

Summary: Analysis & Evidence

Policy Option 1

Description: No streamlined energy and carbon reporting framework

FULL ECONOMIC ASSESSMENT

Price Base Year 2016	PV Base Year 2016	Time Period Years 17	Net Benefit (Present Value (PV)) (£m)		
			Low: 399	High: 1,614	Best Estimate: 666

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	- 26	-282
High	0	66	1121
Best Estimate	0	35	738

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

The changes announced at Budget 2016 (closing the CRC, increasing CCL rates, rebalancing CCL onto gas) without the introduction of a SECR framework to replace the CRC, result in a cost of £738m. This comprises a net reduction in business administrative costs, estimated at PV £234m, and public sector administrative costs, estimated at PV £66m, accruing to organisations currently in the CRC. These changes also cause a net increase in capital, hidden and operational costs, estimated at PV £1,037m, resulting from the increased uptake of energy efficiency measures. Costs are measured against the counterfactual of all current and planned policies before the Budget 2016 changes.

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

The rebound effect, whereby organisations improve their energy efficiency and spend some of the financial savings on other energy using activities. This effect has not been monetised due to a lack of quantitative evidence.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	16	117
High	0	246	2,734
Best Estimate	0	129	1,404

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

The changes announced at Budget 2016 (closing the CRC, increasing CCL rates, rebalancing CCL onto gas), without the introduction of a SECR framework to replace the CRC, result in a net increase in energy savings, estimated at PV £1,087m. This is driven by an increased uptake in energy efficiency measures. These energy savings result in a PV £36m improvement in air quality and PV £281m of carbon savings giving a total benefit of £1,404m. The main groups affected by these benefits will be the wider society and organisations implementing energy efficiency measures. Benefits are measured against the counterfactual of all current and planned policies before the Budget 2016 changes.

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

The productivity impact of energy efficiency improvements, as organisations produce goods and services at a lower cost and reinvest these savings into productive activities. Increased productivity has numerous positive impacts on the UK economy: it can reduce inflation; increase employment and wages; increase competitiveness; boost exports; and increase economic growth. This impact has not been monetised due to the lack of quantitative evidence available.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5

The responsiveness of organisations to changes in energy costs, and hence the impact of changes to CCL rates, is a key assumption in the analysis. Another key assumption is the cost of energy efficiency measures that are taken up by organisations. The sensitivity analysis tests the materiality of these assumptions, and several others, on the NPV estimate.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 0.0	Benefits: 0	Net: 0.0	
			To be confirmed

Summary: Analysis & Evidence

Policy Option 2

Description: Streamlined energy and carbon reporting framework for all UK registered, unquoted companies and their corporate groups using over 6 GWh of electricity, and all UK quoted companies.

FULL ECONOMIC ASSESSMENT

Price Base Year 2016	PV Base Year 2016	Time Period Years 17	Net Benefit (Present Value (PV)) (£m)		
			Low: 481	High: 5,996	Best Estimate: 1,034

COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	14	1	- 12	-91
High	10		293	4,422
Best Estimate	12		119	1,969

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

The changes announced at Budget 2016 (closing the CRC, increasing CCL rates, rebalancing CCL onto gas) plus the introduction of a SECR framework result in a cost of £1,969m. This package comprises a net reduction in business administrative costs, estimated at PV £118m, and public sector administrative costs, estimated at PV £66m, accruing mainly to organisations currently in the CRC. These changes also cause a net increase in capital, hidden and operational costs, estimated at PV £2,152m, resulting from the increased uptake of energy efficiency measures. Costs are measured against the counterfactual of all current and planned policies before the Budget 2016 changes.

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

The rebound effect, whereby organisations improve their energy efficiency and spend some of the financial savings on other energy using activities. This effect has not been monetised due to a lack of quantitative evidence.

BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	0	40	391
High	0		912	10,419
Best Estimate	0		267	3,003

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

The changes announced at Budget 2016 (closing the CRC, increasing CCL rates, rebalancing CCL onto gas) plus the introduction of a SECR framework result in an overall benefit of £3,003m. This comprises a net increase in energy savings, estimated at PV £2,324m that is driven by an increased uptake in energy efficiency measures. These energy savings result in a PV £84m improvement in air quality; PV £538m carbon savings; and a PV £58m reduction in noise pollution. The main groups affected by these benefits will be the wider society and organisations implementing energy efficiency measures. Benefits are measured against the counterfactual of all current and planned policies before the Budget 2016 changes.

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

The productivity impact of energy efficiency improvements, as organisations produce goods and services at a lower cost and reinvest these savings into productive activities. Increased productivity has numerous positive impacts on the UK economy: it can reduce inflation; increase employment and wages; increase competitiveness; boost exports; and increase economic growth. This impact has not been monetised due to the lack of quantitative evidence available.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5

The impact of a SECR framework on organisational behaviour and the responsiveness of organisations to changes in energy costs are key assumptions in the analysis. Another key assumption is the cost of energy efficiency measures that are taken up by organisations. The sensitivity analysis tests the materiality of these assumptions, and several others, on the NPV estimate.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 8.5	Benefits: 0	Net: 8.5	
			To be confirmed

Summary: Analysis & Evidence

Policy Option 3

Description: Streamlined energy and carbon reporting framework for all large UK registered, unquoted companies and their corporate groups, and all UK quoted companies (paragraphs 57-8 and Table 9 define 'large') (Central Option)

FULL ECONOMIC ASSESSMENT

Price Base Year 2016	PV Base Year 2016	Time Period Years 17	Net Benefit (Present Value (PV)) (£m)		
			Low: 489	High: 6,817	Best Estimate: 1,057

COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	9	1	-8	-47
High	7		356	5,331
Best Estimate	8		141	2,300

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

The changes announced at Budget 2016 (closing the CRC, increasing CCL rates, rebalancing CCL onto gas) plus the introduction of a SECR framework result in a total cost of £2,300m. This package comprises a net reduction in business administrative costs, estimated at PV £93m, and public sector administrative costs, estimated at PV £66m, accruing mainly to organisations currently in the CRC. These changes also cause a net increase in capital, hidden and operational costs, estimated at PV £2,459m, resulting from the increased uptake of energy efficiency measures. Costs are measured against the counterfactual of all current and planned policies before the Budget 2016 changes.

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

The rebound effect, whereby organisations improve their energy efficiency and spend some of the financial savings on other energy using activities. This effect has not been monetised due to a lack of quantitative evidence.

BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	0	44	442
High	0		1,062	12,148
Best Estimate	0		298	3,357

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

The changes announced at Budget 2016 (closing the CRC, increasing CCL rates, rebalancing CCL onto gas) plus the introduction of a SECR framework result in a total benefit of £3,357m. This comprises a net increase in energy savings, estimated at PV £2,567m, resulting from the increased uptake in energy efficiency measures. These energy savings result in a PV £95m improvement in air quality; PV £620m carbon savings; and a PV £74m reduction in noise pollution. The main groups affected by these benefits will be the wider society and organisations implementing energy efficiency measures. Benefits are measured against the counterfactual of all current and planned policies before the Budget 2016 changes.

