

Title: EU ETS Small Emitter and Hospital Phase III Opt-Out		Impact Assessment (IA)
IA No: DECC0068		Date: 21/05/2012
Lead department or agency: Department for Energy and Climate Change		Stage: Consultation
Other departments or agencies:		Source of intervention: Domestic
		Type of measure: Secondary legislation
		Contact for enquiries: EU ETS Team, DECC (eu.ets@decc.gsi.gov.uk)

Summary: Intervention and Options	RPC: RPC Opinion Status
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Cost of Preferred (or more likely) Option				
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB in 2009 prices)	In scope of One-In, One-Out?	Measure qualifies as
-£29.1m	£81.6m	-£10.9m	Yes	OUT

What is the problem under consideration? Why is government intervention necessary?

The EU ETS is a cap and trade system designed to incentivise cost-effective reductions in greenhouse gas emissions (GHG) from carbon-intensive industries and electricity generators. Evidence suggests that the administrative burden (the costs of monitoring, reporting and verification of emissions and fees to regulators) of the EU ETS on smaller emitters is disproportionately large. Article 27 of the EU ETS Directive provides for an opt out from the EU ETS in Phase III (2013-2020) to reduce the administrative burdens on small emitters and hospitals. It requires that opted out installations face measures that achieve an equivalent contribution to emissions reductions as if the installation were still in the EU ETS. This proposal presents options for a voluntary opt-out scheme for UK small emitters and hospitals.

What are the policy objectives and the intended effects?

The objective in offering an opt-out is to incentivise GHG emissions reductions whilst minimising the regulatory cost burdens to UK small emitters and hospitals. The aim is to achieve this whilst meeting EU legislative requirements, not significantly affecting the emissions reductions achieved by operators in the EU ETS and ensuring that UK industry is not placed at a competitive disadvantage compared to firms in the EU. Within the constraints of the EU ETS Directive, all eligible operators who choose to opt-out of the ETS in Phase III will be required to reduce emissions through an alternative measure. Ultimately, this may mean that a number of small emitters and hospitals (up to an estimated 267 installations) could opt-out of the EU ETS from 2013.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Four options are considered: Option 1: Do nothing (baseline). UK small emitters and hospitals remain in the EU ETS. Options 2-4: Eligible installations are given the choice of opting out from the EU ETS in Phase III. Opted-out installations are subject to binding emission reduction targets, set according to either (option 2) the level of EU ETS Phase III free allocations, (option 3) the EU ETS product benchmark, or (option 4) an installation's historical emissions. Alternatives to regulation would not meet the requirements of the Directive but each of options 2-4 are deregulatory. The preferred option is option 4 as it offers the greatest cost savings to UK small emitters and hospitals whilst incentivising GHG reductions, and is consistent with the approaches of other Member States. It is therefore the preferred basis for seeking Commission approval.

Will the policy be reviewed? It will not be reviewed. If applicable, set review date: Month / Year

Does implementation go beyond minimum EU requirements?	Yes		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	Micro No	< 20 No	Small Yes Medium Yes Large Yes
What is the CO2 equivalent change in greenhouse gas emissions? (Million tonnes CO2 equivalent) (NB figure represents change in effort incl. a change in cap)	Traded: -6.7 Non-traded: +2.5		

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister: Gregory Barker MP

Date: 21/05/12

Summary: Analysis & Evidence

Policy Option 1

Description: Do nothing. UK small emitters/hospitals not able to opt out from the EU ETS

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2011	Time Period Years 8	Net Benefit (Present Value (PV)) (£m)		
			Low:	High:	Best Estimate

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low				
High				
Best Estimate				

Description and scale of key monetised costs by 'main affected groups'

The costs and benefits of options 2-4 are expressed as changes relative to option 1.

Other key non-monetised costs by 'main affected groups'

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low				
High				
Best Estimate				

Description and scale of key monetised benefits by 'main affected groups'

The costs and benefits of options 2-4 are expressed as changes relative to option 1.

Other key non-monetised benefits by 'main affected groups'

Key assumptions/sensitivities/risks

Discount rate (%)

3.5

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m: Costs: N/A	Benefits: N/A	Net: N/A	In scope of OIOO? No	Measure qualifies as N/A
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Summary: Analysis & Evidence

Policy Option 2

Description: Offer an Opt-out policy with target set according to EU ETS Phase III free allocations

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2011	Time Period Years 8	Net Benefit (Present Value (PV)) (£m) – relative to Option 1		
			Low: -74.6	High: +57.1	Best Estimate: -33.5

COSTS (£m)	Total Transition (Constant Price)	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	21.4	
High			
Best Estimate			-136.6

Description and scale of key monetised costs by 'main affected groups'

The cost of the UK's carbon liability will increase as a result of carbon moving from the traded (EU ETS) to the non-traded sector (NTS) (NPV £-133m), reflecting higher carbon values in NTS. The UK government will also see a fall in EUA auction revenues (NPV £-3.4m) due to the change in the EU ETS cap.

Other key non-monetised costs by 'main affected groups'

Installations will pay a penalty to government for any emissions over their target (NPV £99m). This is a transfer to government and has been offset in the non-monetised benefits section.

BENEFITS (£m)	Total Transition (Constant Price)	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	15.5	
High			
Best Estimate			102.8

Description and scale of key monetised benefits by 'main affected groups'

The opt-out will lower the administrative costs to small emitters of the EU ETS while retaining other features of the EU ETS. It is estimated that small emitters and hospitals that take this opt-out option will save £3.8m (NPV) in total over 2013-2020 (£0.6m annually) relative to option 1.

Installations will also no longer be required to purchase EUAs under the EU ETS representing a cost saving of NPV £99m.

Other key non-monetised benefits by 'main affected groups'

UK small emitters will also not be placed at a competitive disadvantage when compared to European counterparts who are offered opt-out schemes. This cost saving has not been monetised.

Government will receive revenues in the form of penalties from opted-out installations (NPV £99m). This is a transfer from industry and has been offset in the non-monetised costs section. It should be noted that total compliance costs to industry have not changed when compared to Option 1. However the revenues associated with the purchase of allowances from EU ETS participants has now transferred to UK Government.

Key assumptions/sensitivities/risks	Discount rate (%)	3.5
Independent emissions growth forecasts were used to estimate most of the cost impacts in this impact assessment. Installations would have a better idea of their own levels of expected growth and administrative cost savings. This could affect the number of installations that choose the opt-out, affecting the overall net present value of costs presented. This sensitivity has not been explored in the impact assessment.		

The NPV range above reflects sensitivities to carbon prices and the amount of abatement available to opting-out installations. This sensitivity has been explored in the impact assessment.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:		In scope of OIOO?	Measure qualifies as
Costs: 0	Benefits: 0.50	Net: -0.50	Yes OUT

Summary: Analysis & Evidence

Policy Option 3

Description: Offer an Opt out policy with targets set according to EU ETS Phase III sector benchmarks

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2011	Time Period Years 8	Net Benefit (Present Value (PV)) (£m)		
			Low: -75.1	High: +66.5	Best Estimate:-33.8

COSTS (£m)	Total Transition (Constant Price)	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	-21.5	-136.8
High			
Best Estimate			

Description and scale of key monetised costs by 'main affected groups'

The cost of the UK's carbon liability will increase as a result of carbon moving from the traded (EU ETS) to the non-traded sector (NTS) (NPV £-133m), reflecting higher carbon values in NTS. The UK government will also see a fall in EUA auction revenues (NPV £-3.4m) due to the change in the EU ETS cap.

Other key non-monetised costs by 'main affected groups'

Installations will pay a penalty to government for any emissions over their target (NPV £56m). This is a transfer to government and has been offset in the non-monetised benefits section.

BENEFITS (£m)	Total Transition (Constant Price)	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	15.5	102.8
High			
Best Estimate			

Description and scale of key monetised benefits by 'main affected groups'

The opt-out will lower the administrative costs to small emitters of the EU ETS while retaining other features of the EU ETS. It is estimated that small emitters and hospitals that take this opt-out option will save £3.8m (NPV) in total over 2013-2020 (£0.6m annually) relative to option 1.

Installations will also no longer be required to purchase EUAs under the EU ETS representing a cost saving of (NPV £99m).

Other key non-monetised benefits by 'main affected groups'

UK small emitters will also not be placed at a competitive disadvantage when compared to European counterparts who are offered opt-out schemes. This cost saving has not been monetised.

Government will receive revenues in the form of penalties from opted-out installations (NPV £56m). This is a transfer from industry and has been offset in the non-monetised costs section. It should be noted that total compliance costs (in terms of the difference between EUAs purchased and penalties paid) to industry have fallen when compared to option 1 (by NPV £43m). However the revenues associated with the purchase of allowances from EU ETS participants has now transferred to UK Government.

Key assumptions/sensitivities/risks	Discount rate (%)	3.5
Independent emissions growth forecasts were used to estimate most of the cost impacts in this impact assessment. Installations would have a better idea of their own levels of expected growth and administrative cost savings. This could affect the number of installations that choose the opt-out, affecting the overall net present value of costs presented. This sensitivity has not been explored in the impact assessment.		

The NPV range above reflects sensitivities to carbon prices and the amount of abatement available to opting-out installations. This sensitivity has been explored in the impact assessment.

