approximately 50% of the average cost associated with monitoring and reporting according to the emissions plan related to *de minimis* sources.

³⁵ Due to the survey approach; to mitigate against survey completion burden those with multiple installations (which may be of varying sizes) provided data for all installations in each scheme within a single survey response.

³⁶ For this calculation, responses from both stationary schemes were amalgamated into one dataset, and each response retained its respective weighting factor.

³⁷ Group of minor source streams jointly emitting < 2% of total emissions (up to max of 20,000 tonnes per installation)

- The data suggests that organisations involved in power generation and some specific subsets of manufacturing (e.g. chemicals) tend to report above average levels of cost associated with *de minimis* sources;
- Qualitative responses to questions in section C of the survey did in many cases support the fact that *de minimis* source monitoring and reporting presents a significant burden for some operators – with comments around the burden and suggestions that this monitoring should be removed. Some comments explained this disproportionate scale of costs was due to a requirement for manual data collection (rather than the collection of data from these sources being as easy to automate).

Table 7: Compliance costs associated with *de minimis* sources

Task	Total average cost for task	Average cost that relates to <i>de minimis</i> sources	% of cost that relates to <i>de minimis</i> sources	% of operators reporting that they have <i>de minimis</i> sources
Maintenance of reporting systems	£4,354	£679	16%	67%
Monitoring emissions	£4,696	£2,333	50%	68%

2.4.3 Costs for offshore operators

Table 8 compares costs for offshore and onshore operators. Data relating to six offshore installations was collected within the survey, so this comparison is only indicative due to the very small sample size, but shows far higher average costs based on the reported data. The specific tasks that appear to be much higher for offshore operators and are driving the high totals:

- Time and money spent during the free allocation process (one-off);
- Maintenance of reporting systems (ongoing);
- Verification of annual emissions (ongoing).

Table 8: Comparison of average costs for offshore and onshore installations

	Average costs of compliance	Lower bound	Upper bound
Onshore installations	£24,908	£14,878	£34,939
Offshore installations	£55,075	£24,735	£85,415

Evidence from the data suggests that logistical difficulties are driving costs for offshore installations e.g. in terms of adding complexity / cost to activities such as meter installation and calibration.

2.4.4 Comparison of one-off costs for those new in Phase III with those already in scope from Phase II

Analysis of single installations was conducted to understand how costs vary for those already in scope of the policy (i.e. those that would have undertaken certain tasks – such as registration – in an earlier phase) in comparison to those new in Phase III. This analysis *only* considers the subset of organisations in the Main Scheme that only operate a single installation, and only includes English installations³⁸. As such, these findings should be treated as indicative.

One-off costs:

- One-off costs for those new in Phase III (n=8) were reported as £14,992;
- One-off costs for those continuing in scope of the policy (n=45) were reported as £9,267.

While indicative, these findings do tentatively suggest that one-off costs for Phase III were lower for those organisations continuing in scope of the policy.

³⁸ This section of the analysis covers English installations only due to the difficulty of obtaining cross-UK data on this issue

3 Costs of compliance for aviation operators in EU ETS

Chapter summary

Findings for aviation operators are indicative as low response rates were achieved. The table below provides an at-a-glance summary of the administrative costs of compliance for aviation operators

		Main scheme – full compliance (operators)	Main scheme - simplified procedure for small emitters ³⁹ (operators)
Number of installations		55	106
Average one-off costs – e.g. setup costs associated with activities like registration, that are only incurred once in the Phase		£7,800	£9,400
Average ongoing costs – that are incurred in each annual compliance cycle	Ongoing annual costs (for activities such as data collection) excluding annual fees paid to the regulator	£11,000	£5,600
	Annual fees	£2,700	£2,600
Total costs at end of first year of Phase III (registration and first annual compliance cycle)		£21,500	£17,600
Projected Average compliance cost per installation for full Phase III 2013 – 2020 (8 years) ⁴⁰		£117,200	£74,700
Projected Average compliance cost per installation per year over Phase III		£14,700	£9,300

³⁹ Smaller emitters are eligible for simplified monitoring, reporting and verification to comply with the policy – for example they are able to use the small emitter's tool, and some are also eligible to generate their emissions report directly from Eurocontrol data (meaning no input from the operator and no verification required). Respondents self-selected the most appropriate survey template to complete, based on their knowledge of whether they were eligible for any simplified procedures within the process of achieving policy compliance. The research did not seek to disaggregate costs for those taking advantage of simplification options available to different degrees. Population figures were sourced from the most recent Article 21 report and clarified with the regulator.

⁴⁰ Figures are not discounted

Projected Total costs in Phase III for all installations	£6.4m	£7.9m
--	-------	-------

Note: Cost figures presented above have been rounded to the nearest hundred.

Care should be taken in drawing comparison due to sample sizes. Observations from the data include that:

- Those eligible for simplified procedures reported higher one-off activity compliance costs than those who needed to achieve full compliance, but lower (~half) of the ongoing annual costs, resulting in total costs for Phase III 36% lower than the total for those who needed to achieve full compliance;
- Those who needed to achieve full compliance reported a higher proportion of internal costs, where a higher proportion of those eligible for the simplified procedure reported outsourcing compliance activities. This is partly driven by a higher proportion of internal costs associated with more senior roles for those who needed to achieve full compliance;
- Due to levels of response, further research is warranted in future to explore the costs of compliance associated with participation in EU ETS for aviation operators.

Aviation operators were included in the scope of this research, but participants appeared particularly reluctant to respond the survey. Though significant resource was used, the fact that many participants are headquartered overseas proved to be a significant barrier in reaching out to a wider sample and obtaining more responses. In addition, from some of the recruitment interviews and qualitative feedback from those who did respond, the scheme does not appear to be especially popular with these operators which also likely influenced the observed response rates.

Due to the levels of response in each scheme we are less confident in the figures and analysis reported, and the findings in this section should be interpreted as **indicative** only. Further research is warranted in future to explore the costs of compliance associated with participation in EU ETS for aviation operators.

3.1 Costs of compliance for those needing to achieve full compliance (those ineligible for simplified procedures)

3.1.1 Costs of compliance

In total 55 operators are included within the scope of EU ETS Phase III and ineligible for compliance through a simplified procedure. A total of eight operators responded to the survey, of which data from five were included within the analysis.

Operators of Phase III of the EU ETS reported average costs of compliance as follows:

- £7,800 of one-off costs – e.g. familiarisation, registration and setting up systems;

3 Costs of compliance for aviation operators in EU ETS

- £10,971 of ongoing costs – e.g. costs of collecting data;
- £2,704 of annual fees⁴¹.

These costs equate to a total compliance cost for all operators in the scheme of:

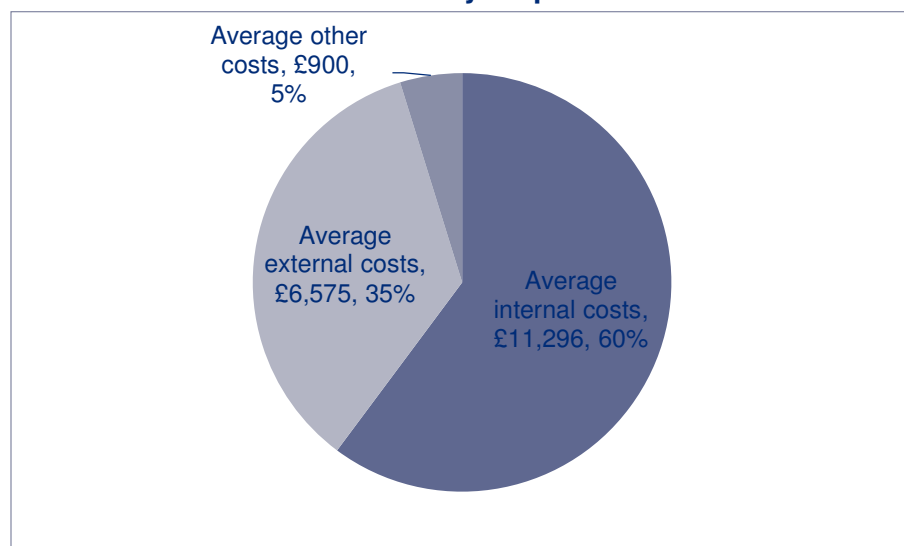
- £117,199⁴² per operator for the full eight years of Phase III; this represents an average cost of £14,650 per year for Phase III;
- Total costs for all operators in Phase III for the full eight years of £6.4m.

Overall, reported average costs were found to be accurate to **±51.5% at the 95% confidence level**.

Figure 20 shows the breakdown of average total costs per operator by the end of the first year of Phase III, broken down between internal, external and other costs. This allows us to compare the scale of total costs for setup activities, and what will be the ongoing annual cost of compliance. Based on responses to the survey, the average total administrative cost of compliance for EU ETS operators needing to achieve full compliance was £21,475 by the end of the first year.

As for stationary scheme installations, this figure, and all other figures unless otherwise stated, exclude fees (because these are based on a fixed assumption) for purposes of analysing and comparing the components of costs that are variable (such as the proportion of internal costs in comparison to external).

Figure 20: Breakdown of total average costs incurred by end of first year into internal, external and other costs cited by respondents – aviation full compliance (N=55, n=5)



60% of costs for this group of operators were internal, with just above a third external. For all 113 participants, the breakdown of total administrative costs across the eight years of Phase III was estimated to be as follows:

⁴¹ A weighted average for subsistence fees, based on the profile of the population, was arrived at following analysis of fees and charges supplied by the Environment Agency.

⁴² Discounting has not been applied

3 Costs of compliance for aviation operators in EU ETS

- £2.7m costs met internally;
- £2.5m costs met externally;
- £50k other costs;
- £1.2m in annual fees.

Separating ongoing and one-off costs, and excluding registration and subsistence fees (because these are fixed), the split between internal, external and other costs by the end of the first year are shown in Figure 21 and

Figure 22: Split of average one-off and ongoing costs incurred by the end of the first year into internal, external and other costs - aviation full compliance (N=55, n=5)

Figure 21: Split of average one-off and ongoing costs incurred by the end of the first year of Phase III into internal, external and other costs - aviation full compliance (N=55, n=5)

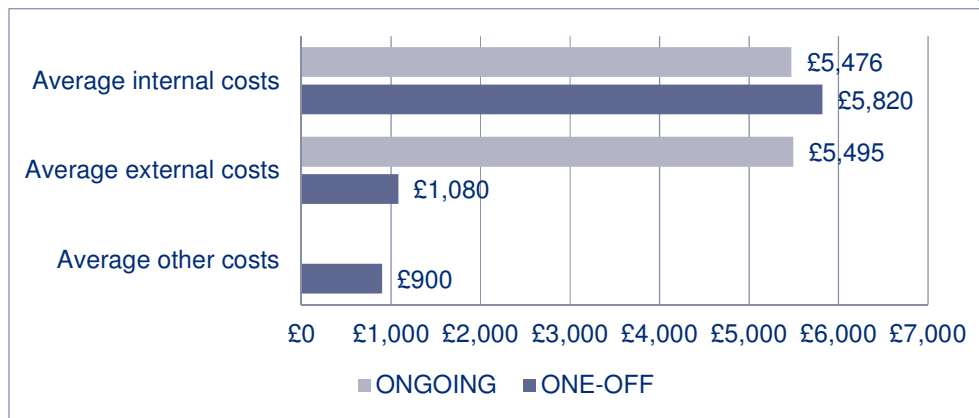
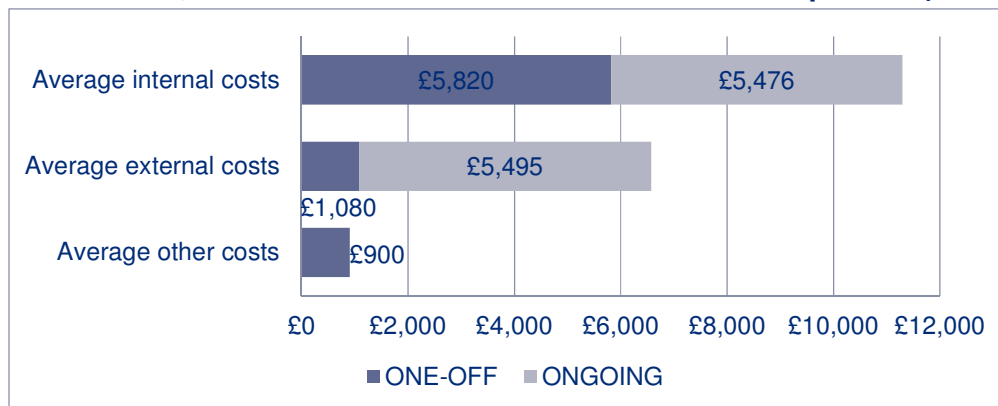


Figure 22: Split of average one-off and ongoing costs incurred by the end of the first year into internal, external and other costs - aviation full compliance (N=55, n=5)



The data show that:

- In total, ongoing costs in the first year of Phase III were higher than one-off costs; this was particularly the case for external costs, where ongoing costs account for 84% of the total external costs. This indicates that, whilst operators dedicate internal resources to set up their participation in the scheme, they subsequently rely on external resources to comply with the policy:

- For internal costs, one-off costs represent 52% of the first year total, and ongoing costs represent 48%;
- For external costs, one-off costs represent 16% of the first year total, and ongoing costs represent 84%.
- Internal costs comprise 75% of the total one-off costs, and 50% of the total ongoing costs. Across the 8-year period of Phase III, external and internal costs are fairly similar in magnitude;
- External ongoing costs in the first year were approximately five times higher than the external one-off costs. The international nature of businesses that operate in this sector might be leading them to rely mainly on external providers for compliance across the various countries they are active in.

3.2 Costs of compliance for aviation operators able to comply through simplified procedures

3.2.1 Costs of compliance

106 operators were able to follow the simplified procedure for the purpose of policy compliance⁴³. Of these, thirteen provided responses to the survey of which eleven were included within the analysis. As for the group needing to achieve full compliance, findings should be treated as indicative.

Operators following the simplified procedure for policy compliance in Phase III of the EU ETS reported average costs of compliance as follows:

- £9,432 of one-off costs;
- £5,613 of ongoing costs;
- £2,550 of annual subsistence fees⁴⁴.