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

The productivity impact of energy efficiency improvements, as organisations produce goods and services at a lower cost and reinvest these savings into productive activities. Increased productivity has numerous positive impacts on the UK economy: it can reduce inflation; increase employment and wages; increase competitiveness; boost exports; and increase economic growth. This impact has not been monetised due to the lack of quantitative evidence available.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5

The impact of a SECR framework on organisational behaviour and the responsiveness of organisations to changes in energy costs are key assumption in the analysis. Another key assumption is the cost of energy efficiency measures that are taken up by organisations. The sensitivity analysis tests the materiality of these assumptions, and several others, on the NPV estimate.

BUSINESS ASSESSMENT (Option 3)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 10.2	Benefits: 0	Net: 10.2	
			To be confirmed

Summary: Analysis & Evidence

Policy Option 4

Description: Streamlined energy and carbon reporting framework for all large UK registered, unquoted companies and their corporate groups and all UK quoted companies (paragraphs 57-8 and Table 9 define 'large') as in Option 3 with the additional requirement of reporting on the scale of and progress against energy efficiency opportunities

FULL ECONOMIC ASSESSMENT

Price Base Year 2016	PV Base Year 2016	Time Period Years 17	Net Benefit (Present Value (PV)) (£m)		
			Low: 482	High: 7,325	Best Estimate: 1,081

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	9	-5	-7
High	7	386	5,765
Best Estimate	8	153	2,471

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

The changes announced at Budget 2016 (closing the CRC, increasing CCL rates, rebalancing CCL onto gas) plus the introduction of a SECR framework result in a total cost of £2,471m. This package comprises a net reduction in business administrative costs, estimated at PV £64m, and public sector administrative costs, estimated at PV £66m, accruing mainly to organisations currently in the CRC. These changes also cause a net increase in capital, hidden and operational costs, estimated at PV £2,601m, resulting from the increased uptake of energy efficiency measures. Costs are measured against the counterfactual of all current and planned policies before the Budget 2016 changes.

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

The rebound effect, whereby organisations improve their energy efficiency and spend some of the financial savings on other energy using activities. This effect has not been monetised due to a lack of quantitative evidence.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	47	475
High	0	1,143	13,089
Best Estimate	0	315	3,552

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

The changes announced at Budget 2016 (closing the CRC, increasing CCL rates, rebalancing CCL onto gas) plus the introduction of a SECR framework result in a total benefit of £3,552m. This comprises a net increase in energy savings, estimated at PV £2,715m, resulting from the increased uptake in energy efficiency measures. These energy savings result in a PV £101m improvement in air quality; PV £654m carbon savings; and a PV £82m reduction in noise pollution. The main groups affected by these benefits will be the wider society and organisations implementing energy efficiency measures. Benefits are measured against the counterfactual of all current and planned policies before the Budget 2016 changes.

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

The productivity impact of energy efficiency improvements, as organisations produce goods and services at a lower cost and reinvest these savings into productive activities. Increased productivity has numerous positive impacts on the UK economy: it can reduce inflation; increase employment and wages; increase competitiveness; boost exports; and increase economic growth. This impact has not been monetised due to the lack of quantitative evidence available.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5

The impact of a SECR framework on organisational behaviour and the responsiveness of organisations to changes in energy costs are key assumption in the analysis. Another key assumption is the cost of energy efficiency measures that are taken up by organisations. The sensitivity analysis tests the materiality of these assumptions, and several others, on the NPV estimate.

BUSINESS ASSESSMENT (Option 4)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 12.3	Benefits: 0	Net: 12.3	
			To be confirmed)

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SUMMARY

1. Improving energy efficiency can reduce energy bills; boost productivity; support growth; improve security of energy supplies; and help decarbonise the economy.¹ The Government response² to the consultation on *Reforming the business energy efficiency tax landscape* was published on 16 March 2016 alongside the 2016 Budget.³ It announced a simplification of the business energy efficiency landscape that will involve the closure of the CRC Energy Efficiency Scheme (CRC) from the end of the 2018-19 compliance year and a fiscally neutral increase in Climate Change Levy (CCL) rates from April 2019, offsetting the loss of revenue from closing the CRC. Also, the ratio of the electricity CCL rate to the gas CCL rate will be changed from 2.9:1 to 2.5:1 from April 2019. In the longer term, the government announced its intention to rebalance CCL rates to reach a ratio of 1:1 (electricity:gas) rates by 2025, more strongly incentivising reductions in the use of gas in support of the UK's climate change targets. The Government also acknowledged the support for maintaining mandatory energy and carbon reporting and announced a further consultation on a streamlined energy and carbon reporting framework, for introduction from April 2019.
2. Part 1 of this Impact Assessment (IA) assesses the Budget 2016 announcements of closing the CRC and increasing and rebalancing CCL rates. Part 2 assesses the options for introducing a SECR framework. Finally, Part 3 brings together the results of Parts 1 and 2 and presents the combined impact of the package. **Only the options for a SECR framework (Part 2) are being consulted on.** The analysis in Parts 1 and 3 are provided for transparency purposes, in order to demonstrate the total impact of the Budget 2016 announcements.
3. The counterfactual in this IA reflects all current and planned policies in place before Budget 2016. This scenario assumes that the CRC and Mandatory Greenhouse Gas (MGHG) reporting remain; CCL rates increase annually from 2015 with RPI inflation; and no SECR framework is introduced. The impacts of policy changes considered under Parts 1, 2 and 3 are measured against this counterfactual in an incremental manner.
4. Part 2 considers four options for a SECR framework. Under Option 1, no SECR framework is introduced following closure of the CRC. Option 1 only addresses the undervaluing of energy efficiency through the increase in CCL rates; it does not address information failures or misaligned financial incentives. In light of the evidence and stakeholder support for the role of mandatory reporting in driving energy savings, and the role for increased transparency to make investors and others more able to hold companies to account, Option 1 is not recommended. Options 2-4 entail the introduction of a SECR framework, and vary in terms of its design as shown in Table 1.

¹ IEA, 2014, *Capturing the Multiple Benefits of Energy Efficiency*.

http://www.iea.org/publications/freepublications/publication/Captur_the_MultiplBenef_ofEnergyEfficiency.pdf

² HMT, 2016, *Reforming the business energy efficiency tax landscape: response to the consultation*.