BUSINESS ASSESSMENT (Option 3)

Direct impact on business (Equivalent Annual) £m:	In scope of OIOO?	Measure qualifies as
Costs: -0 Benefits: 6.2 Net:--6.2	Yes	OUT

Summary: Analysis & Evidence

Policy Option 4

Description: Offer an Opt out policy with targets set according to an installation's historical emissions

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2011	Time Period Years 8	Net Benefit (Present Value (PV)) (£m)		
			Low: -66.7	High: +65.1	Best Estimate: -29.1

COSTS (£m)	Total Transition (Constant Price)	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	-19.9	-126.8
High			
Best Estimate			

Description and scale of key monetised costs by 'main affected groups'

The cost of the UK's carbon liability will increase as a result of carbon moving from the traded (EU ETS) to the non-traded sector (NTS) (NPV £-123.6m), reflecting higher carbon values in NTS. The UK government will also see a fall in EUA auction revenues (NPV £-3.2m) due to the change in the EU ETS cap.

Other key non-monetised costs by 'main affected groups'

Installations will pay a penalty to government for any emissions over their target (NPV £16.1m). This is a transfer to government and has been offset in the non-monetised benefits section.

BENEFITS (£m)	Total Transition (Constant Price)	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	14.7	97.5
High			
Best Estimate			

Description and scale of key monetised benefits by 'main affected groups'

The opt-out will lower the administrative costs to small emitters of the EU ETS while retaining other features of the EU ETS. It is estimated that small emitters and hospitals that take this opt-out option will save £3.5m (NPV) in total over 2013-2020 (£0.5m annually) relative to option 1.

Installations will also no longer be required to purchase EUAs under the EU ETS representing a cost saving of (NPV £94m).

Other key non-monetised benefits by 'main affected groups'

UK small emitters will also not be placed at a competitive disadvantage when compared to European counterparts who are offered opt-out schemes. This cost saving has not been monetised.

Government will receive revenues in the form of penalties from opted-out installations (NPV £16.1m). This is a transfer from industry and has been offset in the non-monetised costs section. It should be noted that total compliance costs (in terms of the difference between EUAs purchased and penalties paid) to industry have fallen when compared to Option 1 (by NPV £78.1m). However the revenues associated with the purchase of allowances from EU ETS participants has now transferred to UK Government.

Key assumptions/sensitivities/risks

Discount rate (%)

3.5

Independent emissions growth forecasts were used to estimate most of the cost impacts in this impact assessment. Installations would have a better idea of their own levels of expected growth and administrative cost savings. This could affect the number of installations that choose the opt-out, affecting the overall net present value of costs presented. This sensitivity has not been explored in the impact assessment.

The NPV range above reflects sensitivities to carbon prices and the amount of abatement available to opting-out installations. This sensitivity has been explored in the impact assessment.

BUSINESS ASSESSMENT (Option 4)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: 0	Benefits: 10.9	Net: -10.9	Yes	OUT

Evidence Base (for summary sheets)

Background

The Emissions Trading System EU (ETS) was launched in 2005 as one of the key policies introduced by the EU to help meet its greenhouse gas (GHG) emissions reduction target of 8% below 1990 levels under the Kyoto Protocol. It works on a “cap and trade” basis, where there is a cap on all the emissions covered by the EU ETS, and installations within the scheme have tradable allowances to cover their GHG emissions.

In December 2008, a 2020 Climate and Energy package was agreed by the European Council and the European Parliament which included revisions to the EU ETS Directive that will take effect in Phase III. Phase III (2013-2020) of the EU ETS will see the introduction of a centralised, EU-wide cap on emissions to ensure a much more ambitious and consistent approach to implementing the EU ETS across the EU. The cap will reduce by 1.74% of 2005 emissions each year, delivering an overall reduction of 21% below 2005 verified emissions by 2020.

Rationale for Policy

The ETS is designed to support installations across the EU to deliver emissions reductions at least cost. In addition to the costs of compliance, operators participating in the ETS are subject to the costs related with monitoring, reporting and verification (MRV) and the fees resulting from competent authorities in Member States' recovering the costs of administering the system. The work of operators and the competent authorities to deliver appropriate MRV is essential to ensuring the validity of emissions reductions and protecting the economic integrity of the system.

However it has been recognised in Europe^{1,2} that the administrative costs faced by small emitters under the EU ETS are disproportionately high per tonne of CO₂, compared to the costs for installations with larger emissions. This has been demonstrated in the UK, following an assessment of the administrative costs met by UK operators during Phases I (2005-2007) and II (2008-2012) of the ETS.³ In the UK, this assessment found that small emitters accounting for 2% of emissions, incurred approximately 20% of the total administrative burden (across the 60% of all installations covered by the assessment). The largest 8% of emitters were responsible for 60% of emissions and incurred 45% of the administrative burden. Per tonne of CO₂ emitted, the estimated administrative costs for UK small emitters exceeded £1, while costs for UK large emitters were estimated to be £0.04. Almost all UK hospital installations are also small emitters and therefore face the same disproportionate administration cost burden per tonne of CO₂.

EU ETS Directive, Article 27 – opt-out of small emitters and hospitals

In recognition of the disproportionate administrative burdens of the EU ETS on small emitters and hospitals, Article 27 of the revised 2009 EU ETS Directive gives Member States the option to exclude them from the EU ETS in Phase III (2013-2020). This is provided installations face equivalent measures in Member State law. The requirement for equivalence seeks to ensure that the environmental goals of the EU ETS are preserved, namely the delivery of GHG emissions savings.

According to Article 27, small emitters are defined as having annual emissions that are less than 25,000tCO₂e and a thermal capacity not exceeding 35MW per year in 2008, 2009 and 2010. Hospitals

¹ Commission guidance for Phase II National Allocation Plans emphasised the need to ensure or improve the cost-effectiveness of the ETS for small installations.

² The Climate and Energy Package Impact Assessment states: “It is likely that the costs of inclusion and compliance (in terms of monitoring, reporting and verification rather than costs of complying by buying allowances) outweigh the benefits of including these small emitters..”

³ Aether (2010). Assessing the cost to UK operators of compliance with the EU Emissions Trading System.

may be opted out irrespective of their emissions or thermal capacity relative to the thresholds. The Directive does not provide for new entrants to the ETS during Phase III to opt out from the EU ETS. If an opted-out installation's emissions rose above 25,000tCO₂ per year the installation would re-enter the EU ETS.

The UK must gain approval for its opt out policy from the European Commission, which reserves the right to object to Member States' opt-out proposals if it does not believe they are in line with the Directive. Therefore, Member States wishing to offer an opt-out are required to submit their alternative policy proposal and a list of opted-out small emitters and hospitals for Commission scrutiny. The Commission may request changes to a Member State's opt-out proposal.

UK approach to opt-out of small emitters and hospitals

Consistent with the UK Government's 'better regulation' agenda, we are seeking to better target EU ETS policy in the UK and offer UK small emitters and hospitals an optional, lighter-touch policy alternative.

This impact assessment presents options for an optional scheme that lowers the cost burdens on small emitters and hospitals compared to the EU ETS, whilst incentivising reductions in carbon emissions. The options have been developed with input from other government departments, devolved administrations, UK competent authorities, UK industry and the European Commission. In developing these options, we have also sought to balance:

- **Designing a proposal that will not be rejected by the European Commission.** Given the Commission has the power to object to Member States' opt-out lists, in designing UK proposals we have taken into consideration whether they are likely to gain Commission approval. Non regulatory options would not meet the requirements of the Directive, including to ensure installations comply with ETS monitoring and reporting and that installations with emissions exceeding 25,000tCO₂ per year re-enter the EU ETS.
- **Simplification of the climate policy landscape.** To help minimise policy complexity, consideration was given to utilising existing UK domestic climate policies as alternative measures, namely the CRC Energy Efficiency Scheme (CRC) and Climate Change Agreements (CCA), which also incentivise industrial emission reductions. However, feedback from industry and the Commission has shown that neither the CRC nor the CCA is suitable as an opt-out policy, largely on the basis of equivalence⁴ with the ETS and, in the case of the CRC, the costs to operators⁵. Options 2-4 therefore use the framework of the ETS, which is now well understood by participants, to provide a lighter touch alternative.
- **Avoiding putting UK industry at a competitive disadvantage compared to the rest of the EU.** Other Member States including France and Germany are also developing proposals for opting-out small emitters and hospitals from the ETS. Germany has legislated for a proposal based on installation-based targets set according to a baseline of historical emissions and we anticipate that France will also submit a final proposal along these lines. There is a risk of creating intra-sectoral distortions within the EU if we adopt different approaches. For example, if the UK adopted a more stringent approach compared to other Member States it could penalise UK firms and reduce the overall benefit of a UK opt out.

⁴ Both of these policies will place a price on carbon emissions, but neither will set the price according to the EUA price. Moreover, neither policy covers all EU ETS emissions as they do not address process emissions.

⁵ The CRC scheme places a price on all emissions whereas under the EU ETS operators receive an allocation of allowances for free. For example, an average hospital would pay £65,000 more under the CRC than the EU ETS in 2013. This additional cost will decline to £40,000 in 2020 as EU ETS free allocation levels decline.