These costs equate to the following estimates:

- £74,736 costs of compliance per operator for the full eight years of Phase III; this represents an average cost of £9,342 per year for Phase III;
- Total costs for all operators in Phase III for the full eight years of £7.9m.

Overall, reported average costs were found to be accurate to **±41.7% at the 95% confidence level**.

Figure 23 shows the breakdown of average total costs per operator by the end of the first year of Phase III, broken down between internal, external and other costs. This allows us to compare the scale of total costs for setup activities, and what will be the ongoing annual cost of

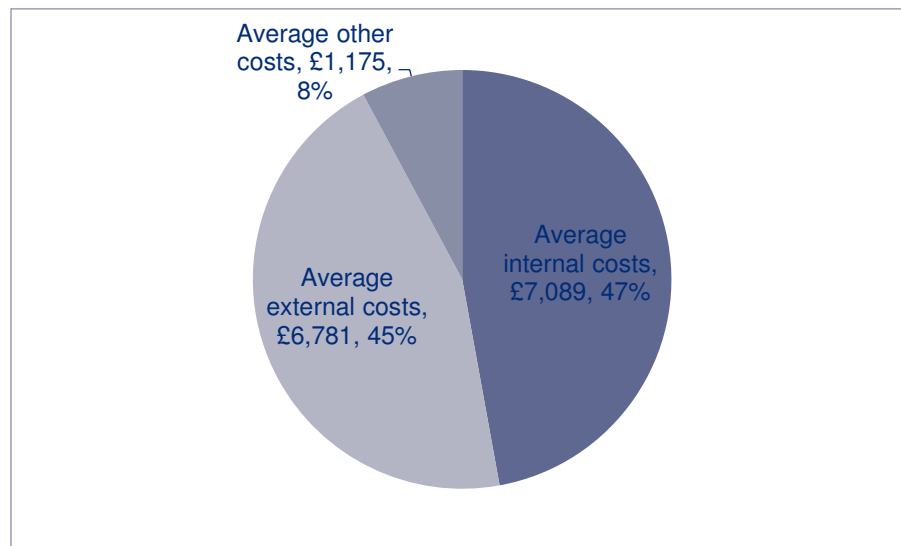
⁴³ Smaller emitters are eligible for simplified monitoring, reporting and verification to comply with the policy – for example they are able to use the small emitter’s tool, and some are also eligible to generate their emissions report directly from Eurocontrol data (meaning no input from the operator and no verification required). For further information in relation to this please see the methodology appendix.

⁴⁴ Assumed costs of £2,550 per annum as the annual subsistence charge.

compliance. Based on responses to the survey, the average total administrative cost of compliance for EU ETS operators following any form of simplified procedure was £17,595 by the end of the first year.

As for stationary scheme installations, this figure, and all other unless otherwise stated, exclude fees (because these are based on a fixed assumption) for purposes of analysing and comparing the components of costs that are variable (such as the proportion of internal costs in comparison to external).

Figure 23: Breakdown of total average costs incurred by end of first year into internal, external and other costs cited by respondents – aviation simplified procedure (N=106, n=11)



47% of costs for these operators were reported as internal, with 45% external. For all 64 participants, the breakdown of total administrative costs in year one was estimated to be as follows:

- £2m costs met internally;
- £3.4m costs met externally;
- £322k other costs;
- £2.2m in annual fees.

Separating ongoing and one-off costs experienced by the end of the first year of Phase III, and excluding fees (because these are fixed), the split between internal, external and other costs are shown in

Figure 24 and Figure 25.

Figure 24: Split of average one-off and ongoing costs incurred by the end of the first year of Phase III into internal, external and other costs – aviation simplified procedure (N=106, n=11)

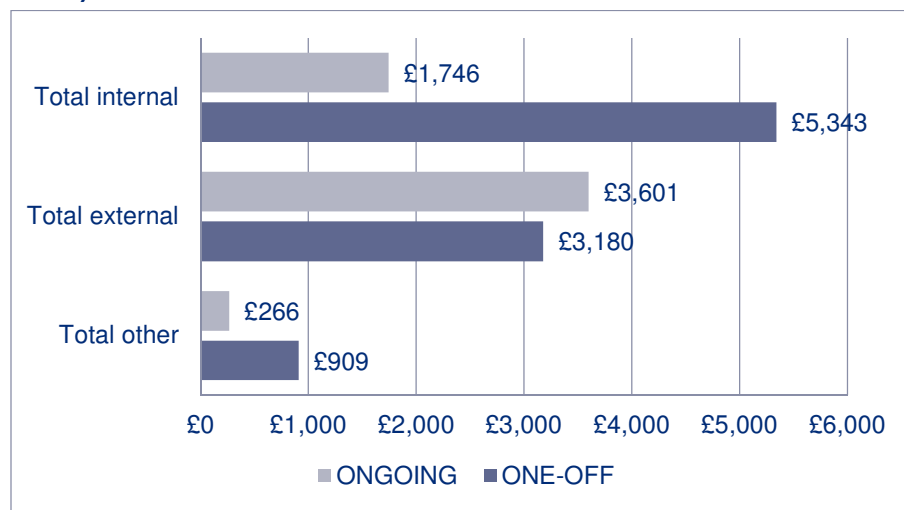
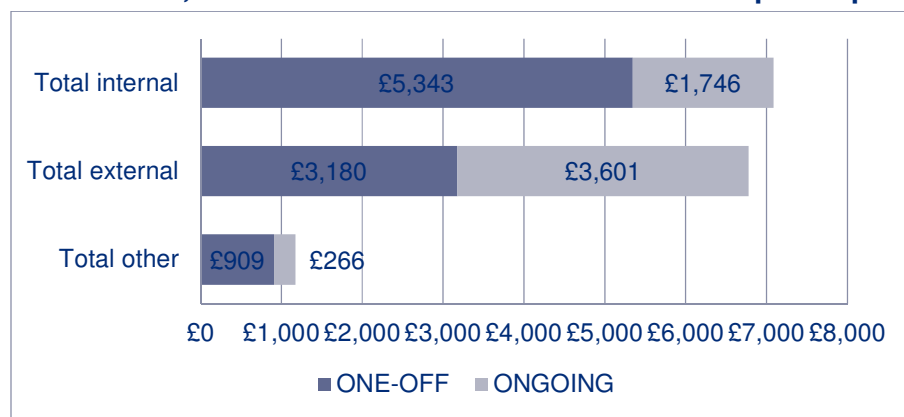


Figure 25: Split of average one-off and ongoing costs incurred by the end of the first year into internal, external and other costs – aviation simplified procedure (N=106, n=11)



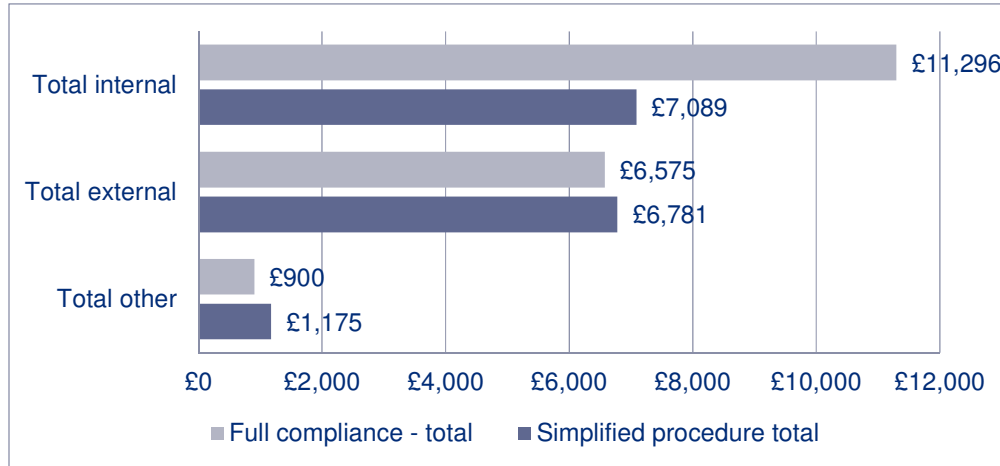
These figures show that:

- In total, one-off costs incurred by the end of the first year were higher than ongoing costs:
 - For internal costs, one-off costs represent 75% of the total and ongoing costs represent 25%;
 - For external costs, one-off costs represent 47% of the total and ongoing costs represent 53%.
- Internal costs comprise 57% of the total costs, and 31% of the total ongoing costs. Across the 8-year period of Phase III, external and internal costs are fairly similar in magnitude;
- External ongoing costs are of broadly equal magnitude with external one-off costs. This suggests that this group of operators are outsourcing their compliance to EU ETS during both setup and annual cycle components of the scheme.

3.3 Comparison between those needing to achieve full compliance and those able to follow simplified procedure(s)

This section contains figures to compare data from the two separate groups of operators alongside each other. Low sample sizes should be borne in mind when interpreting this data.

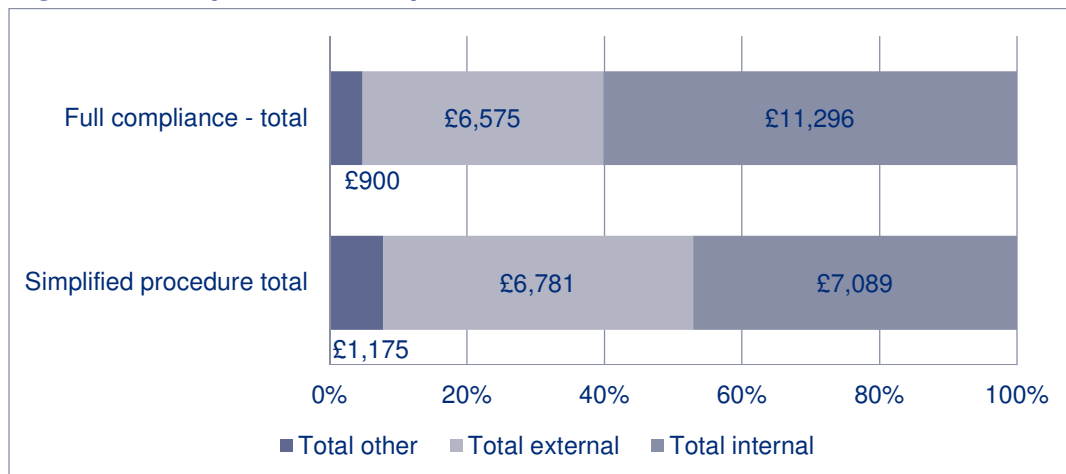
Figure 26: Comparison of absolute internal, external and other costs by end of first year between schemes



Broadly, we can observe that total average costs are 20% lower for operators following some form of simplified procedure in comparison to those who need to achieve full compliance. Anecdotal evidence suggests that the high one-off costs for those who can follow simplified procedure(s) could reflect the fact that requirements for this group were developed later in the process of scoping and including aviation operators within scope of EU ETS, and organisations that are eligible for it have needed to spend extra resources to familiarise with its requirements. This is reflected in the higher costs associated with directors and senior managers with compliance activities within operators following the simplified procedure. Average total internal costs by the end of the first year are 40% lower for those following a simplified procedure.

Figure 27 helps further visualise the differences between how organisations in each individual scheme are meeting costs.

Figure 27: Proportional composition of cost breakdown between schemes

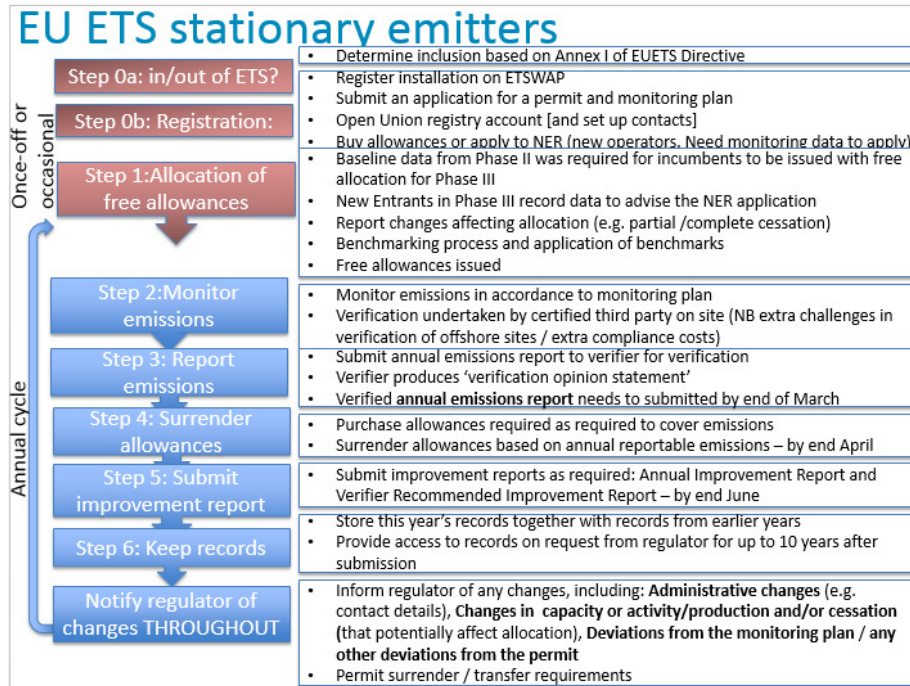


3 Costs of compliance for aviation operators in EU ETS

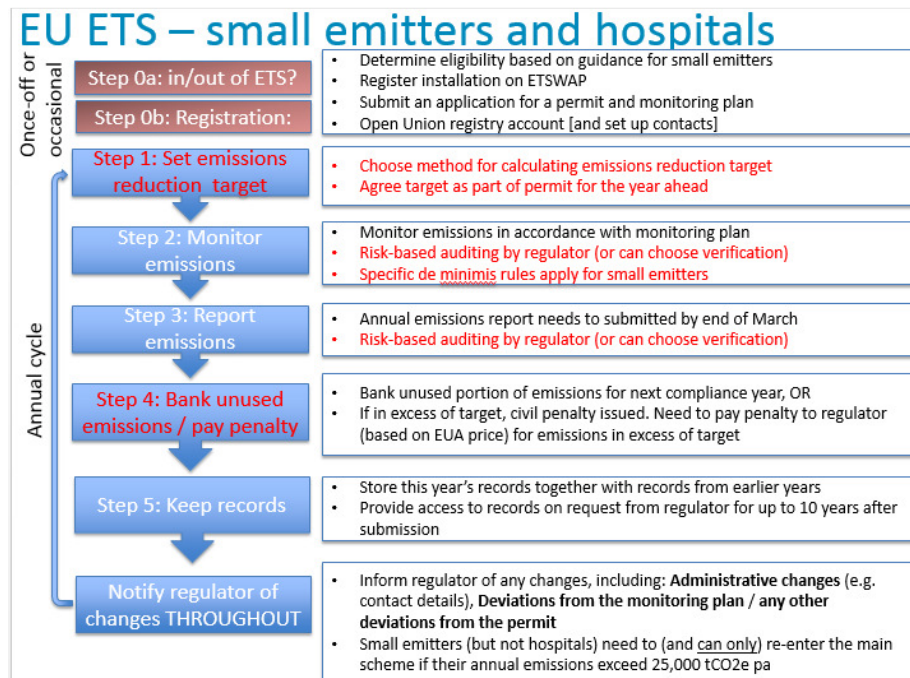
Those operators following a simplified procedure are meeting a higher proportion of costs externally – 60% of costs, as opposed to 45% for those needing to achieve full compliance.