<https://www.gov.uk/government/consultations/consultation-reforming-the-business-energy-efficiency-tax-landscape>

³ HMT, 2016, *Budget 2016*. p.52

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/508193/HMT_Budget_2016_Web_Accessible.pdf

Table 1 - Description of Options 1 to 4 for a SECR framework

	Option 1	Option 2	Option 3	Option 4
Scope of SECR framework:	n/a	Companies using >6 GWh of electricity ⁴ p.a. (4,000 individual large organisations)	Large companies (9,100 individual large organisations)	Large companies (9,100 individual large organisations)
What information is reported:				
Onsite energy use (UK only)		Electricity & Gas	Electricity & Gas	Electricity & Gas
Transport energy use (UK only)		✓	✓	✓
Emissions from UK energy use		✓	✓	✓
Intensity metric	Via MGHG reporting	✓	✓	✓
Global GHG emissions (quoted companies only)	Via MGHG reporting	✓	✓	✓
Global total energy use (quoted companies only)		✓	✓	✓
Scale of, and progress against, energy efficiency opportunities				✓

In all cases, the policy scope includes within the count of companies around 1200 UK quoted companies within scope of MGHG reporting, who will continue to be required to report (paragraphs 57-8 and Table 9 define 'large')

5. In this consultation IA no preferred option is being presented. Option 3 is the central option as it lies between the two other options in terms of energy and carbon savings, administrative burdens and total net present value, if we exclude the do nothing option (Option 1). The **central option** (Option 3) requires (i) UK registered, unquoted large companies (paragraphs 57-8 and Table 9 define 'large') to report their energy use and emissions relating to gas, electricity and transport, and an intensity metric, through their company's annual reports and (ii) for quoted⁵ companies to continue to report their global GHG emissions and an intensity metric, and additionally start to report their global total energy use.
6. The benefits quantified in this IA include impacts on energy savings, carbon savings, air quality and noise pollution; whereas costs include administrative burdens to participants, cost of capital investment in energy efficiency, hidden costs and operational costs. All the options lead to an increase in energy savings which in turn leads to an increase in carbon savings, improvements in air quality and a reduction in noise pollution. Energy savings are higher, the greater the reporting requirements of each policy option and the higher the number of companies that will be in scope. Since there is an increase in energy savings in all the options, there is also an increase in the cost of capital investment in energy efficiency, hidden costs and operational costs. The higher the increase in energy savings the higher is the increase in these costs. On the other hand, overall administrative burdens are reduced in all the options due to the CRC removal (recognising some options bring new individual businesses into reporting scope). The greater the reporting requirements and the population in scope of each policy option and therefore the higher the energy savings, the lower the net reduction in administrative burdens will be. Therefore there is a trade-off between energy savings and administrative burdens and the different policy options represent this trade-off as they differ in terms of population in scope and reporting requirements.
7. The combined impact of the changes announced at Budget 2016 (closing the CRC, increasing CCL rates, and rebalancing CCL onto gas) and introducing a SECR framework in line with the central option (Option

⁴ through settled half hourly meters, excluding Climate Change Agreement and EU ETS supplies

⁵ from section 385 of the Companies Act 2006, a quoted company is a UK registered company whose equity share capital is officially listed on the Main Market of the London Stock Exchange or in an EEA State, or admitted to dealing on either the New York Stock Exchange or Nasdaq

3), measured against the counterfactual, is estimated to generate benefits of £3,357m and costs of £2,300m, resulting in an NPV of £1,057m over 2019 to 2035. The direct impact on business (Equivalent Annual Net Direct Cost to Business) for Option 3 is £10.2m (see paragraph 89 for details on what is covered in EANDCB estimates).

8. ***The Government welcomes the views of respondents to the accompanying consultation on the assumptions used in this IA, and asks for relevant evidence to be submitted in responses.***

INTRODUCTION

Problem under consideration

9. The current business energy policy framework is complex, as organisations can be in scope of multiple policies relating to energy use and emissions: e.g. those creating a price signal (the CCL); those requiring measurement or reporting (the Energy Saving Opportunity Scheme (ESOS) and MGHG Reporting); and those requiring both (EU Emissions Trading System (EU ETS); Climate Change Agreements (CCAs); and the CRC). Following the 2015 Summer Budget⁶ the Government consulted on a review of the business energy efficiency tax landscape to simplify and improve the effectiveness of the regime. The Government therefore announced at Budget 2016 that the current landscape should be streamlined to reduce its administrative burdens and increase its effectiveness in achieving energy and carbon savings.

Rationale for intervention

10. The market for energy efficiency can be characterised by four market failures. These create barriers to investment in cost-effective energy efficiency measures:
- **Embryonic markets** limit the availability of expertise necessary to invest in energy efficiency;
 - **Information failures** prevent decision makers from identifying potential energy savings;
 - **Misaligned financial incentives** mean that decision makers (e.g. an organisation with a short tenancy agreement) do not benefit from their investment decisions (e.g. while a subsequent tenant would); and
 - **Undervaluing energy efficiency** means that projects, even with short payback periods, are ignored in favour of investments which are considered “core” to the organisation. Energy use has negative externalities, i.e. it imposes wider costs on society that are not reflected in the prices paid for energy, which also causes energy efficiency to be undervalued.
11. The available evidence on reporting, for example the CRC evaluation⁷ and the evidence assessment on energy use reporting by Eunomia in 2014⁸, suggests mandatory reporting of energy use/emissions addresses the barriers associated with information and undervaluing energy efficiency, as they provide organisations with information on their energy use and can help them to identify energy savings opportunities. The evidence also suggests that reporting schemes requiring board-level sign-off are likely to address information failures and misaligned incentives, as the salience of energy use – and its associated costs – are increased amongst an organisation’s decision makers. Increasing the demand for energy efficiency measures attracts profit-seeking entrepreneurs and innovators to enter the market for energy efficiency, helping to overcome the ‘embryonic markets’ barrier to energy efficiency. Taxing energy use only addresses the barrier of undervaluing energy efficiency by increasing the relative cost of energy use, and therefore increasing the incentive to invest in energy efficiency measures.
12. There is widespread stakeholder support for a reformed reporting framework. The majority of consultation respondents agreed that mandatory reporting is an important element of the policy landscape; and that

⁶ HMT, 2015, *Summer Budget 2015*.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/443232/50325_Summer_Budget_15_Web_Accessible.pdf

⁷ DECC, 2015, *CRC Energy Efficiency Scheme Evaluation*.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/445719/CRC_evaluation_synthesis_report_FINAL_150709.pdf

⁸ DECC, 2014, *Evidence Review of the Impact of Central and Public Disclosure Methods for Reporting Energy Use and Energy Efficiency*.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/323114/ESOS_-_Research_on_Impact_of_Reporting_Energy_Use_FINAL_.pdf

board or senior level sign-off delivered greater benefits. Most who responded on public disclosure were broadly supportive of the idea due to increased accountability and creation of reputational drivers.⁹

Objectives of policy package

13. The objectives of the policy package are to:
- Reduce the administrative burdens of complying with business reporting policies;
 - Simplify the policy landscape to increase coherence of policy levers for organisations;
 - Increase the effectiveness of the policy framework in addressing the barriers to energy efficiency; and
 - Contribute to the Government’s carbon budgets by reducing energy use, and developing markets for energy efficiency products.