The scope of the impact of UK small emitters and hospitals on climate change abatement in the UK is limited to just 0.9% of historic (2008) UK emissions under the EU ETS (2.4 MtCO₂) (see scope section below). This represents 0.4% of the UK's overall 2008 GHG emissions. Our starting point is therefore to focus on deregulation and, as far as possible, to avoid putting UK firms at a competitive disadvantage compared to the EU.

Of the options presented in this assessment, an approach based on targets set according to historical emissions (option 4) offers the greatest regulatory cost savings to UK small emitters and hospitals. There is a risk that the Commission may reject a target based on historical emissions with the argument that it will not deliver equivalent GHG emissions savings to the EU ETS. However, at this stage we have no guarantee of the Commission's position regarding Member State's proposals and we believe it is sensible to align the UK approach with France and Germany to avoid putting UK firms at a competitive disadvantage. Industry has indicated an appetite for some risk in putting forward a proposal to the Commission that may not be accepted. This is on the basis that some level of uncertainty is preferable to the risk of putting UK firms at a competitive disadvantage.

Therefore, the UK's starting position is for a voluntary scheme with installation-based binding emissions reduction targets set according to an historical baseline (option 4 below). However, due to the uncertainty around whether the Commission will accept or reject the approach, we have presented two further options for setting the target: according to ETS sector benchmarks (option 3 below) and the level of Phase III free allocations (option 2 below). These differ from option 4 in terms of the stringency of the emissions reduction targets and cost savings that can be offered to eligible UK operators. In the event that the historic emissions approach to setting targets (including variations to this approach) is ruled out by the Commission, the UK will propose the use of option 3 where this is consistent with adjustments to proposals of other Member States. Option 2 is the least preferred opt-out option but preferable to option 1 (no opt-out) as it offers some administrative cost savings for eligible UK operators.

In summary, we have sought to manage the uncertainty of the European Commission clearance process and minimise the risk of putting UK installations at a competitive disadvantage compared to the EU, by presenting a range of options in order of preference according to the level of regulatory relief provided and other Member State's proposals. Working within this range, the UK approach may change as further information becomes available from the Commission. If the Commission requires changes to the UK proposal we will seek to re-consult with eligible installations on whether they wish to take-up the 'new' opt out.

Options considered

The following options were considered for UK implementation of Article 27 of the revised ETS Directive:

Option 1: Do nothing. UK small emitters and hospitals are not able to opt out from the EU ETS in Phase III.

All incumbent small emitters and hospitals will remain in the EU ETS and any small emitters and hospitals that are new entrants will join the EU ETS from the start of Phase III.

Options 2-4: Eligible installations and hospitals may choose to be excluded from the EU ETS over Phase III. Opted-out installations and hospitals would be subject to binding emission reduction targets.

Eligible installations that choose to opt out of the ETS would be required by UK regulation to meet a binding emission reduction target. A fixed penalty for non-compliance would be imposed on emissions above the target. The level of the penalty would equal the price of an EU allowance (EUA) (the method for establishing this price is to be determined). The reduction in regulatory cost burden associated with

this proposal largely depends on how the target is set. Options 2-4 offer different methodologies for setting the target; other provisions in the proposal are the same.

The options 2-4 are voluntary on the basis that operators will have a better understanding (than government) of the cost and time implications of participation. This is supported by feedback from industry.

These options represent a shift away from a scheme based on trading, to installation-specific emissions targets and penalties for non-compliance. Opt-outs would not receive any free allocation of EUAs, they would be exempt from the requirement to surrender allowances for their emissions and to hold a registry account. Aside from this, opted out installations (opt-outs) would in general be required to comply with the same conditions as EU ETS installations. For example, they would continue to monitor and report annually according to EU ETS regulations but they would be exempt from ETS provisions on third party verification. Instead, opt-outs would fall under a risk-based auditing scheme. They would still be required to hold a permit for carrying out the GHG emitting activities covered by the EU ETS⁶ but this would be modified to reflect the requirements of the opt-out.

Risk-based auditing scheme

Annual emissions reports would be audited by UK regulators (e.g. the Environment Agency) in place of third party verification. Opted-out installations would be audited at least twice during the Phase (2013-2020). However, all annual reports would undergo a risk analysis and, where they matched predefined risk criteria, it is likely they would be audited more frequently. Installations with emissions above 20,000tCO₂ per year would be audited annually. Operators would face penalties for misreporting, as they do under the EU ETS.

Option 2: Target set according to EU ETS Phase III free allocation

Targets would be set in 2013 according to the level of allowances an installation would have been allocated for free under the EU ETS in Phase III, before any reduction in allocation that may result if the cross sectoral correction factor is applied.⁷

For sectors not at risk of carbon leakage,⁸ this will mean a target set according to free allocation levels of 80% of the relevant product benchmark in 2013 declining to 30% of benchmark in 2020 as would occur in the EU ETS. For sectors deemed to be at significant risk of carbon leakage, the target will be set according to free allocation of 100% of the product benchmark with no decline.

The application of benchmarks and preliminary free allocations for UK installations will be set out in the UK's National Implementation Measures (NIM) that will be published and submitted to the European Commission for scrutiny towards the end of 2011.

⁶ The EU ETS Directive requires installations carrying out activities regulated by the Directive, as specified in Schedule 1, to hold a greenhouse gas emission permit. This requirement will be retained in UK regulation for opted out installations.

⁷ The European Commission may be required to issue a cross-sectoral correction factor, as set out in Article 10a(5) of the EU ETS Directive, to ensure that the total allocations given to EU ETS installations does not exceed the cap determined by the Commission in 2010. Such a factor would reduce free allocations to installations by the determined proportion, and may vary annually throughout Phase III.

⁸ http://ec.europa.eu/clima/documentation/ets/leakage_en.htm

Option 3: Target set according to EU ETS product benchmark

Targets would be set in 2013 at 100% of the relevant product benchmark for the installation⁹, as set out in the Community Implementation Measures.¹⁰ Product benchmarks reflect the average greenhouse gas performance of the 10% best performing installations in the EU producing that product.

For sectors at risk of carbon leakage, targets will not decline over the period 2013-2020. For sectors not at risk of carbon leakage, targets will decline by -1.74% per year over the period 2013-2020 in line with annual reductions in the EU ETS cap. The cross sectoral correction factor will not be applied to the opt-out targets (see option 2 for more details).

For the eligible installations that are in sectors at risk of carbon leakage, targets set under options 2 and 3 will be the same. For those in sectors not at risk of carbon leakage, emissions targets under option 3 will be less stringent than those under option 2.

Option 4: Target set according to historic emissions

Targets would be set in 2013 according to the installation's historical emissions over the period 2008-2010 reduced by 5.22%¹¹ (in line with the overall EU ETS cap reductions relevant to the Phase II cap).

For sectors at risk of carbon leakage, targets will not decline over the period 2013-2020. For sectors not at risk of carbon leakage, targets will decline at -1.74% per year over the period 2013-2020 in line with annual reductions in the EU ETS cap. The cross sectoral correction factor will not be applied to the opt-out targets (see option 2). Targets under this option are less stringent than those in option 2 or 3.

Scope of the UK EU ETS opt out

A national data collection exercise was carried out in June 2011. From this we know that 267 installations meet the small emitter eligibility criteria (including hospitals) and have indicated that they wish to have the opportunity to choose whether to opt out of the EU ETS.

These installations represent 28% of the total number of UK EU ETS installations but only 0.9% of UK EU ETS emissions in 2008 (2.4MtCO₂).¹²

Table 1 presents the number of installations in different sectors within the EU ETS which are eligible for the opt out:

⁹ Where there is no applicable product benchmark then the heat or fuel benchmarks will be applied or experimental approaches used. The approach applied to individual installations will be the same as that applied in the UK's National Implementation Measures, as agreed by the European Commission.

¹⁰ <http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2011:130:Som:EN:HTML>

¹¹ The EU ETS directive states that the Phase III cap will reduce annually by 1.74% of the average Phase II (2008-12) cap. The 2013 cap will therefore be 5.22% (3 * 1.74%) lower than the 2010 cap level.

¹² Numbers of eligible installations and associated emissions are drawn from the 2011 UK NIMs data collection, which asked eligible installations to indicate whether they would like to consider the opt out and asked all non-electricity installations for verified emissions data. As this exercise did not include electricity producers, the total EU ETS installations and emissions are from the Report on 2008 UK EU Emission Trading System emission data, DECC, September 2009:

(http://www.decc.gov.uk/assets/decc/what%20we%20do/global%20climate%20change%20and%20energy/tackling%20climate%20change/emissions%20trading/eu_ets/publications/1_20090924140921_e @@ euetsreport2008.pdf).