Appendix A: Process maps

Main scheme

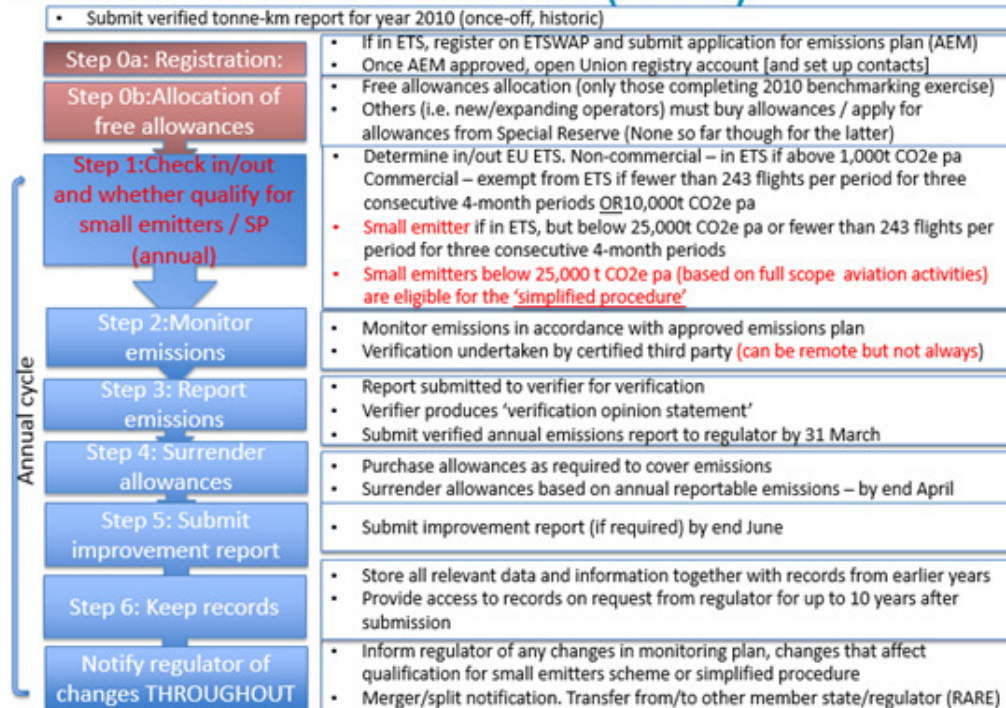


Small Emitter and Hospital Opt out scheme



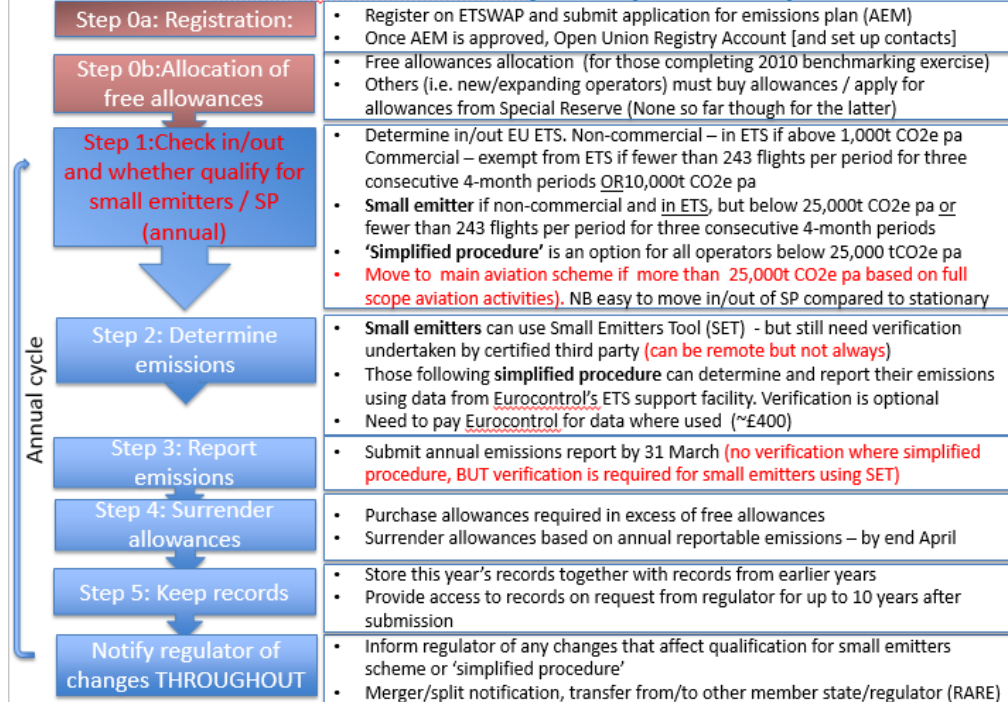
Aviation scheme (Full compliance)

EU ETS – aviation scheme (main)



Aviation scheme (simplified procedure)

EU ETS – aviation: small/simplified procedure



Appendix B: Suggested EU ETS simplification ideas from scoping workshop with external stakeholders

Comments and suggestions emerging from scoping workshops will be drawn into the discussion more fully once analysis is completed for all schemes and all tasks. Suggested simplification steps from the workshop with external stakeholders are included below for the benefit of those who may not have been immersed in the early stages of this research. As already noted in the body of the report, some suggestions resonate quite strongly with the initial quantitative analysis and qualitative comments received from participants (e.g. around *de minimis* source monitoring).

Suggested simplification steps:

- Make it easier for businesses to make changes: Business rationalisation should be a key policy aim (some incentives are considered ‘perverse’ and discourage rationalisation);
- Reduce ‘lumpiness’ of schemes: This could be done by separating the data period (e.g. January to December 2014) from the reporting point (which companies could choose, to fit their own financial reporting cycle);
- Advice: Trade associations could help to share the EA burden by being the point of call for advice on specific industries, as some are already for CCAs;
- Consistency: need more consistency of information;
- Registry: simplify security checks, particularly for aviation;
- Have one registry across the various schemes: consolidate the registry across policies. Have a window for entry, and allow people to make changes simpler – portal for one place. It’s often one person in an organisation covering ETS, CRC and ESOS;
- Proportionality: need more proportionality (specific ideas below);
- Sampling and analysis: potentially allow operators to assume standard figures or worst case, rather than having to do sampling every year;
- Reduce verification of small sources: for small sources, suggestion to report first year accurately and then self-certify based on previous year’s emissions;
- Review ‘*de minimis*’ rules: Open up ‘*de minimis*’ across policies. There was a suggestion to have ‘*de minimis*’ rules by organisation;
- Reduce verification requirements: Suggestion that if operators demonstrate full compliance and have been verified, don’t require them to re-verify;
- Allow joint verification across schemes: If data has been verified for one scheme, could this be used for other schemes (duplication of verification was felt to be an issue);
- Site surveys: Query whether site surveys are always needed for verification. Verifiers don’t like a ‘black box’ that aggregates data and produces an answer in head office; they currently have to go to every site. There is a need for development of a robust system that can be relied on by verifiers. Verification should be based on a risk-based approach.

Appendix C: Methodology Appendix

Between October 2015 and February 2016 the following stages of work were conducted to address the research objectives:

Scoping and survey design: Following an inception meeting with DECC, individual workshops took place with DECC and environmental regulators in all parts of the UK, and key trade associations representing organisations with installations within the scope of EU ETS. These workshops provided a detailed understanding of the individual tasks⁴⁵ that organisations need to undertake to comply with the policy, as well as providing a forum for discussion around successes and challenges and potential steps for further simplification. This helped inform the structure and content of the survey. The series of process maps developed through these workshops (and the subsequent discussion and review process) are shown in appendix A. Four process maps were produced in total – two for stationary installations (one reflecting the process followed by installations in the main scheme and the other outlining the process followed by those in the opt out) and two for aviation (showing the steps for the main aviation scheme, and those following simplified procedures).

To address the research objectives, and acknowledging the type of information that would need to be collected, the approach that was developed focused on use of an online survey, supplemented by telephone contact with participants to improve representation and validate the information supplied. The survey that was designed allowed broad alignment with the Standard Cost Model (SCM) methodology while also providing a high level of granularity around individual tasks.

The typical costs of compliance in each annual cycle of Phase II of EU ETS were explored in a previous survey published in 2010⁴⁶. The 2010 survey was used as the basis for the structure of the survey used in this current study to allow some comparability, where possible and appropriate, between costs in Phase II and costs in Phase III. The 2010 survey script was adapted to reflect changes between Phases II and III, notably to:

- Devise question sets reflecting the process followed by those in the Small Emitters and Hospitals Opt out scheme, introduced in Phase III, and for the Aviation sector, which was not included in EU ETS at the time of the previous study;
- Explore internal time in more depth, to understand how much time was spent by individuals at different levels within operator organisations (Directors, Senior Managers, Middle Managers and Administrators) – as the previous study had simply asked about overall time costs;

⁴⁵ Tasks were specifically those relating to information obligations. Understanding drawn from EU ETS guidance documentation and the experience of the project team was used to devise initial process maps and lists of information obligation tasks for discussion in the workshops. The process maps were then amended in line with workshop feedback and follow-up conversations with the regulators and DECC, resulting in tailored individual maps per scheme.

⁴⁶ 'Assessing the cost to UK operators of compliance with the EU Emissions Trading System'
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47953/895-cost-euets-uk-operators-compliance.PDF

- Include detailed questioning for all respondents about the set-up costs for Phase III (as only those new to Phase II were asked about set-up costs in the 2010 study).

Questions were also amended to further unpack individual stages within tasks to better reflect the range of information obligations within EU ETS (as emerged from the development of the process maps in the scoping stage), and to include questions to address new research questions.

Piloting: To ensure that the research approach would work (e.g. questions were understood, not too onerous to complete) the survey was sent to a selection of 100 installations representative of the population to pilot the survey. Databuild suggested allowing respondents the choice of responding through either an online survey (in a web browser) or providing data within an MS Excel template. The pilot confirmed that there was appetite for both approaches, and giving respondents the option would improve response rates and accuracy of information. It also confirmed that operators with multiple installations within EU ETS would prefer in a number of cases to submit a response covering the total administrative burden of compliance across all installations for which they were responsible. It was decided in the interests of maximising participation and ensuring the results were representative to allow operators of multiple installations to submit a single response covering all installations where this was their preference, though where operators were willing to (or in some cases preferred) to provide individual responses for each installation this was encouraged.

Fieldwork – online survey; recruitment; follow-up telephone interviews: Following the pilot, a final version of the survey and instructions were produced. The online survey was sent to all operators with installations in Phase III of the EU ETS, with specific instructions in place to help those who might need to complete the survey for more than one installation. Four reminder emails were sent across a four week data collection period. To help maximise response rates, DECC and the consortium partners used various channels to encourage participants to respond to the survey, including liaising with trade and industry associations to encourage their members to respond (promoting the survey within e.g. newsletters).

The survey itself was structured as follows:

Section A: Organisational details – contact details, main activity undertaken at the installation(s), and other environmental regulations that apply to the installation (for context).

Section B: Costs of compliance – data tables. Respondents were asked to complete three data tables relating to costs of compliance. Within each table respondents were given the space to indicate costs encountered both internally (and by whom) and externally, any other costs associated with specific tasks, and the proportion of costs that were additional as a result of EU ETS. The three tables were as follows:

One-off costs – costs undertaken for pre-registration (e.g. understanding rules) and registration.

Ongoing costs – costs incurred for recurring activities within a 12 month period. The survey asked for costs incurred in the 2014 compliance year.

Voluntary and other costs – any costs that were undertaken by respondents voluntarily to improve compliance related processes, and costs for any tasks not specified within previous tables.

Section C: Qualitative feedback – this included questions about: actions taken by operators to reduce the time or costs of compliance over the period they have been part of EU ETS; the positive and negative consequences/impacts of the current administrative process on their organisation and participation in carbon markets; views on the difference the Small Emitters opt out scheme had made to the administrative costs of compliance; reasons operators of installations eligible for the scheme chose not to opt out of the main scheme where this was the case; suggestions for reducing the administrative burden of the EU ETS whilst maintaining its integrity and effectiveness (including the impact this would have on their costs and emissions); and views on whether proposals for Phase IV of the scheme were likely to result in any increase or decrease in the administrative costs of compliance.

As well as the online survey, telephone contact was used to contact organisations and explain / promote the research, check and probe data, and encourage representation in sub-sectors where relatively few responses were received.

Data checking and validation: Completed responses were reviewed throughout the fieldwork and analysis period to understand acceptable ranges for data and investigate any suspicious data that may adversely influence the analysis.

Representativeness: Telephone contact was used to encourage representation in sub-sectors where few or no responses were received. Broadly, this exercise was successful, though it was particularly challenging to secure responses from the aviation sector⁴⁷. Operators of main scheme installations were also generally easier to engage than operators of small emitter installations in the opt out scheme.