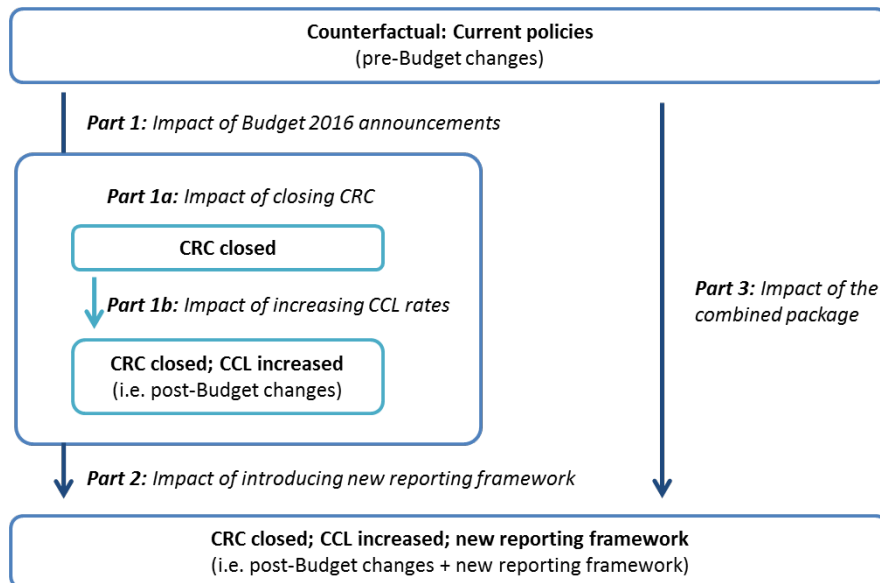
Structure of this IA

14. This IA assesses the impact of policy changes announced at Budget 2016, as well as the options being consulted on for a SECR framework in the context of these changes. Reflecting this context, this IA has been structured as below:

- Part 1 assesses the impact of the Budget 2016 announcements:
 - Part 1a assesses the impact of closing the CRC;
 - Part 1b assesses the impact of the announced changes to CCL rates.
- Part 2 assesses the impact of four options for a SECR framework for consultation;
- Part 3 assesses the combined impact of the changes captured in Parts 1 and 2. It demonstrates the overall impact of the simplification package under each option for a SECR framework.

15. **Only the options for a SECR framework (Part 2) are being consulted on.** The impacts of each change are assessed in an incremental manner, as illustrated by Figure 1:

Figure 1 - Structure of the IA



⁹ Page 8, HMT, 2016, *Reforming the business energy efficiency tax landscape: response to the consultation*.

Appraisal period and counterfactual

16. The analysis is based on an appraisal period of 2019 to 2035 since Energy and Emissions Projections (EEP) data is available up to 2035. This period covers the Third, Fourth and Fifth Carbon Budgets¹⁰. All monetised values are in 2016 prices.
17. **The changes announced at Budget 2016, which are analysed in Part 1, do not form part of this consultation.** In order to examine the impact of these changes, the counterfactual in this IA is all current and planned policies in place before Budget 2016, reflected in BEIS' latest March 2017 EEP¹¹, which include the following policy assumptions:
- The CRC is assumed to remain beyond 2019;
 - CCL rates are assumed to increase with RPI inflation, in line with the historic trend;
 - Reduced CCL rates available under CCAs are assumed to increase with RPI inflation to 2035, beyond the point at which CCAs expires in 2023; and
 - MGHG reporting is assumed to remain in place.
18. Table 2 presents the counterfactual for energy consumption, emissions and administrative costs¹². Emissions and energy demand projections are sourced from EEP¹³, and refer to the industrial; commercial services; public services; transport; and agriculture sectors. Counterfactual business administrative burdens capture the administrative costs of the CRC (taken from an externally commissioned study on the costs of compliance for CRC participants¹⁴) and MGHG Reporting (taken from a previous IA on MGHG Reporting¹⁵).

Table 2 - Estimated annual energy use, emission and business administrative burdens under the counterfactual, 2019-2035

Average annual, 2019 to 2035	Counterfactual scenario
Energy consumption, TWh	1,116.9
Emissions, MtCO ₂ e	237.1
Business participants' administrative costs, 2016 £m	22.6

Source: EEP, CRC Cost of Compliance study.

19. The analysis in this IA assumes that all policy changes are UK wide. Decisions by the Devolved Administrations on their approach on CRC closure will be informed by a range of issues including this consultation. The ambition is that the simplified energy and carbon reporting framework will be UK-wide, and that proposals will be implemented through the Companies Act 2006. Therefore, in respect of the proposals, there are no issues arising in respect of the devolution settlement for Scotland and Wales. In respect of Northern Ireland the regulation of types of business association including under the Companies

¹⁰ CCC, *Carbon Budgets and targets*, Retrieved 6th May 2016, <https://www.theccc.org.uk/tackling-climate-change/reducing-carbon-emissions/carbon-budgets-and-targets/>

¹¹ BEIS, *Updated energy and emissions projections*, <https://www.gov.uk/government/collections/energy-and-emissions-projections>

¹² The counterfactual has not been presented for other impacts such as capital costs and air quality, due to the limited data available on the counterfactual for these impacts

¹³ Annexes D and E, BEIS, *Updated energy and emissions projections*.

¹⁴ BEIS 2016, Assessment of costs to UK participants of compliance with Phase 2 of the CRC Scheme <https://www.gov.uk/government/publications/assessment-of-costs-to-uk-participants-of-compliance-with-phase-2-of-the-crc-energy-efficiency-scheme>

¹⁵ Defra, 2012, *Impact Assessment of Options for Company GHG Reporting*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82354/20120620-ghg-consult-final-ia.pdf

Note that this estimate does not include the cost of reporting international emissions.

Act 2006 is a devolved matter, but there is a general agreement from the Northern Ireland Administration for there to be a UK-wide approach to legislation in this area.

20. This IA discusses in Part 3 how the UK-wide impacts of each Option might be disaggregated for each administration.

PART 1 – IMPACT OF THE BUDGET 2016 ANNOUNCEMENTS

PART 1a – THE IMPACT OF CLOSING THE CRC ENERGY EFFICIENCY SCHEME

21. In its response to the consultation on reforming the business energy efficiency tax landscape, the Government announced its decision to close the CRC following the 2018-19 compliance year, with no purchase of allowances required to cover emissions for energy supplied from April 2019.¹⁶ Organisations will report under the CRC for the last time by the end of July 2019, with a surrender of allowances for emissions from energy supplied in the 2018-19 compliance year by the end of October 2019.

Costs associated with closing the CRC

22. **Reduction in energy savings.** CRC participants are required to purchase carbon allowances to offset CO₂ emissions associated with their electricity and gas consumption. This increases the incentive for organisations to reduce their energy use through investment in energy efficiency measures. In addition, evidence such as the Eunomia report and CRC evaluation suggest that measuring and reporting energy use/emissions, as required by the CRC, drives organisations to implement energy efficiency measures. In the absence of other policy changes, closing the CRC would be expected to lead to a loss of energy savings.
23. To assess the impact on energy savings from closing the CRC it is necessary to consider its legacy savings, i.e. energy savings which will continue to occur after its closure. Legacy savings have been captured by assuming that all energy efficiency measures implemented before 2019 remain in place when the CRC is closed. Table 3 presents the change in energy savings from closing the CRC, which is calculated by taking the difference between its estimated energy savings and legacy savings.

Table 3 - Annual energy savings and legacy energy savings of the CRC, 2019-2035

	Average annual savings, TWh		
	2019 to 2025	2026 to 2035	2019 to 2035
CRC energy savings	8.1	3.3	5.3
CRC legacy energy savings	5.1	0.6	2.5
Change in savings from closing the CRC	-3.0	-2.7	-2.8

Source: EEP

24. **Reduction in carbon savings and damage to air quality.** Reduced energy savings lead to a reduction in carbon savings and an associated deterioration in air quality. The reduction in average annual carbon savings over 2019-2035 is estimated to be **0.5 megatonnes of carbon dioxide equivalent (MtCO₂e)**, with an associated damage to air quality of **£1.7m**.