Table 1: EU ETS sectors and the split between Article 27 eligible and non eligible UK installations

Sector	No. installations eligible and indicating an interest in opt out	Historic verified emissions from eligible installations (2008*) (Mt)	No. not eligible or not indicating an interest in opt out	Historic verified emissions from ineligible installations (2008)	% of installations eligible	% of emissions eligible
NHS	76	0.82	5	0.05	94%	95%
Ceramics	44	0.54	15	0.41	75%	56%
Mineral Products	48	0.18	21	0.12	70%	59%
Food and Drink	38	0.39	71	2.89	35%	12%
Pulp & Paper	14	0.14	28	1.23	33%	10%
Chemicals	13	0.13	52	7.35	20%	1.7%
Others	34	0.25	551	259.09	6%	0.1%
Total	267	2.44	692	262.56	28%	0.9%
Industrial small emitter total	191	1.62				

	Installations	Emissions (Mt)
Total EU ETS	959	265

*These emission figures are estimates only as in some instances 2009 data was used where 2008 was not submitted by installations as part of the NIMs data collection exercise and in a few instances data was missing at an installation level. The total EU ETS emissions figure does not reflect the expanded scope of the EU ETS from 2013 in Phase III.

Costs and benefits analysis

This section examines the costs and benefits for each of the proposed options (1-4). This analysis will firstly present the do nothing scenario (option 1) under which UK small emitters and hospitals are not able to opt-out of the ETS. Options 2-4 will then be presented in relation to option 1 so as to examine the relative costs and benefits of these proposals to do nothing.

Option 1: Do nothing. UK small emitters and hospitals are not able to opt out from the EU ETS in Phase III.

Option 1 is a 'do nothing' option. In this option, an opt-out from the EU ETS is not offered and all small emitters and hospitals remain in the ETS. The EU ETS is designed to achieve emissions reductions in the most cost-effective way. This is done by capping the total level of emissions. Installations within the EU ETS trade emissions permits and the market is then able to find the cheapest available emissions abatement required to meet the cap.

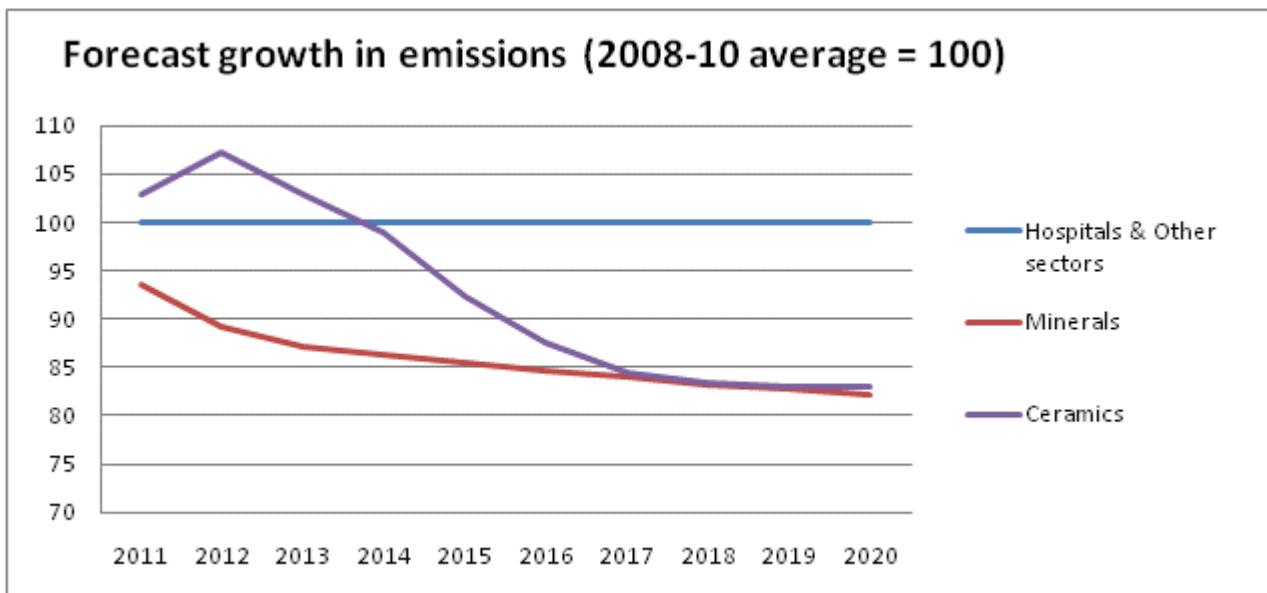
There are two methods for providing emissions permits (allowances) in the EU ETS: auctioning or giving allowances to installations for free (free allowances). In Phase III of the EU ETS non-electricity producers will be allocated some free allowances according to a production benchmark.

Installations in sectors deemed to be at risk of carbon leakage will be given 100% free allowances up to their benchmark for every year of Phase III. For installations not at significant risk of carbon leakage, the proportion of the allowances they receive for free will decline over time from 80% in 2013 to 30% in 2020. Once the free allocation of allowances to EU ETS operators has been finalised, the Commission

may apply the cross sectional correction factor (CSCF) if the total number of free allowances exceeds the EU ETS cap. The CSCF will reduce the level of allowances allocated to individual installations for free by equal proportions, until the total free allocation is equal to the EU ETS cap.

The diagram below (figure 1) shows the assumptions for forecasted changes in emissions used in this impact assessment¹³.

Figure 1. Forecasted change in emissions over the period 2011-2020 for Ceramics, Minerals, Hospitals and other sectors



Installations that will emit at levels greater than the amount they receive in free allowances can choose to either undertake abatement or purchase allowances from the market. Table 2 below illustrates the expected emissions and abatement for UK small emitters and hospitals under the EU ETS over the period 2013 to 2020. The cost of non-administrative compliance (the cost of undertaking abatement and purchasing EUAs) is then calculated¹⁴. The total non-administrative compliance costs for all eligible small emitters and hospitals in the UK are estimated at £70.3m (NPV) over the period 2013-2020.

Table 2: Compliance and administration costs to UK small emitters and hospitals under a 'do nothing' scenario (option 1).

Option 1 – do nothing (all costs Present Value)	Total
Number of installations	267
Estimated Emissions without abatement 2013-20 (MtCO ₂)	18.0
Estimated Abatement (MtCO ₂) ¹⁵	0.10
Free allocation MtCO ₂	12.7
EUAs purchased (MtCO ₂)*	5.3

¹³ Projected emissions for mineral products (48 installations") were taken from the DECC's Emission Projections model, with "non-metallic minerals production" used as a proxy for the sector. Projected emissions for the ceramics sector (44 installations) were taken from Bloomberg New Energy Finance's Global Energy and Emissions Model. No projections were available for other sectors. We therefore assumed no growth in emissions from 2008-10 average levels

¹⁴ Estimates for allocation levels and historic emissions have been derived from data collected from installations in order to submit the UK's National Implementation Measures for Phase III.

¹⁵ The level of abatement undertaken by each installations has been derived by comparing modelled emissions from DECC's Energy Model with and without a carbon price. We have assumed that the difference is due to abatement brought on by the carbon price. This can then be applied (as a percentage of emissions) to estimate the abatement available to each installations.

Abatement is estimated to cost half the carbon price. This is based on the simplifying assumption that the marginal abatement cost curve is linear and thus abatement will be evenly distributed between a cost of zero and the carbon price. The average cost of abatement will thus be half the carbon price.

Abatement costs (£m)	0.7
EUA Purchase Costs (£m)	69.6
Total compliance costs (£m)	70.3

* (Emissions – Abatement - Allocation)

Small emitters also face administrative costs associated with participating in the EU ETS. Based on a study carried out for DECC surveying 178 installations (55% of which were emitters of less than 25ktCO₂), these administrative costs have been estimated at approximately £7600 per installation per annum (£8100 in 2011 prices)¹⁶. Included in this figure are a range of costs faced by operators in meeting their administrative obligations including monitoring and reporting, third party verification and other internal costs such as understanding the requirement of the ETS .

The requirement that annual reports are verified by an independent third party represents one of the largest EU ETS administrative costs. The average annual cost of verification for a small emitter, including verifier fees and supporting verifier activity, is £2600¹⁷.

The total administration costs also include fees paid to regulators to cover ETS implementation costs. For example, regulators charge ETS operators to recover the costs of issuance or variation of an emissions permit (including MRV requirements) and annual subsistence fees (Table 3).

Table 3. Examples of administrative costs charged to UK operators by UK regulators¹⁸.

Charge type	Definition	Emissions (ktCO ₂)	Charge (£)
New permit	The regulator will estimate the emissions likely to be emitted by the installation in a calendar year, and installation will be charged accordingly. The charge covers the opening of a registry account.	Less than 50	1,340
		50kt - 500	2,500
		More than 500	5,970
Annual subsistence	The cost of ongoing management of a permit is recovered through the annual subsistence charge it also covers on-going use of the registry.	Non-emitter	980
		Less than 50	2,550
		50kt – 500	3,320
		More than 500	4,080
Permit variation	This charge will only be incurred by installations that require a technical assessment to carry a variation of the provisions of a permit		430

DECC estimates that the total paid in administrative costs by all eligible UK small emitters and hospitals between 2013 and 2020 will be £14.3m (PV).

¹⁶ Estimates taken from Aether (2010) work for DECC. Full report can be found at http://www.decc.gov.uk/en/content/cms/emissions/eu_ets/publications/publications.aspx

¹⁷ Aether 2010

¹⁸ For example, http://www.environment-agency.gov.uk/static/documents/Business/ETS_scheme_2011-12.pdf Charges in Northern Ireland vary slightly: the fee for a new permit (50-500ktCO₂) is £1357, with annual subsistence fees of £2584 http://www.doeni.gov.uk/niea/pollution-home/emissionstrading/fees_and_charges-3.htm

Option 2-4: Eligible installations and hospitals may choose to be excluded from the EU ETS over Phase III. Opted-out installations and hospitals would be subject to binding emission reduction targets.