The data obtained through the main scheme survey were weighted to counter the effects of over-representation of installations with large emissions, offshore installations and operators with multiple installations. The weighting categories and factors used are shown in the table below⁴⁸:

Table 9: Weighting categories and factors for main stationary scheme analysis

Onshore/offshore	Emissions band	Number of installations	Weighting factor	n
Offshore	Less than 50,000 tCO ₂	Multiple installations	0.71	4
		Single installation	0.22	1
	50,000 tCO ₂ - 500,000 tCO ₂	Multiple installations	0.65	22
		Single installation	2.42	1
Onshore	Less than 50,000 tCO ₂	Multiple installations	0.88	70
		Single installation	2.80	21
	50,000 tCO ₂ - 500,000 tCO ₂	Multiple installations	0.54	25
		Single installation	1.06	12

⁴⁷ Unique challenges presented from the fact that lead contacts were often based outside of the UK.

⁴⁸ The weighting scheme was developed based on the population of installations and emissions data provided for the purposes of the research

	Over 500,000 tCO ₂	Multiple installations	0.37	15
		Single installation	0.88	8
		No emissions data	1	7

Potentially erroneous data: Data were checked both internally within the team at Databuild and Verco to identify figures at the extremes of the overall distribution. Verco were well positioned to comment on other outliers, such as unexpected figures within specific parts of the population, based on their experience in offering compliance services for operators in EU ETS. Data captured within the survey were also analysed throughout the data collection process to compare cost responses of organisations with different scales of emissions to identify any potentially spurious data. Where outliers were identified, particularly where outliers were identified and respondents themselves indicated that responses were 'rough' estimates, these were flagged for a follow-up telephone interview to unpack and understand responses. Following these interviews, amendments were made where appropriate.

Calculation of costs and analysis: In estimating the overall administrative cost incurred by EU ETS participants, we employed the Standard Cost Model (SCM) approach. Respondents were presented with a list of administrative tasks that operators within the EU ETS need to undertake in order to comply with the policy (information obligations). For each task, they were asked to provide the amount of time in hours per year spent for compliance across four staff categories:

- Directors;
- Senior management;
- Middle management;
- Administrative staff.

They were also asked to provide the total external cost they incurred for each of those tasks, e.g. fees for external consultants to whom they outsourced part of or the entire task. Alongside internal and external costs, respondents were also asked to provide any other administrative costs they incurred for complying with EU ETS and that were not covered by the other cost categories.

To monetise the internal time spent for each task, we used assumptions based on the ONS Annual Survey of Hours and Earnings (ASHE). ASHE provides data on levels, distribution, and make-up of earnings and hours worked for UK employees in all industries and occupations. The assumptions used for the hourly earnings of each staff category are shown in the table below. The salary estimates included within the original SCM methodology dated to 2004/5 and were deemed unlikely to accurately reflect costs of participant time for this analysis.

In calculating the total cost, we assumed an uplift of 30% to account for overheads. This is the standard assumption used in the Standard Cost Model and is recommended by the Cabinet Office's SCM methodology document.

Table 10: Hourly earnings assumptions across staff categories

	Directors	Senior Managers	Middle Managers	Administrative Staff
Median hourly earnings (excluding overheads)	£51.93	£38.33	£27.83	£10.30
Source	Estimated based on 2014 ONS Annual Survey of Hours and Earnings ⁴⁹	2014 ONS Annual Survey of Hours and Earnings	2014 ONS Annual Survey of Hours and Earnings	2014 ONS Annual Survey of Hours and Earnings
Median hourly earnings (including overheads - assumption 30%)	£67.51	£49.83	£36.18	£13.39
Description in SOC 2010 ⁵⁰	N/A	Minor SOC Group 111: Chief executives and senior officials ⁵¹	Minor SOC Group 113: Functional managers and directors	Sub-major group 41: Administrative occupations
Code in SOC 2010	N/A	111	113	41

We removed from our cost estimates any cost that would have been incurred anyway⁵², even in the absence of EU ETS. This was done in order to ensure that all costs were additional as a result of EU ETS. The cost incurred by each participant per task was calculated as follows:

- Cost of director time = Hours of directors*67.51;
- Cost of senior management time = Hours of senior management*49.83;
- Cost of middle management time = Hours of middle management*36.18;

⁴⁹ It was necessary to estimate earnings of Directors in major organisations as this was no longer reported as a separate category in the ONS Annual Survey of Hours and Earnings (ASHE), as was the case when the UK SCM guidance literature was published. The included figure was estimated based on the historic ratio of median hourly earnings of the Chief Executives and Directors of major organisations to that of UK employees overall.

⁵⁰ Standard Occupational Classification 2010: Within the context of this classification, jobs are classified in terms of their skill level and skill content. Its latest version was introduced in 2010 and is currently used by the Office for National Statistics (ONS).

⁵¹ This category consists of Chief Executives, senior officials, elected officers and representatives

⁵² This was based on survey responses; for each individual task, respondents provided the proportion of the cost incurred that would have been incurred anyway, even in the absence of EU ETS.

- Cost of administrative staff time = Hours of administrative staff*13.39;
- Total internal cost=(Cost of director time + Cost of senior management time + Cost of middle management time + Cost of administrative staff time)*% attributable to EU ETS;
- Total cost=Total internal cost + ((External cost + other costs)*% attributable to EU ETS) + charges⁵³;
- Total cost for Phase III=Total one-off cost + (Total ongoing cost*8) + (Subsistence fees*8).

All costs were calculated per installation. Where a response covered multiple installations, we assumed that the cost per installation equated to the average cost across all the operator's installations.

As described above, all figures in the report are weighted as the weighted sample adjusts for the over-representation of large emitting installations, offshore installations and operators of multiple EU ETS installations within our sample. Weighting factors were calculated at the installation level. Where a response covered multiple installations, the weighting factor applied to this operator equated to the sum of weights of each individual installation. Figures in the report that relate to the Small Emitters opt out scheme are not weighted, as there are neither large emitters nor offshore operators amongst this scheme's population, whereas the presence of operators with multiple installations is fairly limited.

Based on the analysis outlined above, we are able to report average costs across individual tasks, as well as estimates of the average total cost incurred by the end of the first year of Phase III and in Phase III as a whole. Throughout the report we have reported averages per installation as median values do not reflect the variation within the sample; excluding for example larger costs which were found to be accurate within the data validation process.

Once the costs of compliance were calculated, analysis was carried out to identify and understand relationships between different variables and the scale of costs, using Stata⁵⁴ to examine the significance of relationships, taking into account adjustments required to adjust for the over-representation of large emitting installations, offshore installations and operators of multiple installations within the sample.

Aviation Scheme survey selection

Respondents self-selected the most appropriate survey template to complete, based on their knowledge of whether they were eligible for any simplified procedures within the process of achieving policy compliance. Prior to the analysis and reporting stages data relating to specific compliance approach adopted at the operator level was not available within the database supplied for the research; while the EA have subsequently reported the numbers using the Small Emitters tool and the subset that also generation reports directly via Eurocontrol, the research did not seek to and was not able to disaggregate costs for the two groups taking advantage of the simplification options available to different degrees (analysis of which also would not be possible due to achieved sample sizes). Population figures were sourced from the most recent Article 21 report and clarified with the regulator.

⁵³ For the initial analysis within this draft, only subsistence charges are included. These constitute the majority of charges, though for the next draft we will aim to also include costs associated with permit variations.

⁵⁴ A statistical analysis software package

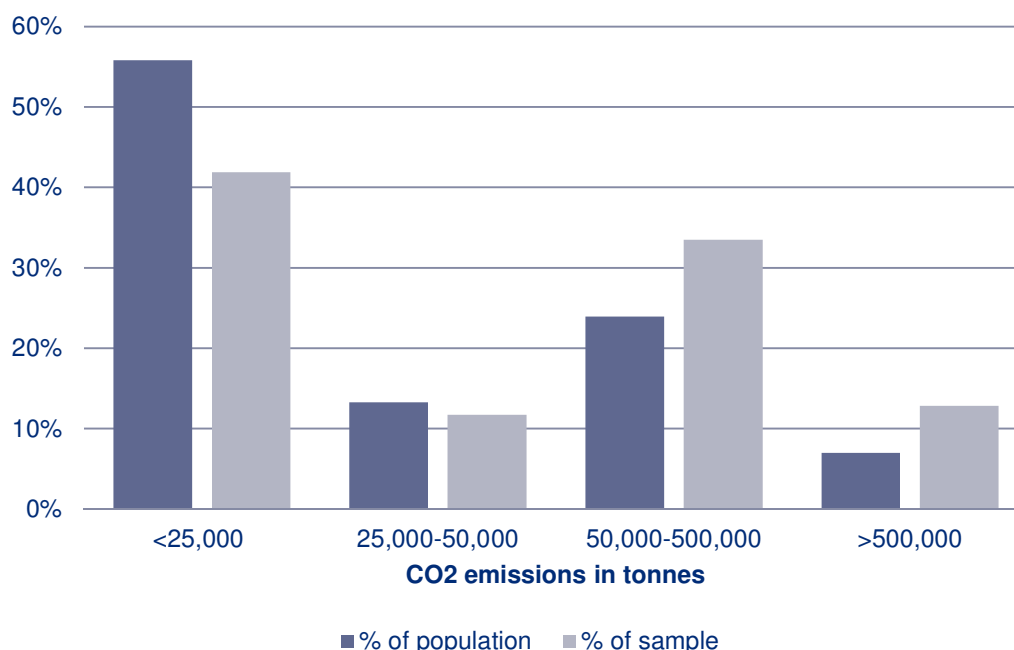
Scheme populations of EU ETS participants and the sample completing the survey

For all schemes, where data for a subset of installations / operators have been excluded from the analysis this was due to data that were flagged as suspicious within our data validation processes and which could not be satisfactorily resolved through further engagement with respondents.

Stationary - main scheme

In total 763 installations are included within the scope of the EU ETS, and fall in scope of the 'main' stationary scheme for purposes of compliance. The breakdown of the population and achieved sample by emissions band in the main scheme is shown in Figure 28.

Figure 28: Main stationary scheme population breakdown by emissions and achieved interviews



Data were weighted to account for the effects of over- and under-representation across emissions bands. Further details can be found within the methodology appendix.

The table below shows the breakdown of survey responses and the data that has been included in the final analysis.

Table 11: Survey responses and coverage for main stationary scheme (N=763, n=209)

	Total	Included in the final analysis	Excluded from final analysis
Number of respondents	78	72	6
Number of installations covered	209	186	23

Stationary - Small Emitters opt out scheme

In total 229 installations are included within the scope of Phase III of the EU ETS and opted in to the Small Emitters and Hospitals opt out scheme for the purposes of compliance. The table below shows the breakdown of survey responses and the data that has been included for analysis.

Table 12: Survey responses and coverage for stationary Small Emitters opt out (N=229, n=63)

	Total	Included in the final analysis	Excluded from final analysis
Number of respondents	28	27	1
Number of installations covered	63	62	1

Aviation – Full compliance

In total 55 operators are included in this group within the scope of EU ETS Phase III. These are larger operators that are ineligible to follow any kind of simplification to compliance procedures. The table below shows the breakdown of data that has been included for analysis.

Table 13: Survey responses and coverage for operators needing to achieve full compliance (N=55, n=8)

	Total	Included in the final analysis	Excluded from final analysis
Number of operators	8	5	3

As illustrated in the table above, it was particularly challenging to engage with aviation operators within the survey, and it was also challenging to engage with operators to validate data. Part of the challenge was engaging with primary contacts who were located outside of the UK and for whom it was therefore less possible to follow-up using telephone resource to encourage participation. However due to the achieved response rate for this group, the reported findings should be treated as indicative.

Aviation – simplified procedure

Table 14: Survey responses and coverage for aviation – simplified procedure (N=106, n=13)

	Total	Included in the final analysis	Excluded from final analysis
Number of operators	13	11	2

As for the main aviation scheme, while the response was higher for those following the simplified procedure for compliance, reported findings should be treated as indicative.

Response rate and non-response

For the main stationary scheme and Small Emitters opt out scheme, 108 individuals responded to the survey, providing data relating to 272 individual installations. Based on installations, this represents a response rate of 27.4%⁵⁵.

For aviation operators, response rates were lower as challenges were encountered in securing participation from operators. As noted above, some of these hinged on the fact that the listed contacts were located outside of the UK. Twenty-one operators responded to the survey, representing a response rate of 13%⁵⁶.

Looking at all responses combined, the response rate to the survey for all four schemes was 25.4%, and 22.8% only counting data that satisfactorily completed data validation checks and was included within the analysis.

Limitations

Research of this nature can be challenging for a number of reasons – not least the fact that an approach that would maximise the amount of useful data that could be collected within the available resources inevitably relies on respondents themselves estimating time burdens associated with compliance activities. As outlined above steps were taken within data validation and analysis to mitigate this and other challenges. Below we describe the risks and limitations that DECC should be aware of, the mitigating actions taken, and (if any) implications for interpreting the results.

Table 15: Risks / limitations

Risk / limitation	Mitigating actions and discussion
<p>Reliance on respondents to provide data, and overall inaccuracies in the calculated administrative costs due to bias, human error or ineffective data collection. The approach rested on the correct understanding of the question, how to respond and what data to provide. In addition, bias may be a factor whereby respondents exaggerate costs to influence the research findings, or that respondents with atypical costs were more likely to respond. The data that respondents were asked for may not be readily available or easy to calculate, meaning a risk that estimates may not be accurate.</p>	<ul style="list-style-type: none"> - Several steps were taken to limit the likelihood of these risks affecting the cost estimates: <ul style="list-style-type: none"> o Detailed instructions were provided, and one-on-one telephone support was available to help organisations to complete their responses; o Respondents had the ability to pause and re-start their submission, or complete their response in an Excel template – so that people could go away and collect data / confer with colleagues to populate their response; o Stringent and ongoing data checking and validation within Databuild and Verco took place throughout, to 'sense check' figures that respondents were giving and ensure these were realistic; o Telephone follow-up interviews were completed with respondents to confirm data and explore any extreme values in further detail; o Respondents were able to indicate how confident they were in the data that had been provided, for consideration within the data validation and analysis process; o Comparison of data with previous study was conducted to give some sense of the scale of figures overall.
<p>There is a risk that some actions taken by</p>	<p>- Respondents asked to indicate the % of costs that would have been</p>

⁵⁵ Only counting the validated responses would represent a response of 25%.