Benefits associated with closing the CRC

25. **Reduction in administrative burdens for participants.** The CRC imposes an administrative cost on its participants from activities such as determining eligibility; measuring and reporting energy use; and purchasing allowances. Closing the CRC removes these burdens. A recent Cost of Compliance study¹⁷ surveyed 236 CRC participants¹⁸ to gather evidence on the administrative burdens of Phase 2 of the

¹⁶ Page 5, HMT, 2016, *Reforming the business energy efficiency tax landscape: response to the consultation*.

¹⁷ BEIS, Assessment of costs to UK participants of compliance with Phase 2 of the CRC Scheme

<https://www.gov.uk/government/publications/assessment-of-costs-to-uk-participants-of-compliance-with-phase-2-of-the-crc-energy-efficiency-scheme>

¹⁸ This represents approximately 11% of the CRC population listed in the 2012/13 and 2013/14 annual report publications.

<https://www.gov.uk/guidance/crc-energy-efficiency-scheme-annual-report-publication>

scheme (2014 to 2019). The estimated one-off and on-going administrative burdens of the CRC were as presented in Table 4 below. Participants would save an estimated annual average of **£25.5m** over 2019-2035 with the closure of the CRC.

Table 4 - Cost of Compliance survey estimates of the administrative burdens of Phase 2 of the CRC, 2014/15

	One-off administrative costs, 2016 £m	On-going administrative costs, 2016 £m	Average annual administrative costs (2019-2035), 2016 £m
All private and third sector participants	14.4	17.4	19.9
All public sector participants	3.9	4.9	5.6
All participants	18.2	22.3	25.5

Source: CRC Cost of Compliance study

26. **Reduced capital investment, hidden costs and operational costs of energy efficiency measures.** Closing the CRC would result in a fall in the take up of energy efficiency measures, which subsequently reduces the associated costs. Capital costs relate to the investment required when measures are implemented. Hidden costs capture the cost of managing the implementation of measures, including the time working with contractors to install measures and halting operations to make improvements. Operational costs capture the on-going running and maintenance of equipment.
27. Analysis used to inform the level of the Fifth Carbon Budget¹⁹ is used to estimate the change in each of these costs. These data contain evidence on the energy savings and costs of different abatement measures. Given the uncertainty over the specific measures that would have been taken up under the CRC, average ratios of capital, hidden and operational costs to energy savings are used to estimate the costs of energy efficiency measures. Based on average annual energy savings of 2.8TWh, these costs are estimated to fall by an annual average of **£112m** over 2019-2035.
28. Table 5 presents the impacts of closing the CRC, as compared against the counterfactual of all current and planned policies in place before Budget 2016.

Table 5 - Estimated costs and benefits of closing the CRC, 2019-2035

	Average annual impact, 2019 to 2035	
Costs	Decrease in energy savings, TWh	2.8
	Decrease in traded carbon savings, MtCO ₂ e	0.1
	Decrease in non-traded carbon savings, MtCO ₂ e	0.4
	Deterioration in air quality, 2016 £m	1.7
Benefits	Decrease in business participants' administrative costs, 2016 £m	19.9
	Decrease in public sector participants' administrative costs, 2016 £m	5.6
	Decrease in capital, hidden and operational costs, 2016 £m	112.3

Key risks and uncertainties

29. The largest uncertainties in this analysis relate to the projected energy savings of the CRC and the legacy savings which persist after the scheme is closed. This is due to the difficulty of projecting the future take-

¹⁹ http://www.legislation.gov.uk/ukia/2016/152/pdfs/ukia_20160152_en.pdf

up of energy efficiency measures by organisations, and in projecting the persistence of energy savings after the CRC is closed. The sensitivity analysis in Part 3 tests this uncertainty.

PART 1b – THE IMPACT OF INCREASING AND REBALANCING CCL RATES

30. At Budget 2016 the Government announced that the main rates of the CCL will increase from April 2019 to offset the loss of revenue from closing the CRC. Also, the ratio of the electricity CCL rate to the gas CCL rate will be rebalanced from 2.9:1 to 2.5:1 from April 2019, and will reach 1:1 by 2025. The specific CCL rates after 2019 have not yet been announced, so the analysis in this IA illustratively assumes that CCL ratios are changed in a linear path from 2019 to 2025, and rates increase with RPI inflation as in previous years.²⁰ In the 2016 Budget stated that the CCL discount available to CCA participants will also increase from April 2019 to ensure they pay no more than an RPI increase.²¹ Although the current CCA scheme ends in 2023, this analysis illustratively assumes that the reduced rate of CCL increases with RPI inflation from 2019 to 2035.

Benefits associated with increasing and rebalancing CCL rates

31. **Energy savings.** An increase in CCL rates increases energy costs for main rate CCL payers, and therefore strengthens the incentive for organisations to reduce their energy consumption. This analysis applies a price elasticity of demand to the energy consumption of main rate CCL payers to estimate the impact of increased CCL rates.
32. A price elasticity of demand for energy of -0.3 is applied for all energy supplies across the non-domestic sector.²² This value is derived by weighting estimated elasticities for the industry and service sectors by the energy use from each sector in scope of the main rates of CCL (see Table 6).

Table 6 - Price elasticity of demand assumptions for all fuels by sector

	Services	Industry	Weighted average for main rate CCL tax base
Price elasticity of demand estimate	-0.24	-0.47	-0.30
Source	<i>Agnolucci (2010)</i> ²³	<i>Agnolucci (2010)</i>	

33. Given the lack of conclusive evidence, the same elasticity is used for all energy commodities, no cross-commodity price impacts are considered and elasticities are assumed to remain constant over time and at different levels of energy consumption. Increasing CCL rates is estimated to save an annual average of **5.0TWh** over 2019-2035.
34. **Carbon savings and air quality improvements.** An increase in energy savings leads to increased carbon savings and improvements in air quality. The increase in average annual carbon savings over 2019-2035 is estimated to be **0.9MtCO₂e**, with an associated improvement in air quality of **£5m**.

Costs associated with increasing and rebalancing CCL rates

35. **Increase in capital, hidden and operational costs.** Organisations are likely to incur capital, hidden and operational costs when achieving energy savings through implementing energy efficiency measures. Given the estimated energy savings of 5.0TWh, these costs have been estimated to be **£173m** on an

²⁰ HMRC, 2016, *Climate Change Levy: main and reduced rates*.

<https://www.gov.uk/government/publications/climate-change-levy-main-and-reduced-rates/climate-change-levy-main-and-reduced-rates>

²¹ Page 53, HMT, 2016, *Budget 2016*.

²² This means that a 10% rise in the cost of energy results in a 3% fall in energy consumption

²³ Agnolucci P. (2010) Stochastic Trends and Technical Change: The Case of Energy Consumption in the British Industrial and Domestic Sectors, *The Energy Journal*, Vol. 31, pp.111-135. 1. The values in Table 6 are used because: (i) the Agnolucci (2010) study uses more recent data than similar available studies; (ii) as they are sourced from the same study, the values for industry and services use the same approach and data; and (iii) the estimates represent long-run elasticities, which are more appropriate for assessing changes in long-standing policies such as the CCL.

average annual basis over 2019-2035. The costs have been calculated using the average ratio between costs and energy savings using the same approach as set out in paragraphs 26 to 27.