Options 2-4 offer a voluntary opt-out scheme for small emitters and hospitals in the UK based on binding emissions reduction targets. The options offer different ways of setting the target. These options are compared relative to the ‘do nothing’ scenario set out in option 1. In other words, the cost savings associated with each option are presented as relative to the costs in option 1 (remain in the EU ETS).

The costs and benefits of these options fall on 1) installations and 2) government (including regulators). These are examined in turn in relation to each option.

1. Costs to installations

In order to assess the overall costs and benefits of the policy options, we have made an estimate of the number of installations that will choose to opt out of the EU ETS (see Box 1 for method applied). The opt out imposes two types of costs on installations; administrative costs and compliance costs.

Administrative costs

We estimate that under options 2-4, total net annual administration costs to individual UK ETS installations will fall by £2,585 (2011 prices) per installation¹⁹. This is as a result of moving from third party verification to risk based auditing and not requiring opted out installations to hold a registry account. All other administrative costs are assumed to remain unchanged. Table 4 summarises the difference in annual administrative costs for ETS operators of small emitter and hospital ETS installations and small emitters and hospitals that have opted-out in Phase III. The basis for calculating these changes in costs is discussed below.

Table 4. Summary of differences in annual administrative costs for small emitters under the ETS operators and opted-out of the ETS (all figures 2010 prices).

Cost changes	ETS operator costs (£)	Opted-out small emitter costs (£)	Difference (£)
Subsistence fees	2550 including 400 for registry account	2650* *2550 less 400 for registry account and plus 500 for risk-based auditing	+100
Verification by third party	2600 on average ²⁰	0	-2600
Total changes to administrative costs (£)			-2500* -(£2,585 2011 prices)

**Does not include the one off fees (£85) associated with changes to registry accounts (see below)*

¹⁹ This figure has been estimated in discussions with the Environment Agency and based on their experience as regulators in UK carbon markets.

²⁰ Aether 2010

Fees to regulators²¹

Subsistence: Opted out installations will, in general, face the same fees as those faced by operators under the EU ETS. As most eligible small emitter installations are EU ETS incumbents, one-off introductory charges do not apply. The difference in regulator fees relates to annual subsistence costs, which are £2550 per annum for small emitters. The subsistence fee will increase by an estimated £100 per year as a result of increased regulator charges to cover risk based auditing (£500), offset by annual costs savings (£400) for not holding a registry account (see below). We do not expect any fee to be charged for opting out of the EU ETS.

Auditing: We estimate that risk based auditing will add £500 per year to operators' subsistence fees. This is based on the standard per hour costs to the Environment Agency of carrying out similar audits as part of the EU ETS and the CRC Energy Efficiency Scheme. For the purpose of this analysis, we have assumed that installations will be audited at least twice during the period 2013-2020. There will also be additional auditing targeted at installations that meet certain risk criteria. We have assumed that overall these two auditing tracks will mean that approximately 35% of installations will be audited each year.²² Initial audits will be desk based however we have assumed that half of these will move through to a more in-depth site visit. 5% of ETS operators are currently subject to auditing each year. The costs of carrying out these existing audits has been subtracted from the costs of the new risk based auditing programme.

Registry account: The Environment Agency estimates that the annual cost of maintaining a registry account is £400 per operator. Opted out installations would not need to pay this charge (Table 4). Similarly they would not face one off fees associated with changes to registry accounts, i.e. a change in the authorised representative (£55) and digital certificates for each computer used to access the registry (£30). As the cost saving in one off fees is not annual, we have not included it in our overall assessment of cost reductions.

Verification

Third party verification is not required under options 2-4, so verification costs are assumed to be zero (Table 4).

Monitoring and Reporting

Monitoring and reporting requirements for small emitters under opt out in options 2-4 will be the same as for EU ETS installations. We have therefore assumed no change in monitoring and reporting costs. Reporting of emissions from small sources may be excluded through the introduction of a *de minimis* rule, as long as the installation is not approaching the 25,000tCO₂ threshold for re-entering the EU ETS. This will create a small reduction in monitoring and reporting costs for some installations.

Internal costs

There may be some small increase in internal costs relating to data collection and reporting required to comply with increased regulator auditing procedures.

There are also likely to be additional short term costs associated with learning the requirements of the opt-out scheme. However, these are likely to be small given that the scheme largely operates under the same rules as the EU ETS and almost 80% of eligible installations are ETS incumbents. Moreover, these costs will be minimised through the provision of specific guidance for opted out installations to help them understand the requirements of the scheme.

We expect the annual administrative cost savings per installation to be the same for options 2-4. However, the total administrative savings accrued under each option depends on the number of installations that choose to opt-out. Total administrative cost savings for options 2-4 have been estimated relative to staying in the EU ETS (option 1) and are summarised in Table 8.

²¹ http://www.grdp.org/static/documents/Business/ETS_scheme_2011-12.pdf

²² Regulatory effort required to implement a robust auditing system from the opt out has been estimated in discussions with the Environment Agency and based on their experience as regulators in UK carbon markets.

Compliance costs

Under options 2-4, opt-outs will need to undertake abatement in order to comply with their emission reductions target. Installations that fail to comply will be required to pay a penalty for emissions over their target.

The compliance costs under options 2-4 are discussed in more detail below. As with the administrative costs, these costs are relative to staying in the EU ETS (option 1) and depend on the number of installations that decide to opt-out.

Option 2 – Target set according to EU ETS Phase III free allocation

Option 2 has been designed to mimic the EU ETS except in respect of the administrative requirements and trading and surrender of allowances. The level of the target is the same as the level of free allocation under the EU ETS. This means the difference in compliance cost between the option 1 and option 2 is zero; the cost of compliance for installations will be equal to the cost of purchasing allowances under the EU ETS. The only savings associated with this measure are due to a reduction in administrative costs.

The exception to this is where the Cross Sectional Correction Factor (CSCF) is applied in the EU ETS²³. Under these circumstances, the costs of compliance could be lower under option 2 compared to the EU ETS (option 1) because the CSCF would reduce the number of allowances allocated to ETS installations for free and in effect, increase the stringency of their effort.

Box 1: Method for estimating the number of installations that will opt-out

We have assumed that all operators are rational and will opt their installation out where it is financially beneficial to do so.

Under the EU ETS, operators will receive a number of allowances for free. If their expected emissions are above this level, they will need to undertake abatement or purchase additional allowances. If emissions are below the target, operators can sell any surplus allowances. Any installation which expects to sell surpluses greater than the costs of undertaking abatement, will always choose to remain in the EU ETS unless they will save more in reduced administrative costs from opting out.

We have estimated the future emissions of UK ETS installations that are eligible for opt out and compared them with free allocations they will receive if they remain in the ETS. We have then assumed that all installations with a target below estimated future emissions would choose to opt-out²⁴.

Installations will therefore choose to opt out if they do not profit under the EU ETS and the target is not more stringent to meet under the opt-out scheme. The disadvantage of opting out is that installations lose their access to trading of surplus allowances, opted-out installations will receive no financial benefit from reducing emissions to below their level of free allocation. We assume this would be factored into their internal cost/benefit analysis when deciding when to opt-out²⁵.

The change in cost for any firm that does opt out will be the reduction in administrative costs plus the

²³ The application of the CSCF is highly uncertain and will depend on the levels of free allocation in all other Member States. Its application be established in 2012. Bloomberg New Energy Finance estimate that the CSCF will not apply until 2019 and will only marginally reduce free allocation in 2019 and 2020. If these figures are correct, they will not affect the robustness of the results in this IA. However some installations may be particularly risk averse and choose to opt out rather than facing a potentially declining number of emissions in the EU ETS.

²⁴ In addition, installations with targets above their estimated future emissions will choose to opt out if the administrative cost savings are greater than the expected revenues from selling surplus allowances.

²⁵ It's important to note that while this analysis factors in levels of abatement undertaken in each option, it does not factor in the fact that installations in the EU ETS can use Project Credits for compliance costs, but this option will not be available under an Opt-Out. This will lower the costs of firms in the EU ETS relative to those in an Opt-Out lead us to overestimate the costs savings associated with Option 2-4.

reduction in allowances purchased in the EU ETS relative to the penalties paid in the opt out scheme.

Under this option, we estimate that 47 installations (of which 43 are at risk of leakage) will choose to remain in the EU ETS, with the remaining 220 choosing to opt out.

Table 5 below sets out the costs and benefits to business of option 2 relative to option 1 (do nothing). As this measure is set up to mimic the EU ETS in terms of compliance, the only source of cost savings associated with this option is due to changes to the administrative charges²⁶.

The administrative savings for each installation opting out relative to option 1 (do-nothing) will be £2,585 per annum (2011 prices). With 220 estimated installations opting out, we estimate a total administrative cost saving of £3.8m (PV) over the period. As these are the only cost savings to business, this figure also represents the overall direct savings to business of option 2.

Table 5: Summary table of emissions, abatement, and change in compliance and administration costs to UK small emitters and hospitals under option 2 relative to option 1²⁷.