⁵⁶ Based on validated data that were included this represents a response rate of 10%.

Appendix C: Methodology Appendix

<p>organisations in complying with the requirements of EU ETS may have been undertaken anyway, or would still be undertaken in future if the EU ETS were to cease. Processes, practices and any material purchases may be utilised for wider compliance activities, not limited to only those required by EU ETS, and/or at the discretion of the organisation to derive benefit</p>	<p>incurred anyway, to allow calculation of costs that are additional due to the EU ETS;</p> <ul style="list-style-type: none"> - Any suspicious data were explored with Verco and checked with respondents where applicable.
<p>High variation in the costs of compliance leads to relatively wide confidence intervals around the sample mean</p>	<ul style="list-style-type: none"> - A number of methods were used to encourage participation within the survey, including promotion through trade and industry bodies; - Attempts were made using telephone follow-up contact to maximise the response rate and ensure the resulting sample was as representative as possible; - It proved challenging to secure responses from some segments of the population, in particular the aviation sector and those in the opt out scheme, though evidence arising from the latter group was sufficient to draw comparisons with installations in the main scheme; - Aviation operators were often more difficult to engage through telephone follow-up owing to the fact that a number were not based in the UK. Given the relatively low level of response from aviation, the results for this group of operators (when this information is included) should be considered indicative of the administrative costs of compliance and treated with caution; - Through follow-up telephone contact we were successful in increasing the response from those in the opt out scheme, and the resulting responses have been sufficient to draw comparisons with the main scheme.
<p>Organisations that need to comply with the EU ETS can possess characteristics that make compliance particularly complicated. For example, factors such as the scale and complexity of verification activity required for an installation, and the presence of <i>de minimis</i> sources that require additional and less automated monitoring activity can increase the costs of compliance significantly. There is not a single typical installation. This introduces risk around firstly identifying and then understanding the effects of complexity.</p>	<ul style="list-style-type: none"> - The analysis sought to examine and understand the variation in administrative costs for different types and scales of installation as far as this was feasible; - While the approach adopted and level of response does not allow for robust exploration of individual factors and their effect on costs (due to working with small samples possessing specific characteristics), this does allow some analysis at the collective level around how complexity appears to affect costs.
<p>Some operators of stationary installations are responsible for multiple installations. This necessitated offering such operators the option to respond to the survey about the total costs of compliance across all installations (rather than submitting a response for each installation in turn) to maximise the response level</p>	<ul style="list-style-type: none"> - Offering the option for operators with multiple installations in EU ETS Phase III enabled us to secure responses from operators that may not otherwise not have completed a response. Some operators of multiple installations opted to provide a separate response for each installation individually, as they tended to deal with each separately and so this was the easiest way of providing the information; - The approach did contribute to some over-representation of multiple installation operators in the sample; steps were taken in the analysis phase to adjust for this over-representation; - It also made it more challenging to conduct analysis of the precise costs for different types of installation (as this degree of granularity was not possible to draw out where operators of multiple EU ETS installations provided a response); - In order to ensure we were at least able to draw a distinction between installations in the main scheme and those in the small scheme, operators of multiple installations with some installations in the main scheme and some in the small scheme were asked to complete a separate response for each set of installations.
<p>Certain compliance steps will need to be undertaken by organisations not falling within the population of Phase III participants. For example, it is not possible to report on the time and associated costs that organisations who identified they weren't in scope spent determining this</p>	<ul style="list-style-type: none"> - Total reported costs will therefore not include information from those that identified they were not in scope during the pre-registration stages for Phase III. However, we do not anticipate these costs will be significant, as EU ETS is relatively well established

<p>outcome.</p>	
<p>To improve the granularity of information (unpacking tasks) and improve compliance with SCM, the survey became longer and data tables were more complex than previous research. In addition, respondents suggested that the timing of data collection around Christmas 2015, and organisations needing to meet internal deadlines in the run up, influenced response rates.</p>	<ul style="list-style-type: none"> - Email reminders were used and respondents were supported to help complete their survey, and offered alternative means of doing so through either the grid or online survey options; - Arising from the fact that several respondents indicated an inability to provide a response to the survey prior to Christmas, data collection was extended into January 2016 to increase the number of completed responses. Following this extension, a significant further number of responses were received.
<p>Assuming a flat hourly rate for directors within cost calculations may overestimate costs for smaller organisations and underestimate costs for larger organisations.</p>	<p>Costs per employee are assumed to be constant for each seniority level but the earnings of senior employees in small businesses are likely to be lower than the earnings of senior employees in large businesses. Therefore, when dividing the sample into small and large emitters, the results may be overestimating the costs to small businesses and underestimating the costs on large businesses; Broadly, costs associated with directors tended to be relatively low and thus total costs are not highly sensitive to changes in the assumed wage; however, directors' costs were more significant for some schemes than others so we recognise this limitation within the approach to cost calculations and this should be borne in mind by readers.</p>

Appendix D: Further research findings

Internal costs of compliance – costs per role

Internal costs of compliance and costs per role for main scheme stationary installations

To compare the roles involved in compliance activities related to setup and those involved on an ongoing basis, Figure 29 and Figure 30 demonstrate how internal costs incurred by the end of the first year were distributed across each of the four role categories for which respondents were asked to provide data for. Each shows the overall average internal costs (monetised time spent) for Directors, Senior Management, Middle Management and Administrators.

Figure 29: Distribution of average one-off and ongoing internal administrative costs incurred by the end of the first year of Phase III, by role categories – main scheme (N=763, n=186)

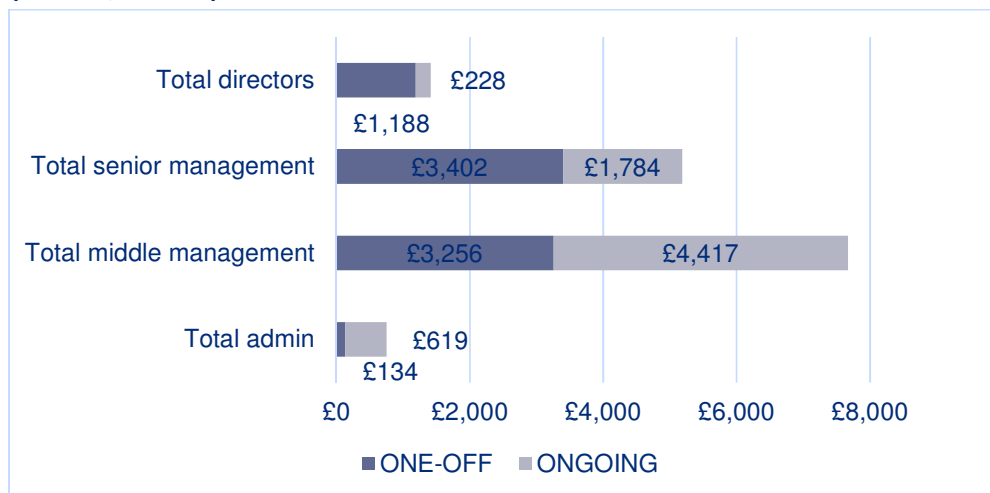
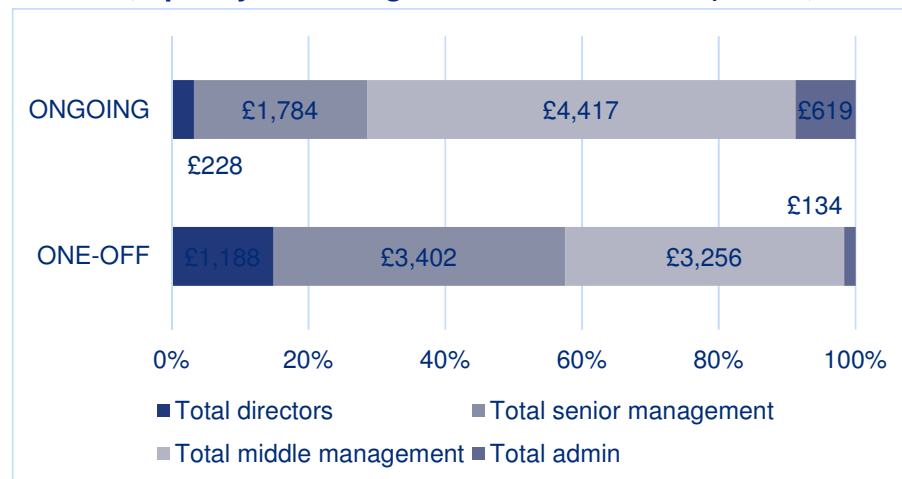


Figure 30: Proportional average one-off and ongoing cost incurred by end of first year of Phase III, split by role categories – main scheme (N=763, n=176)



The data shows that:

- Costs associated with middle managers were the highest for any of the four roles, representing 41% of one-off costs, 63% of ongoing costs and 51% of total internal compliance costs by the end of the first year. This compares to 35% of total costs associated with senior managers, 9% associated with Directors and 5% associated with administrators across the same period. This reflects that some of the most significant tasks in terms of costs – such as collating data and preparing reports – are automated and systematised to a certain extent, but tasks such as data checking and validation would not routinely be assigned to administrators;
- More senior roles (directors and senior managers) show a greater proportion of costs associated with one-off tasks, which reflects that they will be more involved during setup, where items such as preparation and submission of applications are concerned. The opposite was found to be true for administrators, average costs for whom were reported to be 4.6 times higher within the ongoing annual compliance cycle when compared to one-off activities, though comparatively much lower overall. Director involvement within the ongoing compliance cycle falls markedly (by 81%) from levels reported against one-off tasks, suggesting that day-to-day activities are, for the most part, left to less senior staff members, and even tasks associated with verification of emissions and annual reporting are mostly borne by middle managers (with, however, a sizeable cost still associated with senior managers for tasks such as these).

Internal costs of compliance and costs per role for Small Emitters opt out scheme

To compare roles involved in activities related to setup and those involved on an ongoing basis, Figure 31 and Figure 32 demonstrate how internal costs incurred by the end of the first year were distributed across each of the four role categories for which respondents were asked to provide data for. Each shows the overall average internal costs (monetised time spent) for Directors, Senior Management, Middle Management and Administrators.

Figure 31: Distribution of average one-off and ongoing internal administrative costs incurred by the end of the first year of Phase III, by role categories – Small Emitters opt out scheme (N=229, n=62)

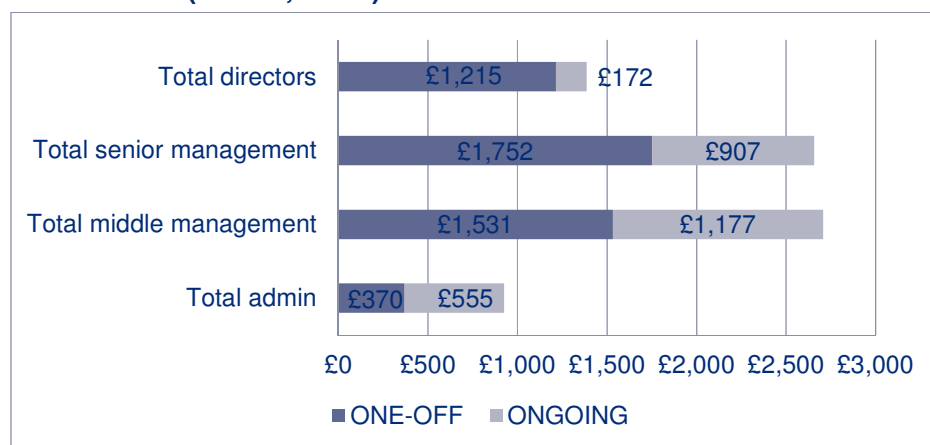
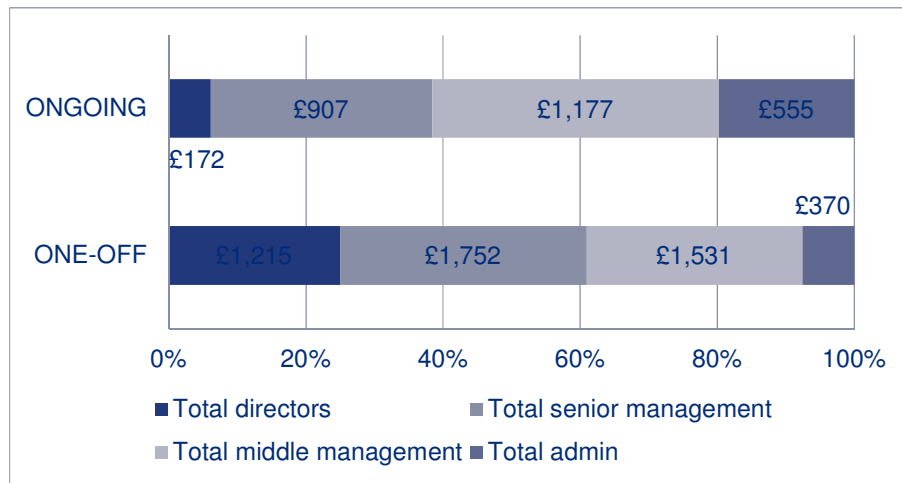


Figure 32: Proportional average one-off and ongoing costs incurred by the end of the first year of Phase III, by role category – Small Emitters opt out scheme (N=229, n=62)



Similar trends are observed in the data as for the main stationary scheme, though with some noticeable differences:

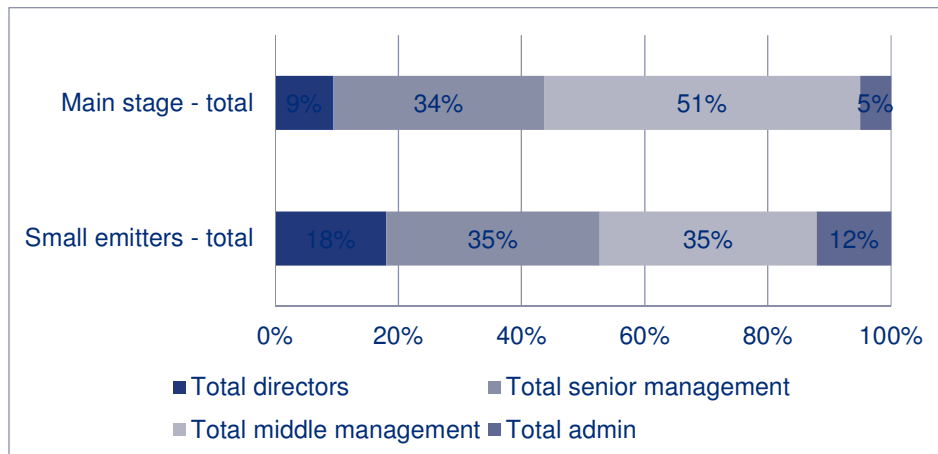
- Middle managers bear the highest proportion of costs overall, but very closely followed by senior managers – senior managers bear a higher amount of one-off costs than middle managers;
- Relatively low costs are associated with directors and administrators, but with noticeably higher director involvement overall than was evident for main scheme installations, particularly at the one-off stage.