36. It is assumed that there is no change in administrative burdens (to either organisations paying CCL, or energy suppliers collecting CCL payments) from the increase in and rebalancing of CCL rates. Since CCL rates increase with RPI each year in the counterfactual, it is unlikely that the change in CCL rates announced at Budget 2016 would impose any additional administrative costs.
37. Table 7 illustrates the incremental impact of increasing and rebalancing CCL rates after closing the CRC: thus the impacts below are additional to those presented in Part 1a. Impacts are monetised and discounted in Part 3.

Table 7 - Estimated costs and benefits of increasing CCL rates, 2019-2035

		Average annual impact, 2019 to 2035
Costs	Change in business participants' administrative costs, 2016 £m	0
	Change in public sector participants' administrative costs, 2016 £m	0
	Change in capital, hidden and operational costs, 2016 £m	173
Benefits	Change in energy savings, TWh	5.0
	Change in traded carbon savings, MtCO ₂ e	0.3
	Change in non-traded carbon savings, MtCO ₂ e	0.6
	Change in air quality, 2016 £m	5.0

Key risks and uncertainties

38. The greatest uncertainty in the analysis is the assumption for the price elasticity of demand for energy. This assumption reflects the average historic response to previous changes in energy costs, which may not hold in the future as business and policy conditions change. The impact of this assumption on the results is tested in the sensitivity analysis in Part 3.
39. The analysis uses the latest published energy price projections from the Green Book supplementary guidance on valuing energy use and greenhouse gas emissions²⁴. Energy prices are difficult to predict and have fluctuated significantly over time, so these projections are likely to have considerable uncertainty. The impact of different energy cost scenarios is tested in the sensitivity analysis in Part 3.

²⁴ <https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal>

PART 2 – OPTIONS ASSESSMENT FOR A SECR FRAMEWORK

40. **Part 2 assesses the options under consultation for a SECR framework.** In cases where evidence is limited, illustrative assumptions have been made.
41. ***The Government welcomes the views of respondents to the accompanying consultation on these assumptions and asks for relevant evidence to be submitted.***

Policy changes under consideration

42. Four options for a SECR framework to replace the reporting element of the CRC are considered. Apart from Option 1, where a SECR framework is not introduced, the options require companies to measure and report their energy use and emissions. The options have been designed to replace the reporting element of the CRC while reducing the overall burdens on business.
43. It is proposed that the reporting of global GHG emissions by quoted companies is included in the SECR framework, with the addition of global total energy reporting, rather than as now there being separate MGHG and CRC reporting requirements. This would reduce occasions of the same type of information being reported multiple times. The accompanying consultation seeks respondents' views on whether the reporting of global GHG emissions should be retained²⁵; Annex A in this IA provides evidence on its costs and benefits.
44. The analysis in this section examines the incremental impact of introducing a SECR framework after closing the CRC (Part 1a) and increasing and rebalancing CCL rates (Part 1b). Impacts in Part 2 are additional to these changes: they do not include the impacts discussed in Part 1. Part 3 presents the combined impact of the simplification package.

Summary of Options

45. This IA assesses three options for a SECR framework:
- Option 1 – No streamlined energy and carbon reporting framework (and maintain MGHG reporting);
 - Option 2 – Streamlined energy and carbon reporting framework (and moving from separate MGHG reporting), requiring (i) UK registered, unquoted companies and their corporate groups using over 6 GWh of electricity per year (through settled half hourly meters, excluding Climate Change Agreement and EU ETS supplies) to report UK energy use and emissions relating to electricity, gas and transport, and an intensity metric, reporting in their annual reports; and ii) quoted companies to report their global GHG emissions, and underlying global total energy use, and an intensity metric.
 - Option 3 – As per option 2 but companies in scope are UK registered, unquoted large companies and their corporate groups (and all quoted companies) – (paragraphs 57-8 and Table 9 define 'large')
 - Option 4 – As per option 3 but companies in scope also have to report their energy efficiency opportunities and progress against them.

In this consultation IA no preferred option is being presented. **Option 3 is the central option in this IA.** Table 8 summarises the components of Options 1 to 4.

²⁵ BEIS 2017, Streamlined energy and carbon reporting consultation <https://www.gov.uk/government/consultations/streamlined-energy-and-carbon-reporting>

Table 8 - Description of Options 1 to 4 for a SECR framework

	Option 1	Option 2	Option 3	Option 4
Scope of SECR framework:	n/a	Companies using >6 GWh of electricity ²⁶ p.a. (4,000 individual large organisations)	Large companies (9,100 individual 'large' organisations)	Large companies (9,100 individual 'large' organisations)
What information is reported:				
Onsite energy use (UK only)		Electricity & Gas	Electricity & Gas	Electricity & Gas
Transport energy use (UK only)		✓	✓	✓
Emissions from UK energy use		✓	✓	✓
Intensity metric	Via MGHG reporting	✓	✓	✓
Global GHG emissions (quoted companies only)	Via MGHG reporting	✓	✓	✓
Global total energy use (quoted companies only)		✓	✓	✓
Scale of, and progress against, energy efficiency opportunities				✓

In all cases, the policy scope includes within the count of companies around 1200 UK quoted companies within scope of MGHG reporting, who will continue to be required to report (paragraphs 57-8 and Table 9 define 'large')

46. A non-regulatory approach is considered in Option 1, where no SECR framework is introduced to replace the reporting elements of the CRC. Without a SECR framework, this option is limited in addressing the recognised barriers to energy efficiency. It only addresses the undervaluing of energy efficiency through the increase in CCL rates; it does not address information failures or misaligned financial incentives. Option 1 is not considered a feasible option, given the undesirable consequences for energy savings and carbon emission reductions.
47. A voluntary reporting option has not been considered in this IA, as evidence in studies such as the Eunomia report²⁷ have found such schemes have not succeeded in providing the clarity and consistency of information required to affect organisational behaviour. They also do not meet the transparency needs of investors and others, in order to allow companies to be held to account. In addition, voluntary reporting schemes are already available to organisations. Schemes such as the CDP (formerly the Carbon Disclosure Project)²⁸ are likely to limit the additionality of a new voluntary reporting regime.
48. As well as the evidence in the literature, the majority of respondents to the HM Treasury consultation on the business energy efficiency tax landscape agreed that mandatory reporting is an important element in driving the uptake of low carbon and energy efficiency measures.
49. The costs and benefits of reporting and publishing different information has been investigated through a review of the available evidence and tested during a number of business stakeholder workshops about the analytical assumptions of the SECR framework (e.g the effects of reporting different information on energy savings and administrative burdens).

²⁶ through settled half hourly meters, excluding Climate Change Agreement and EU ETS supplies

²⁷ DECC, 2014, *Evidence Review of the Impact of Central and Public Disclosure Methods for Reporting Energy Use and Energy Efficiency*.