Option 2 - Target set according to EU ETS Phase III free allocation (all costs Present Value)	Total
Number of installations opting out	220
Estimated Emissions of opted out installations before abatement 2013-20(Mt)	14.7
Compliance Cost Saving resulting from no longer purchasing EUAs(£m)	+99.0
Penalties paid for emissions over target (£m)	-99.0
Total Compliance Cost savings relative to Option 1(£m)	0.00
Total Admin Costs relative to Option 1 (£m)	-3.8
Net Business impact (£m)*	3.8

* Positive value indicates lower costs (improvement) for business. NB: abatement costs not shown.

Option 3 – target based on ETS sectoral benchmark

The methodology for setting targets under option 3 is based on EU ETS benchmarks. Under the EU ETS in Phase III, emissions allowances will be allocated to installations for free according to their performance relative to product benchmarks. Benchmarks represent the average performance of the top 10% most efficient installations in each ETS sector. Option 3 assumes 100% of allowances are allocated for free up to the sector benchmark. For sectors at risk of carbon leakage, there is no difference in the costs faced between option 2 and 3. For sectors not at risk of carbon leakage, option 3 offers them a less stringent target than option 2. For option 3, the target in 2013 is equivalent to 100% of the benchmark, declining by -1.74% per annum over the period 2013-202 in line with annual reductions in the EU ETS cap. For option 2, the target in 2013 is equivalent to 80% of the benchmark, declining linearly to 30% by 2020. Hence option 3 will result in compliance cost savings for sectors not at

²⁶ The carbon price could in theory lower as a result of this measure, given that installations opting out were expected to be net buyers of allowances. However the effect should be minimal (given the size of those opting-out compared to the emissions remaining in the EU ETS). This effect has not been estimated.

²⁷ Forecast emissions estimated as in option 1. These have been compared to target levels to determine the penalties paid for non-compliance. Total Compliance Costs reflect the difference between purchasing EUAs under option 1, and the new penalties paid under Option 2. DECC has also assumed a small level of abatement is undertaken by each installations. DECC Carbon Prices have been used throughout.

significant risk of carbon leakage. The sectors most benefiting from this will be hospitals, mineral products and food and drink (representing 40%, 27% and 20% respectively of the total number of opted out installations not at significant risk of carbon leakage).

We estimate that 220 installations will choose to opt out under option 3; we expect all option 2 opt-outs to choose to opt-out under option 3 because the targets will be no more stringent under option 3.

As under option 2, installations opting out under option 3 will save £2,585 per annum on administrative costs. We expect a total administrative cost saving of £3.8m over the period 2013-2020.

Option 3 offers compliance cost savings as the penalties paid are projected to be less than the cost of purchasing EUAs, over those allocated for free, to cover emissions. The compliance cost savings to these installations has been estimated as the difference between the target set according to the benchmark and the level of free allocation they would have received under the EU ETS (option 1) multiplied by the carbon price. The exception to this is where the new target is above the expected future level of emissions of the installation (the case for 32 installations). In such instances, the estimated cost saving represents the difference between the level of allocation under the EU ETS and the estimated future emissions²⁸.

We estimate that installations will save £6.5m per annum (£43.0m PV total) across all installations in compliance costs under option 3 compared to staying in the EU ETS (option 1). Thus the total savings (from 2013-20) for the estimated 220 eligible UK installations likely to opt-out under option 3 are £46.6m relative to the do-nothing (option 1) (PV) (shown in Table 6).

Table 6: Summary table of emissions, and change in compliance and administration costs to UK small emitters and hospitals under option 3 relative to option 1²⁹.

Option 3 - Target set according to ETS sectoral benchmark (all costs Present Value) £m	Total
Number of installations opting out	220
Estimated Emissions of opted out installations 2013-20 (Mt)	14.7
Compliance Cost Saving resulting from no longer purchasing EUAs (£m)	99.0
Penalties paid for emissions over target (£m)	-56.1
Total Compliance Cost relative to Option 1 (£m)	-43.0
Total Admin Costs relative to Option 1 (£m)	-3.8
Net Business Impact NPV (£m)	46.8

* Positive value indicates lower costs (improvement) for business. NB: abatement costs not shown.

Option 4 – Target set according to historic emissions

The methodology for setting the target under option 4 is significantly different to option 2 and 3. Under this option targets are set according to the installation's historical emissions over the period 2008-2010 reduced by 5.22% in line with the reduction in the overall EU ETS cap. For sectors at significant risk of carbon leakage, targets will not decline over the period 2013-2020. For sectors not at significant risk of carbon leakage, targets will decline by -1.74% per year over the period 2013-2020 in line with annual reductions in the overall cap.

We estimate 207 installations (33 of which are at risk of leakage) will opt out under option 4.

²⁸ In such an instance, we have also included savings from firms no longer undertaking abatement. These savings are not included for installations with targets below BAU emissions as they are estimated to undertake the same level of abatement under the opt out scheme.

²⁹ Same methodology as Option 2..

All installations opting out under option 4 will also have reduced administrative costs of £2,585 per year. We expect a total administrative cost saving of £3.5m (PV) over the period when compared to option 1. This is different from options 2 and 3 because of change in number of installations taking the opt-out.

In addition, compliance costs will be of the order of £11.8m per annum (£78.1m PV total) less than the costs of purchasing allowances under the EU ETS. Therefore the total savings (from 2013-20) for the estimated 207 eligible UK installations likely to opt-out under option 4 are £81.6m relative to the do-nothing (option 1) (shown in Table 7).

Table 7: Summary table of emissions, abatement, and change in compliance and administration costs to UK small emitters and hospitals under option 4³⁰.

Option 4 - Target set according to historic emissions (all costs Present Value)	Total
Number of installations opting out	207
Estimated Emissions of opted out installations (Mt)	13.4
Compliance Cost Saving resulting from no longer purchasing EUAs(£m)	94.0
Penalties paid for emissions over target (£m)	-16.0
Total Compliance Cost relative to Option 1(£m)	-78.1
Total Admin Costs relative to Option 1 (£m)	-3.5
Net Business impact NPV (£m)	81.6

* Positive value indicates lower costs (improvement) for business. NB: abatement costs not shown.

Summary of Costs to Installations

A comparison of the total (admin and compliance) cost savings for installations under each of the options relative to option 1 (do nothing) is shown below in Table 8.

Table 8: Summary table of emissions, abatement, and compliance and administration costs to UK small emitters and hospitals under options 2-4 relative to option 1 (do nothing).

Cost savings relative to 'do nothing'	Option 2	Option 3	Option 4
Number of installations opting out	220	220	207
Total Compliance Cost relative to Option 1(£m)	0.00	-43.0	-78.1
Total Admin Costs relative to Option 1 (£m)	-3.8	-3.8	-3.5
Net Business impact (£m)	3.8	46.8	81.6

2. Costs to Government/Regulators

Government and regulators face three costs and benefits of the EU ETS: the administrative costs of running the scheme, revenues raised from auctioning allowances and the governmental liability in terms of Carbon Budgets management. The effect of these options is discussed in turn.

Administrative costs to government

The Environment Agency, Scottish Environment Protection Agency and Northern Ireland Environment Agency and DECC are responsible for administering and enforcing the EU ETS and will also be responsible for implementing the UK's voluntary opt-out scheme (options 2-4). Regulators charge fees to operators in the EU ETS to recover the costs of implementing the system. Hence any reduction in costs will also result in a reduction in charges the installations face – thus the change in regulator costs and revenues will be neutral while installations opting out will face lower administrative charges, as outlined above.

³⁰ Same methodology as option 2.

Under options 2-4, regulator costs are expected to fall as opted out installations will no longer be required to hold a registry account or surrender allowances and the regulator will no longer be required to maintain these accounts. Regulator costs will increase as a result of increased auditing effort in implementing the risk based auditing programme. The expected changes in costs and fees are set out above in the fees to regulators section.

For the purpose of this impact assessment, we have assumed that all costs to the regulators are variable, so a reduction in the number of installations being regulated will not affect the charges to other installations. In practice, there may be some fixed costs associated with running the EU ETS. Under such a scenario, a reduction in the number of ETS installations may result in increased charges to ETS operators to cover the fixed costs. Thus the savings to business may have been overestimated in this analysis.

Reduction in fiscal revenues from the EU ETS / increase in fiscal revenues from the opt-out measure

In Phase III around 60% of allowances will be auctioned across the EU. The Commission has indicated that the UK will receive 10.2% of all auction rights, in line with the UK's share of historical EU ETS emissions (2005-2007)³¹. Table 11 presents DECC estimates of the reduction in auction revenues to UK government from auctioning allowances to EU ETS participants (including those outside the UK) as a result of the estimated number of installations opting out in each of the options³².

In order to estimate the penalties installations pay³³ we have looked at the difference between their forecasted emissions (minus estimated abatement undertaken in the option) and their target, and multiplied this by an amount equivalent to the EU ETS carbon price (Table 9).

The net impact to the UK exchequer under all the opt-out options is positive. This is because;

- The reduction in UK auction pot is only 10.2% of the reduction in the overall EU ETS auction pot; and more significantly,
- Any installation with emissions above their allocation will pay a penalty directly to the UK exchequer instead of purchasing allowances from other installations across the EU.