Higher involvement of senior managers and directors than was observed for the main scheme, particularly for one-off activities, is consistent with the fact that the opt out scheme was new in Phase III and that there was high level interest in understanding the scheme and setting up compliance systems and processes relating to installations correctly.

Comparison of cost by role for stationary schemes

Figure 33 shows the proportional splits by job role of internal compliance costs incurred by the end of the first year of Phase III.

Figure 33: Proportional splits of costs against job roles for both schemes, total costs incurred by end of first year of Phase III



In broad terms this shows that more senior roles (directors and senior managers) make up 53% of costs for those in the opt out and 43% of total costs for main stage installations. In particular

one-off costs attracted higher levels of senior involvement within one-off activities, which we would expect for a new scheme. Administrator time was also higher as a proportion of costs compared to middle management for those in the opt out – the overall story suggests senior involvement in getting compliance activities for installations up and running, and then that slightly higher ‘day to day’ tasks can be borne by administrative staff when compared to the main scheme (which has additional compliance steps, which add complexity).

Internal costs of compliance and costs per role for aviation operators (full compliance)

To compare roles involved in activities related to setup and those involved on an ongoing basis, Figure 34 and Figure 35 demonstrate how internal costs incurred by the end of the first year were distributed across each of the four role categories for which respondents were asked to provide data for. Each shows the overall average internal costs (monetised time spent) for Directors, Senior Management, Middle Management and Administrators.

Figure 34: Distribution of average one-off and ongoing internal administrative costs incurred by end of the first year of Phase III by role categories - aviation full compliance (N=55, n=5)

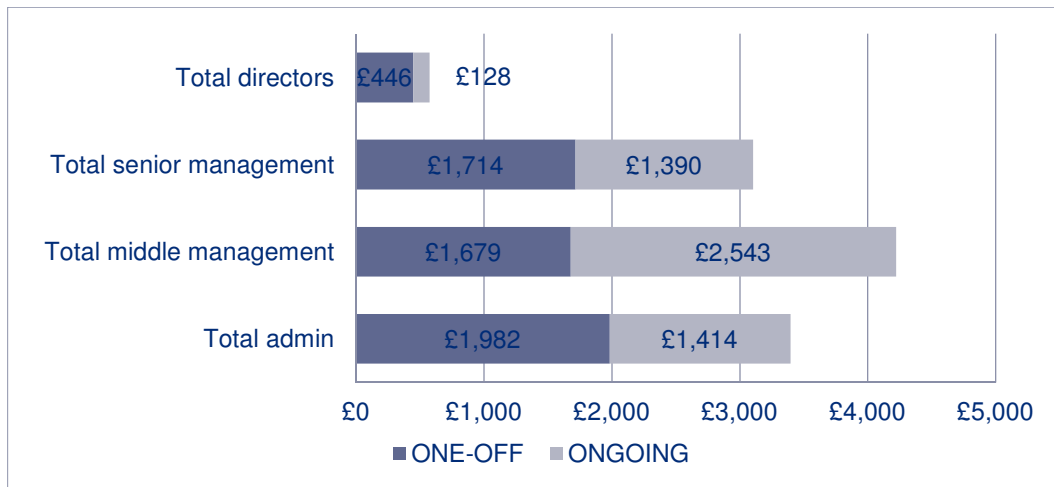
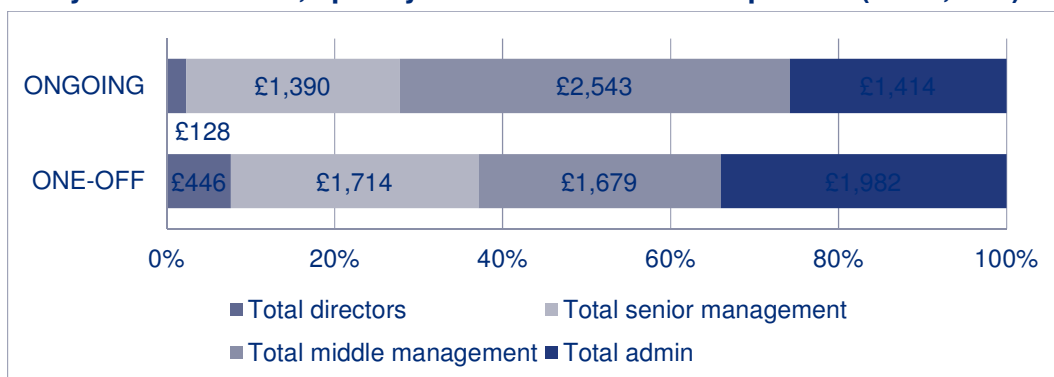


Figure 35: Proportional average one-off and ongoing costs incurred by the end of the first year of Phase III, split by role - aviation full compliance (N=55, n=5)



These figures suggest that:

- Middle managers bear the highest proportion of total ongoing costs, followed by administrators. This contrasts with stationary schemes where administrators typically had lower costs associated with their involvement;

- Administrators bear the highest proportion of one-off costs, very closely followed by senior managers and middle managers;
- Relatively low costs are associated with directors, the data suggests whose involvement in the annual compliance cycle is minimal.

Internal costs of compliance and costs per role for aviation operators (simplified procedure)

To compare roles involved in activities related to setup and those involved on an ongoing basis, Figure 36 and Figure 37 demonstrate how internal costs incurred by the end of the first year were distributed across each of the four role categories for which respondents were asked to provide data for. Each shows the overall average internal costs (monetised time spent) for Directors, Senior Management, Middle Management and Administrators.

Figure 36: Distribution of average one-off and ongoing internal administrative costs incurred by end of the first year of Phase III by role categories - aviation simplified procedure (N=106, n=11)

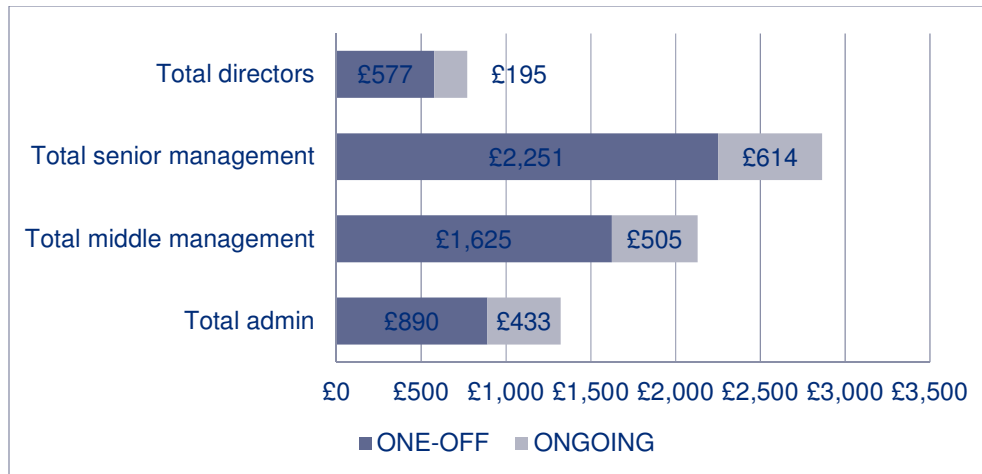
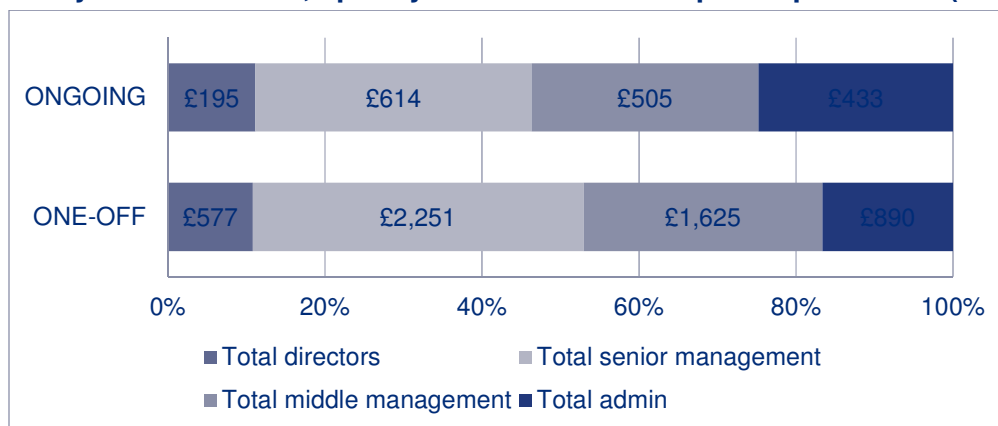


Figure 37: Proportional average one-off and ongoing costs incurred by the end of the first year of Phase III, split by role – aviation simplified procedure (N=106, n=11)



These figures suggest that:

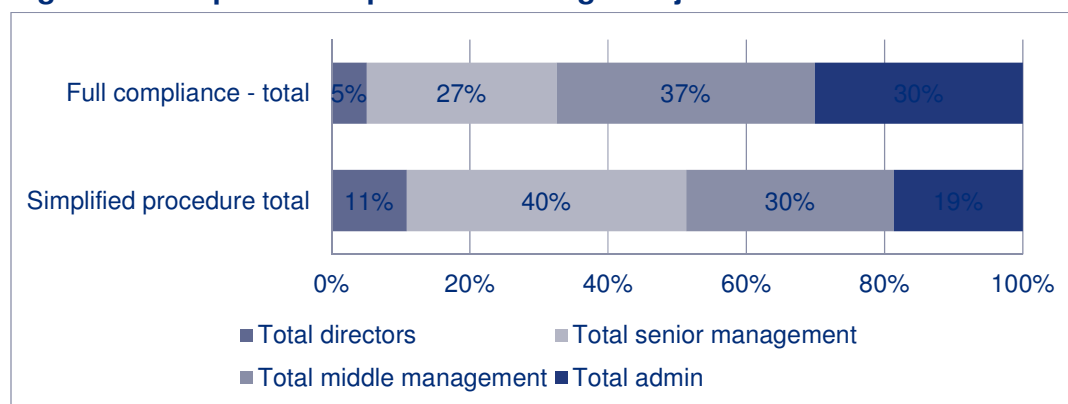
- Senior managers bear the highest proportion of costs, followed by middle managers;

- Relatively low costs are associated with directors;
- Respondents tend to report higher costs associated with administrators than within stationary schemes, but this is less pronounced as was identified for those needing to achieve full compliance.

Comparison of internal costs by role between aviation schemes; full compliance and simplified procedure

Figure 38 shows the proportional splits of internal costs associated with each of the job roles explored within the survey.

Figure 38: Proportional splits of costs against job roles for both schemes



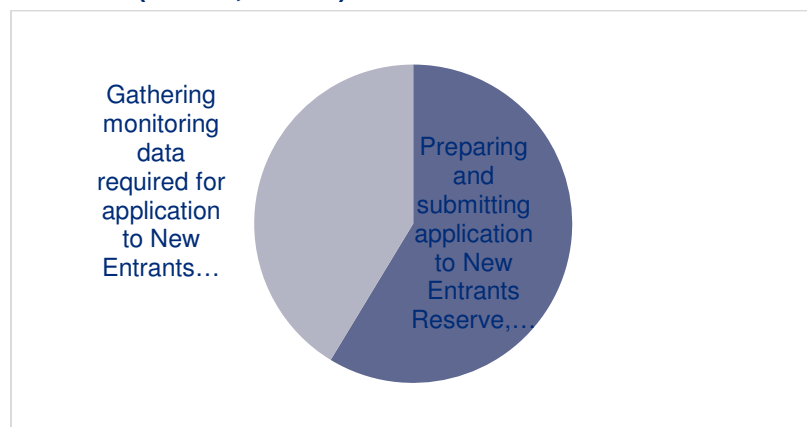
This shows that the way organisations respond to compliance tasks internally is different across both these groups of operators. Total senior manager and director input is higher for operators following a simplified procedure, with directors’ input being twice as high as those needing to achieve full compliance. The combined input of directors and senior managers for those following a simplified procedure accounts for more than half the total average internal cost for this scheme. By contrast, middle managers and administrators account for the majority of internal costs in the group that need to achieve full compliance. Just below a third of these costs are accounted by directors’ and middle managers’ input.