²⁸ <https://www.cdp.net/en-US/Pages/HomePage.aspx>

Information to be reported

50. The information will be reported individually by company (or company group) in their annual reports. Under Options 2 and 3 the information proposed to be reported is the UK energy consumption on gas, electricity and transport across all supplies, associated emissions, and an intensity metric (for example energy use per £m of turnover) to be chosen by participants. For quoted companies, the scope is proposed to remain global emissions, and to bring in global total energy use.
51. Since the information will be reported through annual reports, it would be signed off by the board or senior management of each company. The available evidence suggests that this is an important driver of energy savings as it increases an organisation's awareness of energy efficiency opportunities at a senior level.²⁹
52. Reporting of transport energy use is required by Options 2-4 since transport represents a significant proportion of energy use for companies in scope. Feedback from stakeholders³⁰ indicated that significant potential energy savings could be achieved from the reporting of transport energy use, given that it has not previously been required in schemes such as the CRC. It fits with ESOS and existing MGHG reporting in a streamlined policy, which both include transport energy.
53. In Option 4, companies in scope have to report energy efficiency opportunities identified (for example in the last energy audit) and which opportunities have been implemented. Qualitative stakeholder feedback indicated that annual progress reporting on energy efficiency opportunities would likely drive significant energy savings by providing greater exposure (i.e. annually, rather than every four years as under ESOS) of saving opportunities to senior decision makers. This effect is expected to be particularly acute for those who have not acted on the findings from their energy audit.
54. Options 2-4 are preferred to Option 1 because, as evidence such as the Eunomia report³¹ and CRC evaluation³² suggests, mandatory reporting is likely to drive energy savings, and that the reporting element of the CRC was an important driver of its overall energy savings. Hence, if the CRC is closed and no SECR framework is introduced, energy and carbon savings are likely to be foregone.
55. In all options, including Option 1, quoted companies would also have to report the global GHG emissions for which they are responsible, with the addition of their underlying global energy use. This is currently mandated under MGHG reporting, and it is proposed that for Options 2-4 this requirement would be moved into the SECR framework, moving away from separate MGHG reporting. Annex A summarises the available evidence on the costs and benefits of reporting global emissions. However, as this requirement is maintained under all options, it is assumed that the associated costs and benefits of reporting global emissions do not change. The addition of reporting underlying energy use is assumed to have benefits, but negligible costs, and is not quantified.

Organisations in scope

56. It is proposed that the SECR framework will apply to companies formed and registered under the Companies Act 2006. This means that organisations which are not registered as companies, for example public sector organisations, some charities and some private sector organisations such as certain

²⁹ See, for example, the Eunomia study and the CRC evaluation.

³⁰ a number of workshops were held with business in early 2016, as well as discussions at various stakeholder events, in order to test analytical assumptions

³¹ DECC, 2014, *Evidence Review of the Impact of Central and Public Disclosure Methods for Reporting Energy Use and Energy Efficiency*.

³² DECC, 2015, *CRC Energy Efficiency Scheme Evaluation*.

partnerships, may not be in the scope of the SECR framework. The analysis in this IA assumes only companies are in scope.

57. In Option 2, the proposed scope of the SECR framework is UK registered, unquoted companies using over 6 GWh of electricity per year (through settled half hourly meters, excluding Climate Change Agreement and EU ETS supplies) and their corporate groups, plus all UK quoted companies. This achieves a broadly similar scope to the CRC, albeit excluding non-companies. It has been assumed as for the ESOS IA that all companies in the CRC are large companies, and therefore would also be in scope of Options 3-4. Estimates of numbers of ‘large’ companies for the CRC population have been made using the ‘large’ definition as applies under ESOS (both in terms of the thresholds and rules for grouping companies), also following the approach under the ESOS IA (see Annex C). In Options 3 and 4 the proposed scope is large companies and their corporate groups. The consultation proposes options for the definition of ‘large’ which would apply under Options 3-4, either the definition of ‘large’ under the Companies Act 2006, or ‘large’ under ESOS. The consultation document discusses the merits of ‘large’ definitions (Chapter 3, section on ‘Who should report’), and paragraph 58 and Table 9 below provides definitions of ‘large’. For this consultation stage IA to provide indicative analysis it is assumed that the definition of a ‘large’ company is in line with the ESOS definition of ‘large’, and corporate groupings also follow ESOS rules. This achieves a similar scope between Options 3-4 and ESOS (but again excluding non-companies).³³ In both Options 3-4, individual small and medium companies are out of scope. Under the Companies Act 2006 regime, quoted companies, regardless of their employee numbers or financial characteristics, have to report as if they are large, so for the purposes of scope, we are determining all quoted companies to be ‘large’ and in scope. The proposed scopes therefore protect SMEs from increased administrative burdens.
58. This IA makes various references to ‘large’ organisations. **Unless otherwise stated, all references to ‘large’ should be taken to refer to ‘large’ as defined for ESOS – see Table 9, below.** To estimate the impacts of the options proposed at consultation stage it has been necessary to make some assumptions. These include that data based on one definition of ‘large’ are a good proxy for the same type of data under alternative definitions of ‘large’. **We would welcome views on this assumption, relevant sources of evidence, and any impacts it may have on the analysis.** The main area where this will need to be resolved for the final IA is when a choice is taken between applying either the Companies Act 2006 definition of ‘large’, or the ESOS definition of ‘large’.

Table 9 – Definitions of ‘large’ under Companies Act 2006 and ESOS

Framework	Definition of ‘large’
Companies Act 2006	Where two or more of the following criteria apply to a company within a financial year: <ul style="list-style-type: none"> • More than 250 employees • Annual turnover greater than £36m • Annual balance sheet total greater than £18m There are ‘smoothing provisions’ which apply where a company crosses over the size threshold, a change must persist for two years to have an effect on the company’s classification. <i>These thresholds are set out in sections 465 and 466 of the Companies Act 2006 and are updated from time to time. At group level the financial thresholds are on an aggregate basis.</i>

³³ ESOS applies to “relevant undertakings” defined as “large undertakings” and their corporate groups, in the private and third sectors. A “large undertaking” for the purposes of ESOS includes a UK company which employs 250 or more people, or meets specific financial criteria, as defined on the ESOS website: <https://www.gov.uk/guidance/energy-savings-opportunity-scheme-esos#find-out-if-you-qualify>

ESOS
as used in this
IA, unless
otherwise stated

Undertakings:

- i) which employ an average of 250 or more people in a certain 12 month period, or an annual turnover in excess of €50m and an annual balance sheet total in excess of €43m, and
- ii) where undertakings do not satisfy the specified employee or financial thresholds, but are either the UK parent of a 'large' undertaking, or a UK subsidiary of a 'large' UK undertaking, or a UK subsidiary of a parent who has a 'large' subsidiary.

Derived from the requirements of Article 8 of the Energy Efficiency Directive. 'Smoothing provisions' also apply.

Number of organisations in scope

59. Table 10 shows the number of individual large private and third sector organisations in scope of the CRC and ESOS, which are used to estimate the number of companies in scope of the SECR framework. The methodology behind these estimates is presented in Annex C.