Table 9 Estimated changes in fiscal revenues to UK government over the period 2013-2020 under options (2-4) compared to do nothing (option 1).

£m (2011 prices) All NPV	Reduction fiscal revenues from the EU ETS	Fiscal revenues from the opt-out	Net impact on fiscal revenues
Option 2	3.4	99.3	95.9
Option 3	3.4	56.3	52.7
Option 4	3.2	16.1	12.9

³¹ Our understanding is that the total (EU) auction pot is likely to decline by the amount of auction allowances that were associated with the relevant installations. So if installations considered at risk of carbon leakage opt out, there will be no decline in the auction pot as there are no auction allowances associated with these installations.

³² DECC Carbon values for appraisal have been used to estimate the loss in revenues and the penalties. The average price of carbon value over the period 2013-20 is £16.4/ tCO₂ (2011 prices)

³³ For installations the penalties under the opt-out represent a transfer in payment. Under the EU ETS installations have to purchase allowances for emissions over their free allowance allocations. Under an opt-out these payments no longer go to market participants but rather are collected by HMG. These figures account for the fact that industry will undertake some levels of abatement under all options as detailed above.

Greenhouse Gas & Carbon Target costs

Carbon budgets management – lost abatement

In all the options, it is proposed that the penalty per tonne of CO₂ for missing the target will be set in line with the EUA price. Any installation with expected emissions above their target will face the same incentive to abate as if they were in the EU ETS; in such a situation, one would expect the installation to undertake abatement if the cost of abatement is less than the carbon price and pay the penalty if the cost of abatement was above the EUA price.

Unlike in the EU ETS, installations with emissions at or below their target will not be able to gain financially from lowering their emissions even further and thus will not face the same incentive to abate. Hence in all of the options considered, the incentive to abate is limited to emissions above the target, unlike the EU ETS, in which rational firms should undertake any abatement costing less than the carbon price, regardless of their level of emissions.

Therefore, the policies will produce the same level of emission reductions as long as cost effective abatement potential is equal to or not greater than effort required by the target. The tougher the target set under options 2-4, the more emissions will be subject to an incentive to abate and the less risk that there will be “lost abatement” relative to the EU ETS.

In order to assess the amount of abatement undertaken in each option, we have examined the difference between modelled emissions with and without a carbon price to look at the amount of abatement brought on by the carbon price³⁴. The amount of abatement is then applied as a percentage to business as usual emissions. This results in an implicit assumption that a defined percentage of abatement occurs for emissions above a target level. The level of ‘lost’ abatement has been estimated by considering the number of installations with targets that are set above their forecast level of emissions. It is assumed that these installations will not undertake any abatement and thus the emission reductions that would have been brought on by the EU ETS may not be realised.

This approach has been used because marginal abatement cost data is not available for the small emitter subset. Table 10 below shows the ‘lost’ abatement for 2013 to 2020 when compared to that undertaken under the EU ETS. These figures compare to estimated abatement of 0.1 MtCO₂ in the EU ETS from installations eligible to opt out. As noted, there is a huge uncertainty over the level of abatement potential to small emitters. This is shown by the sensitivity analysis presented later in this impact assessment.

Table 10. Lost abatement for 2013 to 2020 under options 2-4 compared to that under the EU ETS (option 1).

‘Lost’ abatement (MtCO ₂ e)	Option 2	Option 3	Option 4
Central estimate	0	0.004	0.024

This abatement has not been valued or included in this cost/benefit analysis because there are UK targets on the total amount of carbon emitted in the traded sector and non-traded sector over the period 2013-2020. An assessment of the impact on UK carbon budgets is included below.

³⁴ For the ceramics sector, it is estimated that the carbon price reduces emissions by 2.5% below the level of emissions without a carbon price. This was estimated from the Bloomberg New Energy Finance GE²M model. For all other sectors, the level of abatement resulting from the carbon price was estimated to be 0.1% lower, based on the estimated change in UK industrial emissions with and without a carbon price in the DECC energy model. While not ideal, the use of estimated abatement from different sources is justifiable as it is important that the abatement potential is estimated consistently with the BAU projections.

Impact on the costs of the liability in terms of UK carbon targets

While emissions in an opt-out scheme are still subject to a carbon price, they fall outside the EU ETS cap. For UK carbon budgets accounting and carbon accounting under the EU Effort Share Decisions, emissions from the UK opt-out scheme for small emitters and hospitals will shift to the non-traded sector.

In moving emissions from the EU ETS to the non traded sector (NTS), the overall allowed EU emissions will remain constant – any reduction in the overall EU ETS cap will be exactly offset by an increase in the UK's targets for the NTS under the EU's Effort Sharing Decision (ESD). This ensures that the overall environmental ambition of the Climate and Energy Package is maintained. However the shift in emissions does have an impact on the UK's carbon budgets and the costs to the UK of meeting greenhouse gas reduction targets.

The overall EU ETS cap for Phase III is determined on the basis of an average annual reduction from the Phase II average annual cap. To account for small emitters being opted out of the EU ETS, this notional "Phase II cap", which is used to set the Phase III cap, will be adjusted downwards³⁵ in line with historic (2008-10) emissions for the installations being opted out of the EU ETS.

The UK's GHG target for the Non Traded Sector, as determined by the EU ESD, will increase by the same amount as the EU ETS cap is reduced. Note that this increase in ESD target is only dependent on the number of installations that are opted out and is not dependent on the targets set for specific installations.

Based on the projections outlined above, it is estimated that the emissions moved to the UK's Non Traded Sector will be greater than the increase in the NTS budget under the ESD, even after abatement is taken into account. This implies an increase in the required effort (abatement) from elsewhere in the Non Traded Sector such as additional abatement from the transport, residential or agricultural sectors.³⁶ Any impacts to business associated with this effort will be assessed separately as part of the development of new policies as required.

This increase in NTS effort has been valued at the marginal cost of abatement for the NTS³⁷ (an average cost of £60/tCO₂, 2011 prices). Note that it is not possible to say exactly where this cost will fall, as government will have a number of policy options to achieve greater abatement and it is not clear which option would be followed. In this impact assessment we have used two methods for estimating the change in NTS effort thereby creating a range to reflect the uncertainty.

In the first method we have assumed that EU's GHG targets provide the primary source of binding effect on the UK's emissions either because UK Carbon Budgets are adjusted in line with the Commission's adjustment of the UK's non-traded sector target under the Effort Share Decision (ESD) or because the EU target is more stringent than UK carbon budgets (see Table 11).

The second method for valuing the change in liability to the UK is to assume that the carbon budgets provide the primary source of binding effect on the UK's emissions and are not adjusted. In such an instance, any increase in emissions under carbon budget accounting³⁸, must be made up through additional effort in the NTS³⁹. This figure is higher than method 1 as the reduction in the number of EU ETS allowances the UK receives as a result of the opt out, is less than the increase in NTS targets under

³⁵ Note the actual Phase II cap will not change as a result of this policy. It will simply be the notional Phase II cap which is used to determine the Phase III cap which will be adjusted. This is identical to the way the Phase III cap has been adjusted to include new sectors which are not covered by the EU ETS in Phase II.

³⁶ Note there is also a reduction in the EU ETS effort (quantity of allowances purchased). However this reduction is already captured in the business benefits so is not included here to avoid double counting.

³⁷ <http://www.decc.gov.uk/en/content/cms/emissions/valuation/valuation.aspx>.

³⁸ Carbon budgets account for EU ETS emissions by simply looking at the total number of (free and auction) allowances the UK receives.

³⁹ Because under carbon budget accounting rules, the UK is unable to reduce its emissions in the EU ETS. It is this reason, why the UK may wish to adjust its carbon budgets to align them with the actual number of ETS allowances the UK will receive.

the EU's Effort Sharing Decision. The results of this valuation for each option are shown below in Table 12.

Table 11, Valuing emissions on the assumption that carbon budgets are adjusted in line with EC adjustment of the UK Effort Share Decision target.

Option	Forecast increase in NTS emissions (MtCO ₂) 2013-2020	Increase in UK NTS target* (MtCO ₂) 2013-2020	Increase in NTS abatement effort (MtCO ₂) 2013-2020	PV of costs of increased abatement effort 2013-2020
Option 2	14.6	11.9	2.7	133.2
Option 3	14.6	11.9	2.7	133.4
Option 4	13.4	10.8	2.5	123.6

* Under the EU's Effort Sharing Decision

Table 12, Valuing emissions on the assumption that carbon budgets are not adjusted. Any change in UK emissions (as accounted for in carbon budgets) results in a liability for the non-traded sector.

Option	Forecast increase in NTS emissions	Reduction in UK traded sector emissions*	Increase in NTS abatement effort (MtCO ₂) 2013-2020	PV of costs of increased abatement effort (2013-20)
Option 2	14.6	7.6	7.0	349
Option 3	14.6	7.6	7.0	349
Option 4	13.4	6.7	6.7	332

* As accounted for under carbon budgets

Carbon budgets for 2008 to 2022 are set in UK legislation but may be amended in the future, for example in the event that the EU moves to a more ambitious 2020 target and following subsequent effort share negotiations amongst Member States. In such a situation, the carbon budgets are also likely to be adjusted to ensure that they align with the EU targets up until 2020.