Breakdown of grouped activities for main scheme installations

One-off costs

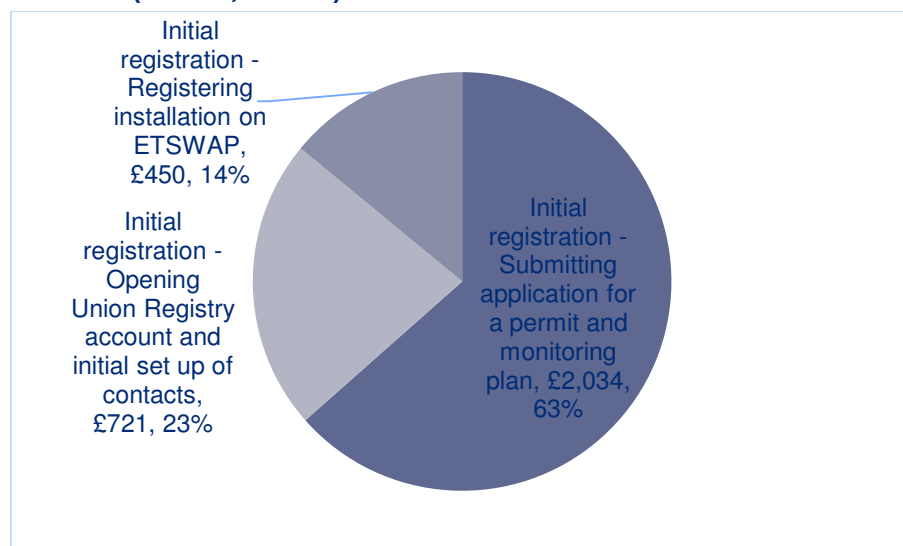
In the body of the report, some multi-faceted activities, such as initial registration, are grouped and reported collectively. The following figures present the breakdown of these to their individual sub-activities.

Figure 39: Average compliance costs for one-off sub-tasks – Application to New Entrants Reserve (N=763, n=186)



Interestingly, gathering the monitoring data does not appear to be the most costly task reported by respondents (in spite of this potentially being an early data gathering exercise for organisations new to the scheme). One contributing factor to this is a higher proportion of director costs associated with preparing and submitting the application – 14% of total costs, in comparison to 9% of the total costs of gathering data. Preparation of the application is an area where external support made up one of the higher observed proportions of the total cost, at 55%, presenting a further driver for the higher cost associated with this step.

Figure 40: Average compliance costs for one-off sub-tasks – initial application – main scheme (N=763, n=186)

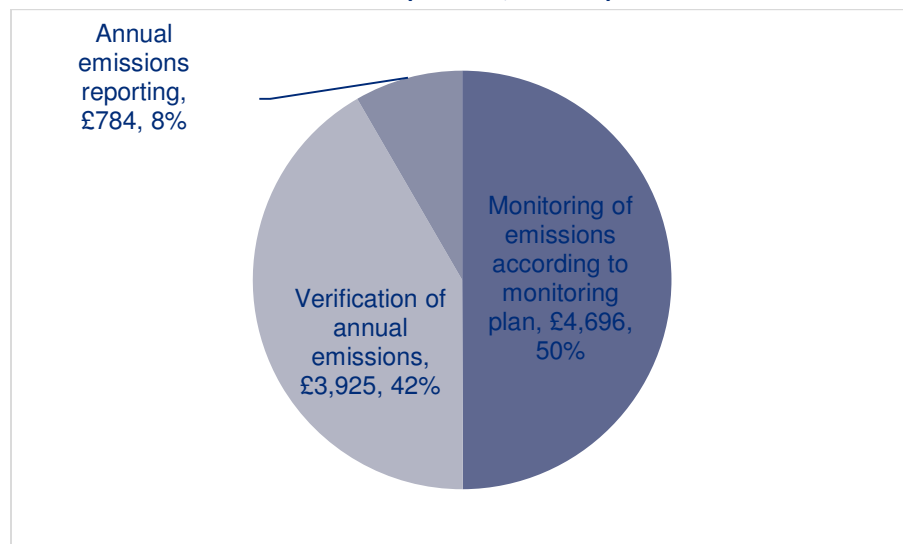


This shows that just under two-thirds of one-off costs are associated with submission of applications for a permit and monitoring plans. In terms of costs, one contributing factor here is the high proportion of internal costs associated with senior managers for these tasks. Directors again show relatively high proportional involvement (14%) for the step of registering the installation on ETSWAP. Submitting applications for permits and monitoring plans, and opening Union registry accounts were other areas where external support made up some of the higher observed proportions of the total cost, at 22% and 32% respectively. In contrast, just 4% of total costs were external for the task of registering installations on ETSWAP, suggesting this is a step that organisations tend to feel more comfortable handling internally (though as noted, with relatively high proportional input from directors).

Ongoing costs

As for one-off activities, some multi-faceted ongoing activities are grouped and reported collectively. The following figures present the breakdown of these to their individual sub-activities.

Figure 41: Average annual costs for ongoing sub-tasks – monitoring, reporting and verification – main scheme (N=763, n=186)

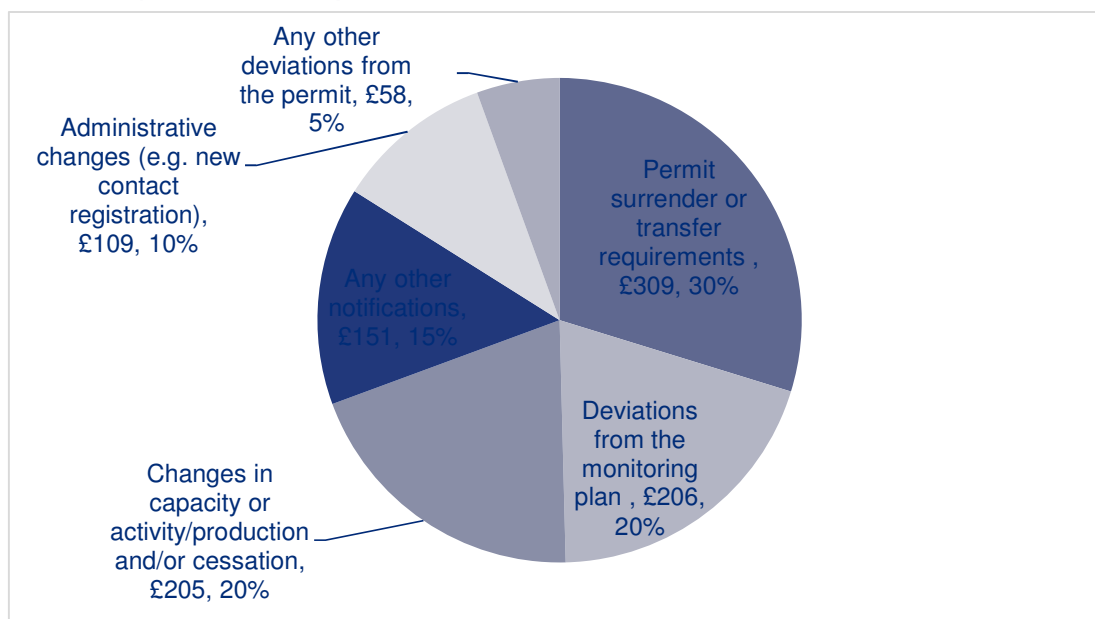


As would be expected, the cost of reporting (which is frequently automated to a certain extent) is relatively small in comparison to the other two elements, partly as for this step external costs were very low (just 8% of total).

Monitoring of emissions was the most costly activity, with 55% of this cost being met externally; internally, 79% of the monitoring cost is associated with middle managers.

For verification, Senior Managers represent a higher proportion of the total internal cost - 34%, compared to for example, only 11% for monitoring of emissions. However, 75% of total costs of verification were external, suggesting that the higher involvement of senior managers is checking of externally verified data and responding to any issues. Verification was one task identified as burdensome during scoping workshops, and something that respondents commented on, as presented in section 4 of the report.

Figure 42: Average annual costs for ongoing sub-tasks – notifying the regulator – main scheme (N=763, n=186)



While notifications make up a relatively small component of total ongoing costs, some observations from the data include that:

- Advising the regulator in relation to permit surrender or transfer requirements – the costliest sub-activity – was one area where 76% of the total cost fell externally, suggesting an area that organisations are more likely to use external support.
- External costs represented around half of administrative changes and advising about changes in capacity.

This suggests that some tasks have a degree of complexity / required degree of accuracy where external support is accessed whilst others (e.g. deviations from the permit) are more frequently handled internally.

Further detail relating to variance of cost estimates for stationary schemes

Variance of cost estimates for the main stationary scheme

Responses indicated that the costs associated with individual tasks (information obligations) varied considerably from organisation to organisation and this was more the case for some tasks than others.

Overall, reported average costs were found to be accurate to **±32.96% at the 95% confidence level**. The uncertainty surrounding the average is largely a consequence of there being such significant differences between the costs of compliance for installations at the very top end of the emissions spectrum compared to those further down. Based on the results of this study, it is

estimated that the overall average cost of compliance by the end of the first year of Phase III is between £23,570 and £43,908 (based on the weighted average of £33,739).

Certain sub-tasks are high in terms of average costs and display variance - such as submission of applications for permit and monitoring plans, and monitoring of emissions according to these. The reported variance reflects the fact that a wide range of installation types and scale of emissions are found in the main scheme. The lowest reported validated compliance cost for an individual installation was £3,587, and the highest was £102,569. Comparing the difference in scale between these figures helps contextualise the wide range in reported costs for individual sub-tasks.

Overall, the variance of costs for specific sub-tasks ranged from $\pm 37\%$ for verification of annual emissions within the annual compliance cycle, up to $\pm 188\%$ for 'other' one-off compliance activities. For a number of activities the level of variance in the sample of completed interviews was relatively similar, suggesting a consistency to a greater degree independent of other variables. These included:

- Annual emissions reporting (ongoing) - $\pm 37\%$;
- Setup of monitoring and reporting systems (one-off) - $\pm 37\%$;
- Surrendering allowances (ongoing) – $\pm 41\%$;
- Registering installation on ETSWAP⁵⁷ (one-off) – $\pm 43\%$.

Variance of costs for the small emitters opt out scheme

Due to a smaller number of completed surveys, overall variance for all small emitter tasks was relatively high in comparison to the main scheme. The sub-tasks with the lowest levels of variance, suggesting these are more consistent from installation to installation in the opt out scheme, were:

- Voluntary activities – $\pm 37\%$;
- Time / money spent selecting method for calculating emissions and agreeing targets - $\pm 54\%$;
- Notifying the regulator of any changes - $\pm 66\%$.

The sub-tasks with the highest levels of variance were:

- Notifying regulators for any other changes $\pm 159\%$;
- Other one-off compliance activities $\pm 153\%$;
- Other annual compliance activities $\pm 104\%$.

⁵⁷ ETSWAP (Emissions Trading Scheme Workflow Automation Project) is the web-based system operated by the UK Environment Agency for emitters to manage, verify and report their emissions of Carbon Dioxide (and in the future, other Greenhouse Gases), as required by the EU ETS (European Union Emissions Trading Scheme)

Qualitative data – simplification suggestions, feedback on scheme and Phase IV suggested changes

Summary of qualitative findings

Respondents were encouraged to provide qualitative insights in relation to the scheme, proposed changes within Phase IV, and to give suggestions around simplification. Not all respondents opted to answer these questions, but good coverage was achieved⁵⁸.

Findings are reported by scheme:

Main stationary scheme

- 70% of respondents had taken actions to help reduce costs of compliance, such as improving data collection processes and systems, and improving internal management systems. However, more respondents tended to report they found compliance with EU ETS more burdensome, rather than less burdensome, when compared to other policies;
- Respondents commented that there were positive and negative impacts of compliance. The most frequently cited negative impact was the need to spend a disproportionate amount of time on compliance in relation to their emissions, with most of these comments arising from organisations with *de minimis* sources in scope;
- There was a mix of views in relation to the Small Emitters opt out scheme and the impact of its introduction – approximately half of responders felt there had been no benefits, with the other half feeling that the scheme, to some degree, had helped reduce burdens. Some respondents chose not to opt out (where they could have done) to minimise perceived hassle (e.g. having installations in more than one scheme) or for reasons related to trading (e.g. schemes remaining in the main scheme yielding excess allowances);
- Most suggestions around simplification were to do with removal of small / *de minimis* sources from the scope of the policy altogether. Few respondents were able to comment in relation to how they felt suggested Phase IV changes would impact on administrative burdens.

Small stationary emitters in opt out scheme:

- More respondents overall felt that EU ETS compliance was more burdensome than other policies. However just under half of responders felt that the Small Emitters opt out scheme had helped them reduce administrative costs;
- Besides opting out of the main scheme, few respondents reported taking actions to reduce compliance costs;
- Suggestions to reduce burden related to removing small / *de minimis* sources from the scope of the policy.

Aviation schemes:

- Feedback from aviation operators tended to be more critical of the policy, with again more operators feeling the policy was more burdensome than other regulations;

⁵⁸ Qualitative data was provided by 60 operators with installations in the main scheme and 20 operators with installations in the opt out scheme. Few qualitative responses were received from aviation operators, so findings from analysis of this data should be treated as indicative.

- Most suggestions around ways to reduce burdens related to managing the requirements of the EU ETS as a tax on bills.

Respondents were asked to supply qualitative data in section C of the survey. While respondents were encouraged to answer these questions, not all operators opted to answer them. Because these questions were not mandatory, this may have influenced the types of organisations responding (i.e. those who perceive fewer or greater challenges may be more or less likely to use the opportunity to discuss what they like and dislike).

Qualitative feedback from installations in the main stationary scheme

Would you say EU ETS costs of compliance to your organisation are more or less burdensome than other environmental regulations? (n=55 respondents)

Broadly the responses received suggest that more respondents felt that the policy is more burdensome as opposed to less burdensome; however approximately two in five respondents suggested that the scheme is no more or less burdensome to comply with than other regulations⁵⁹.

Frequencies are reported for each category below, along with a selection of verbatim comments.

EU ETS is much less burdensome – 2 respondents

EU ETS is less burdensome – 5 respondents

EU ETS is no more or less burdensome than other policies – 18 respondents

EU ETS is more burdensome – 22 respondents

EU ETS is much more burdensome – 8 respondents

Analysing verbatim comments irrespective of response to the scale question, we have grouped comments alongside the frequencies in which they were given by respondents in relation to this question.

⁵⁹ Please note that the wording of this question is not framed to attract comment from those with no comparison to draw.

Table 16: Frequencies of statements within verbatim (n=52, multiple response)

Comment	Frequency (respondents)
Compliance is expensive	7
Compliance processes are complicated	29
Compliance is a drain on time / resources (e.g. time that could be spent implementing actions to reduce emissions)	17
Efforts are disproportionate to the scale of emissions (e.g. too much time is required to monitor and report on <i>de minimis</i> sources)	21
Compliance with EU ETS duplicates efforts made anyway	2
Respondent isn't convinced of environmental benefits of the system	5
Efforts are proportionate / general feeling that compliance is a good thing	13

There do not appear to be strong relationships between those reporting higher or lower comparative burdens and scale of emissions, though a number of power generators (with high emissions) were present in the groups reporting that EU ETS is more burdensome.

Please describe any actions you have taken to reduce the costs of compliance (n=54)

Respondents have reported a range of actions to help report compliance costs, with many making comments in relation to building efficiencies into systems used to manage compliance and those used for data collection and processing. The frequency that specific actions were mentioned by respondents is captured in the table below.

Table 17: Actions taken cited by respondents (n=54, multiple response)

Action taken	Frequency
Improvements to data collection processes / systems	12
Improvements to external audit processes	5
Improvements to internal management systems	20
Begun to use spreadsheet / calculator to assist with compliance	8
(No action)	15

Where actions had been taken, the majority of respondents reported just one main action, coded as per the responses in the table above.

What impacts (if any), does the current administrative process associated with participating in EU ETS have on your organisation? (n=56)

Responses have been analysed in relation to frequency, giving the breakdown of prevalence of particular opinions in the table below. Respondents frequently shared similar views for the question on comparative burden. The most commonly cited positive impacts were around raising awareness and improving accuracy of measurement, with the most commonly cited negative impact being that a disproportionate amount of time is spent on compliance in relation to emissions.

Table 18: Positive / negative effects of participation in EU ETS

Comment	Frequency
Positive comments	
Raises awareness around emissions	13
Improves accuracy of assessment of energy use and emissions	14
Other	9
Negative comments	
Duplication of efforts	6
Compliance is expensive	11
Disproportionate amount of time is spent on compliance relation to scale of emissions	20
Compliance distracts from improvement activities	7

For most of those reporting a disproportionate amount of time in relation to emissions, operators did report having *de minimis* sources. 40% of these reported above average levels of costs associated with monitoring these sources.

What difference (if any) has the introduction of the Small Emitters opt out scheme made to the administrative costs of compliance with the EU ETS? (n=54)

Half of respondents reported that there were benefits from the scheme and that it had reduced administrative burdens.

Excluding answers of 'not applicable', the other half of respondents reported that the introduction had made no difference to administrative costs.

There were examples of organisations saying that because they had a number of installations in the main scheme also, that they believed compliance overall would be easier if all installations were in the main scheme.

Some of this perception that the opt out scheme has introduced no cost savings may stem from something reported earlier in the analysis – that common tasks broadly have similar average associated costs, but cost savings for those in the opt out arise from removal of certain compliance tasks altogether.

Do you have any installations that qualified for the small emitter opt out scheme, but where you have chosen not to opt out of the main scheme?

Only four valid responses were received for this question, with the majority of respondents stating this was not applicable. Responses to this question highlighted issues around installations being near the threshold for the opt out, and concern that any increase in emissions would therefore result in a return to the main scheme. Other reasons include the benefits of being able to trade allowances, and the value of free allocation.

Are you aware of any opportunities to reduce the administrative burden of compliance? (n=40)

Many respondents provided a range of suggestions, but comments most frequently related to *de minimis* / small source monitoring; other suggestions tended to relate to external verification and the qualification threshold around the small emitter opt out scheme. These comments support some of the initial analysis emerging from the quantitative survey and comments made during scoping workshops, that *de minimis* source monitoring does present a disproportionate level of cost to scale of emissions.

Coded responses to this question are provided in the table below.

Table 19: Suggested improvements to the scheme (n=35)

Suggestion	Frequency
Simplify the verification process	4
Increase opt out threshold	4
Remove small sources / de-minimis altogether	10
Simplify reporting processes	6
Other	12

The majority of respondents stated that the key impact of DECC adopting their suggestions would be reducing the amount of time, effort and associated costs that compliance activities currently require.

Based on your understanding, how are suggested changes to the scheme for Phase IV likely to impact the burden of compliance?

Responses suggested in some instances that the changes discussed may not have been fully considered or understood, with some comments suggesting that costs would increase but without giving any further explanation, or there appearing to be assumptions that changes are more likely to deliver negative impacts. Responses suggested that many respondents would need to understand the changes discussed in more detail to properly comment on their likely impact, with some stating this explicitly.

Qualitative feedback from installations in the Small Emitter Opt out scheme

Analysing individual questions, headline findings from the qualitative comments are reported below.

Based on comments from twenty-three responses:

- One respondent felt compliance with EU ETS was less burdensome than other regulations, with eight respondents stating that burden was about the same, with fourteen respondents reporting that they felt that compliance was more burdensome;
- Very few actions had been taken by respondents to reduce the administrative burden of compliance⁶⁰. As for the main scheme, the most frequently cited actions were around improving internal management systems and data collection processes;
- There were no differences in comparison to trends reported around positive and negative impacts of compliance by those in the main scheme. A handful of respondents reported that compliance raised awareness and helped improve accuracy of measurement, with a slightly higher number reporting that compliance was expensive, efforts were disproportionate to the scale of emissions, and that compliance was a distraction from activities to reduce emissions;
- Seven respondents reported that the scheme had reduced administrative burdens, with nine stating that the introduction of the scheme had had no effect on compliance costs. Several comments were made in relation to cost reductions arising from there not being a mandatory requirement for external verification, though some still undertake verification voluntarily;
- As for the main scheme, most suggested improvements broadly related to changing the requirements for small emitters or removing these from scope altogether.

Qualitative feedback from aviation schemes

As for costs, findings should be treated as indicative due to very small sample sizes. Four operators in the group needing to achieve full compliance and 11 operators following a simplified procedure provided responses to the qualitative questions. Feedback was more frequently critical of the scheme, providing some insight in relation to the response rate from aviation operators generally.

- All those needing to achieve full compliance, and most of those following a simplified procedure, felt that compliance was more burdensome in comparison to other regulations:

Table 20: Whether aviation operators felt the scheme to be more or less burdensome

	Full compliance	Simplified procedure
Less burdensome	0	0
About the same	0	4
More burdensome	4	7

⁶⁰ Besides opting into the scheme.

- Few actions were reported by operators, with some of those reporting that they had needed to outsource compliance related activities, and a couple noting that they limit their flight operations in Europe to reduce exposure to the policy;
- One operator following a simplified procedure reported that a positive impact of compliance was improving accuracy of data collection and reporting. Seven respondents said that there were no positive impacts, and the remainder didn't answer the question. Eight respondents stated that compliance was expensive and resource-intensive, and six stated that the amount of time needed was disproportionate to the scale of emissions;
- Respondents were asked about the impact of the introduction of simplified procedures to compliance in terms of burdens. Eight respondents felt that the introduction had had a positive impact, three felt there had been no impact;
- The following suggestions were made to reduce administrative burdens:

Table 21: Suggestions to reduce administrative burdens given by aviation operators

	Full compliance	Simplified procedure
Increase opt out threshold for small scheme	1	1
Manage as a tax on bills	0	5
Add costs to Eurocontrol charges	0	2

- Respondents generally felt not well placed to comment on proposed Phase IV changes. Most answered that they were unable to comment at this time, with a couple of respondents saying that on first impressions they felt that administrative costs may increase.

Comparing estimated costs of compliance for stationary emitters to the Aether research

In 2009 Aether conducted research⁶¹ to understand costs of compliance for EU ETS participants in Phase II⁶² of the scheme. There are a range of methodological differences between the survey approaches which render it impossible to compare 'like with like' for one-off compliance costs⁶³, along with key overall differences e.g. the 2015 research asks for hours per role which have been used to estimate costs, whereas it isn't clear from the Aether report whether they did similar or used cost estimates provided by respondents.

⁶¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47953/895-cost-euets-uk-operators-compliance.PDF .

⁶² Phase II of the EU ETS ran from 2008 until 2012.

⁶³ Very low one-off costs were identified in the 2010 research; however, it appears that one-off cost questions were only asked to a subset of participants (those new in Phase II), and it isn't clear what assumptions have been made for those not in this group (who will inevitably have faced some setup costs for the Phase).

In terms of questions asked by Aether relating to ongoing costs, there is much closer alignment and less uncertainty in terms of activities that respondents were asked to provide data in relation to. Therefore, it remains unclear if Aether's cost estimates were calculated by the SCM method⁶⁴ or based on respondent's own calculations, but we provide a broad comparison of ongoing costs in the table below.

Table 22: Average ongoing cost estimates for EU ETS participants, per installation

Survey	Description	Costs (excluding subsistence fees)
Aether (2009)	Average ongoing costs per installation in Phase II for stationary participants	£16,400 per annum
Databuild (2015)	Average ongoing costs in Phase III per installation for stationary participants (excluding Small Emitters in opt out scheme)	£17,683 per annum
	Average ongoing costs in Phase III per installation for Small Emitters and hospital opt out scheme	£3,871 per annum

Supported by the earlier analysis, this comparison shows that we can be fairly confident that the small emitter opt out has reduced the costs of compliance for organisations deciding to opt out, and that this has led to a reduction in the average burden per installation for stationary installations as a whole.

It is difficult to draw firm conclusions in relation to ongoing costs for those in the main scheme, partly due to the variance in the data and small sample sizes involved. This being said however, qualitative responses indicate that many operators in the main scheme report that they have taken actions to introduce efficiencies, and have been able to reduce their administrative costs slightly over time. Therefore while the average ongoing cost in 2015 for Phase III is slightly higher than the 2010 figure for Phase II, some operators are definitely reporting reductions in burden (and this figure is now only based on data from those that didn't choose to opt out⁶⁵). A further overall challenge in unpacking changes in burden over time result from that there may be other contributing factors (e.g. natural increase in familiarity as the policy has aged). In addition, the introduction of ETSWAP, which automated the permit and monitoring and reporting application and reporting processes is likely to have reduced the cost of interactions between operators and the regulator.

⁶⁴ And if so, what hourly rate assumptions were used.

⁶⁵ Without fully understanding cost assumptions and how the survey was administered, we would still expect that if a similar proportion of those opting out for Phase III were excluded from the group of operators in Aether's analysis that reported <25k emissions, that the total reported average ongoing costs for Phase II would rise (as costs are associated with factors such as scale of emissions and complexity).

Conclusions

The following conclusions were drawn from this research to help develop the recommendations provided in the executive summary:

- **There is significant variation in the administrative costs of compliance** – ranging from those reporting figures in the range of a few thousand through to those reporting ~£100k for a single installation;
- As observed in the 2010 Aether study, **the costs of compliance for some of the largest emitters can be substantial**; however, some of the biggest emitters can incur similar costs of compliance to those in the opt out scheme;
- **Costs of compliance appear to be largely driven by the complexity of the circumstances for the installation**, and the impact this has on the extent of monitoring and verification activities this requires. This means the costs of compliance can be significantly higher for one installation than another in particular circumstances, despite the emissions involved being similar in scale;
- **The results of the research (indicative quantitative insights supported by qualitative feedback) suggest that those opting in to the Small Emitter scheme do experience lower costs of compliance**, and ergo that the introduction of the scheme has resulted in lower total compliance costs for the full population of stationary emitters:
 - Average small emitter compliance costs (£12,725) are lower than the costs for the subset of those with emissions just above the opt out threshold in the main scheme (£18,500); however, this is not statistically significant⁶⁶. When tasks that only need to be performed for compliance in the main scheme are removed from the analysis (like external verification of emissions), average reported costs for both schemes based on the steps that remain are very similar in scale;
 - While not statistically significant, average compliance costs for those in the opt out scheme are lower than average costs for those with under 25 kT CO₂e in the main stationary scheme.
- Respondents do not always report or acknowledge cost savings, as evident from qualitative responses received;
- It is not possible to draw firm conclusions regarding whether the costs of compliance for main scheme installations are lower in Phase III compared to Phase II, due to the significant variation in costs of compliance; however, there is some evidence to suggest that the costs have reduced for some organisations in the main scheme, such as respondents citing within qualitative data the range of steps that they have taken during

⁶⁶ This is statistically significant at the 84% level; while not at the usual level of robustness that would be reported within research, this still suggests only a ~1 in 6 chance that this relationship was due to chance or error.

the course of EU ETS to automate and/or improve the efficiency of some steps of the process, to keep administrative costs to a minimum;

- Whilst the costs of compliance for those in the opt out are lower than those in the main scheme, the costs for smaller emitters in general, per tonne of CO₂e appear to be significantly higher than for organisations in the main scheme;
- The amount of time spent by organisations in the main scheme dealing with *de minimis* sources (where relevant) appears to be disproportionate to the scale of emissions associated with such sources. This was a topic frequently arising within qualitative comments, suggesting that this is quite commonly something respondents are reporting that is particularly burdensome;
- While aviation operators were within the scope of this research, it was not possible to achieve a high response rate from this group, with the fact that many primary contacts were based internationally, amidst a fairly negative perception of the policy, contributing to this. The analysis that could be conducted (which should be interpreted as indicative) suggests that costs for those aviation operators following some form of simplified procedure are just over a third lower than those who need to achieve full policy compliance, across the full duration of Phase III;
- Many respondents took the opportunity to provide suggestions for improvements to the scheme:
 - The most frequently cited suggestions related to *de minimis* / small sources of emissions and reducing the related compliance burden these presented;
 - Other common suggestions related to changing the thresholds for the small emitter scheme; and
 - Removing / changing requirements for external verification.

Respondents shared a mixture of views on the listed potential changes for Phase IV of the scheme, but generally many responses suggested that greater understanding of these was needed to make a considered comment on their likely impact. Some respondents did however give detailed thoughts on these proposals, with a mixture of those saying that burdens would either increase or decrease, based on individual circumstance.

- Findings from the survey in particular appear to support certain findings and recommendations from the scoping workshops, particularly around inclusion of small / *de minimis* sources, and verification of emissions data. We encourage DECC to examine and consider the simplification ideas suggested by respondents, along with those that emerged during scoping workshops (see Appendix B) within future activities to scope potential simplification options.



© Crown copyright 2016
Department for Business, Energy & Industrial Strategy
3 Whitehall Place, London SW1A 2AW
www.gov.uk/beis