In the event that the UK's share of the EU's GHG targets are more stringent than the UK's legislated carbon budgets⁴⁰, method 1 for estimating the increase in effort should be used. This is because in such a scenario, the UK GHG emissions will be limited by the EU targets, with Carbon Budgets not placing an additional constraint on UK emissions. Latest evidence⁴¹ suggests that this is the case and therefore method 1 is used as the central estimate of the GHG costs.

⁴⁰ When the carbon budgets were set in 2009, the intention was to align them with the UK's likely share of the EU's target. However there were uncertainties regarding key assumptions which means that the targets will not necessarily exactly align.

⁴¹ DECC unpublished analysis

4. Summary of costs and benefits of each option (2-4)

The following tables summarises the costs and benefits of options 2-4 relative to option 1 (do-nothing), including how they are distributed between businesses and government/regulators.

Table 13, Summary of costs and benefits to UK of options (2-4) for a voluntary opt-out for eligible UK installations compared to a do nothing scenario (option 1).

Total NPV Positive (negative) numbers represent benefit (cost) to society	Option 2 (Allocation)		Option 3 (Benchmark)		Option 4 (Historical)	
Costs/benefits (£m)	Average Annual	Total (NPV)	Average Annual Cost	Total (NPV)	Average Annual Cost	Total (NPV)
Loss in EUA auction revenues	-0.5	-3.4	-0.5	-3.4	-0.5	-3.2
Increase in NTS carbon liability	-20.9	-133.2	20.9	-133.4	-19.4	-123.6
Total costs to UK	-21.4	-136.6	-21.5	-136.8	-19.9	-126.8
Lower admin costs for operators	0.6	3.8	0.6	3.8	0.5	3.5
Reduced ETS EUA purchases	14.9	99.0	14.9	99.0	14.2	94.0
Total benefits to UK	15.5	102.8	15.5	102.8	14.7	97.5
TOTAL NPV	-4.9	-33.5	-4.9	-33.8	-4.2	-29.1

Table 14, Summary of distribution of costs and benefits to operators (businesses) and government/regulators of options (2-4) for a voluntary opt-out for eligible UK installations compared to a do nothing scenario (option1).

Total costs NPV Positive costs represent benefit to society	Option 2 (Allocation)		Option 3 (Benchmark)		Option 4 (Historical)	
Costs (£m)	Average Annual Cost	Total Cost	Average Annual Cost	Total Cost	Average Annual Cost	Total Cost
Admin costs	0.6	3.8	0.6	3.8	0.5	3.5
Compliance costs	0.0	0.0	6.5	43.0	11.8	78.1
Total benefit to UK operators	0.6	3.8	7.1	46.8	12.3	81.6
Auction revenues	-0.5	-3.4	-0.5	-3.4	-0.5	-3.2
Penalty revenues	14.9	99.3	8.5	56.1	2.4	16.1
Total fiscal impact cost government	15.5	95.9	9.0	52.7	2.9	12.9
GHG costs (NTS liability)	-20.9	-133.2	-20.9	-133.4	-19.4	-123.6
TOTAL NPV	-4.9	-33.5	-4.9	-33.8	-4.2	-29.1

Sensitivities/Risks/Assumptions

The above analysis is reliant on a number of assumptions: most notably the change in emissions for small emitters and the carbon price. DECC's central carbon price projection⁴² has been used for the analysis. Tables 15 and 16 below show the high-level results using high and low carbon price sensitivities.

Table 15. Total costs of opt-out options compared to do nothing, using low carbon price sensitivities.

Low Carbon Prices (£m PV)	Option 2		Option 3		Option 4	
	Total	Change relative to central estimate	Total	Change relative to central estimate	Total	Change relative to central estimate
TOTAL IMPACT ON BUSINESS	3.8	-	26.1	-20.7	44.1	-37.6
TOTAL IMPACT ON GOVERNMENT	49.8	-46.1	27.4	-25.4	6.7	-6.2
GHG COSTS	66.8	-66.4	66.9	-66.5	61.8	-61.8
OVERALL NPV	-13.3	20.3	-13.4	20.4	-11.1	18.0

⁴² http://www.decc.gov.uk/en/content/cms/about/ec_social_res/analytic_projs/carbon_values/carbon_values.aspx

Table 16. Total costs of opt-out options compared to do nothing, using high carbon price sensitivities.

High Carbon Prices (£m) PV	Option 2		Option 3		Option 4	
	Total	Change relative to central estimate	Total	Change relative to central estimate	Total	Change relative to central estimate
TOTAL IMPACT ON BUSINESS	3.8	-	58.3	11.5	102.4	20.8
TOTAL IMPACT ON GOVERNMENT	121.4	25.5	11.4	14.0	3.7	3.4
GHG COSTS	199.8	66.6	200.1	66.7	185.5	61.9
OVERALL NPV	-74.6	-41.1	-75.1	-41.2	-66.7	-37.6

From this, it can be seen that higher carbon prices increase the savings to business and the revenues to government. However higher carbon prices also increase the liability of increasing NTS emissions, so the overall impact of higher carbon prices is to reduce the overall NPV of the policies.

As noted above, the quantity of abatement potential is particularly uncertain. Table 17 shows the estimated reduction in emissions relative to forecast emissions that will be driven by the carbon price under our central assumptions⁴³.

The above figures look conservative relative to other forecasts. For instance, Bloomberg New Energy Finance, estimate that UK industrial emissions will reduce by around 3.7% as a result of the DECC carbon values, while a comparison of the overall BAU emissions and cap (after adjusting for CDM and banked allowances) implies that Phase III emissions must reduce by 10.7% below the BAU emissions in order to comply with the cap. While this latter figure hides the fact that there is more abatement potential in the power sector, we have applied this rate (10.7% abatement potential) as a sensitivity. This has the following impact on the costs and benefits

Table 17. Impact on costs and benefits resulting from higher abatement potential

High abatement potential	Option 2		Option 3		Option 4	
£m for all costs Abatement potential in MtCO ₂	Total	Change relative to central estimate	Total	Change relative to central estimate	Total	Change relative to central estimate
TOTAL IMPACT ON BUSINESS	3.8	0.0	44.5	-2.3	78.9	-2.7
TOTAL IMPACT ON GOVERNMENT	75.8	-20.1	35.5	-17.2	-1.8	-14.7
GHG COSTS	57.1	-76.1	66.5	-66.9	65.1	-58.5
OVERALL NPV	22.4	56.0	13.6	47.4	11.9	41.1
"Lost" abatement	0	-	0.19	0.18	0.25	0.22

If there is higher abatement potential in the sectors, firms are more likely to undertake abatement rather than pay a penalty. As abatement is lower cost than the payment of a penalty⁴⁴ the costs to business will fall in the event of higher abatement potential. Government revenues will also fall as less penalties will be paid. Crucially, in terms of the overall NPV, there will also be less emissions moved into the NTS and so less abatement need occur from elsewhere in the NTS. At the level of abatement considered in this sensitivity test, the shift of emissions from the EU ETS to the NTS actually makes the NTS targets easier to meet and so the overall policy will have a positive NPV. Given that we have already assume relatively

⁴³ This applies in the EU ETS or in the opt-out schemes, provided that the target in the opt-out is below the projected level of emissions.

⁴⁴ As noted above, abatement is estimated to cost half the carbon price per tonne abated.

conservative levels of abatement in the central scenario, the overall results are not significantly different from the central case and thus have not been presented.

The range presented on the summary sheets simply reflects the maximum range from considering carbon price and abatement potential sensitivities⁴⁵. This produces the following sensitivity ranges

Total NPV estimates (£m)	Option 2	Option 3	Option 4
Low	-74.6	-75.1	-66.7
Central	-33.5	-33.8	-29.1
High	57.1	66.5	65.1

Competitiveness Impacts in the UK

A key rational for this policy is to avoid putting UK industry at a competitive disadvantage compared to the rest of the EU. There is a risk of creating intra-sectoral distortions within the EU if we adopt different approaches. We have been unable to quantify this avoided cost.

This measure may also have a negative impact on competition within the UK. Under the rules of the Directive, new entrants will miss the opportunity to opt-out of Phase III. This could create a barrier to market entry for sectors where existing competitors benefit from an opt-out scheme that is no longer available. This could also be a barrier to expansion. We have not been able to quantify this effect.

One-in, one-out

Compared to the current regulatory framework, offering small emitters and hospitals an opt out will lead to significant benefits through administrative savings and for options 3 and 4 also savings on emissions abatement costs. As this is a deregulatory proposal, these benefits can be counted as an “out” under the one-in, one-out framework.

While all costs in this assessment have been calculated in 2011 prices with a 2011 base year. The ‘One In One Out’ Assessment were conducted using 2009 prices and a 2010 base year as detailed in the ‘One In One Out’ Methodology.

Under the preferred option (option 4), there are net present business savings of £81.6m NPV, when assessed over the 8 year appraisal period, represents an “out” of £10.9m.

The final “out” value will be set out in the final stage impact assessment, as part of the EU ETS Directive transposition package, this will follow a consultation to ask small emitters and hospitals whether they wish to take up the alternative measure and opt out.

⁴⁵ These have been considered separately and not simultaneously