Table 10 - Estimated large organisations in the CRC and ESOS by sector

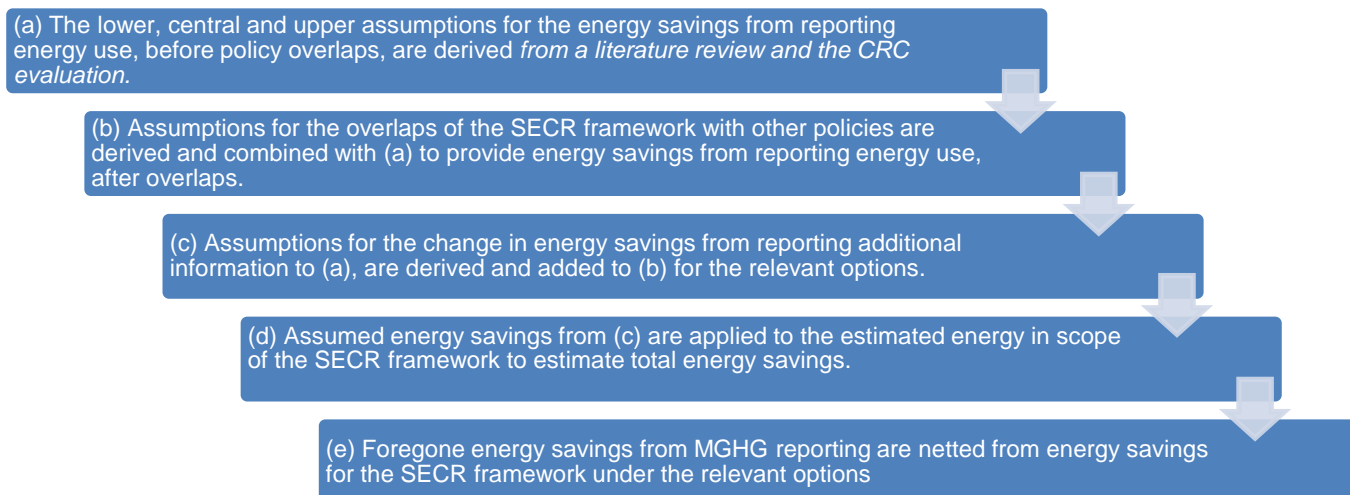
Policy	Large private and third sector organisations	Of which are companies	Source
CRC (Phase 2)	4,700	4,000	ESOS IA, CRC data
ESOS	10,700	9,100	Estimate from the EA

Figures have been rounded. 'EA' is the Environment Agency.

Benefits associated with a SECR Framework

60. **Energy savings.** Mandatory reporting schemes can drive organisations to implement energy efficiency measures, and therefore generate energy savings and reduce their energy bills. Existing evidence on reporting, including the Eunomia report and CRC evaluation identified the following key drivers of reporting mechanisms which are likely to drive energy savings:
- Mandatory rather than voluntary reporting;
 - Reports which require board or senior management sign-off;
 - Reporting the magnitude/costs of energy to increase their salience;
 - Structured and standardised reporting formats; and
 - Reputational drivers, for example the publication of data on emissions
61. This IA estimates participant energy savings for each option using a staged approach, as illustrated in Figure 2 and explained further in Annex C. The estimated average annual energy savings are **1.90 TWh, 2.44 TWh and 2.69 TWh** in Options 2, 3 and 4 respectively, with no savings under Option 1.

Figure 2 - Methodology for estimating the energy savings of the SECR framework

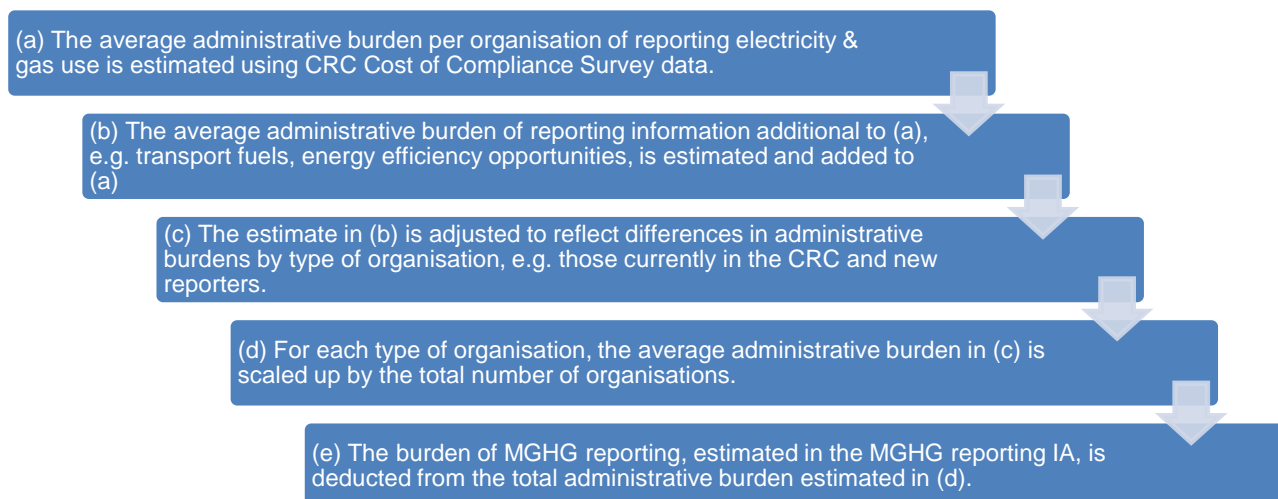


62. **Carbon savings and air quality improvements.** Higher energy savings lead to a fall in greenhouse gas emissions and improvements in air quality. On an average annual basis over 2019-2035, the estimated reduction in traded and non-traded carbon emissions are **0.19 and 0.18MtCO₂e respectively** in Option 2, **0.24 and 0.24 MtCO₂e** in Option 3 and **0.26 and 0.27 MtCO₂e** in Option 4 (no savings under Option 1), with an associated improvement in air quality of **£4.08m to £5.5m** (no improvements under Option 1).
63. **Noise pollution benefits.** More efficient engines tend to be quieter; energy efficiency savings in the transport sector therefore lead to reductions in noise pollution. The same approach is used as set out in paragraphs 26 to 27 to estimate the average ratio between noise benefits and carbon savings in the transport sector. The average ratio is used as it is not known with certainty which energy efficiency measures would be undertaken as a result of the SECR framework. The annual average reduction in noise pollution is estimated to be **£4.9m, £6.3m and £6.9m** in Options 2, 3 and 4 respectively over 2019-2035 (no reduction under Option 1).

Costs associated with a SECR Framework

64. **Administrative burdens to participants.** A new mandatory reporting scheme imposes an administrative burden on organisations as they need to use staff time or pay external contractors in order to understand the rules and to collect, analyse and disclose the required data. This IA estimates participant administrative burdens for each option using a staged approach, as illustrated in Figure 3 and explained further in Annex C. The estimated average annual administrative burdens are **£9.6m, £11.8m and £14.2m** in Options 2, 3 and 4 respectively, with no burdens under Option 1.

Figure 3 - Methodology for estimating the administrative burdens of the SECR framework



65. **Increased capital, hidden and operational costs.** The capital, hidden and operational costs associated with implementing energy efficiency measures have been estimated using the same approach set out in paragraphs 26 to 27. Average annual energy savings, which range from 1.90TWh to 2.69TWh between the options, are estimated to increase annual average capital, hidden and operational costs by **£75m, £95m and £105m** in Options 2, 3 and 4 respectively.
66. Table 11 illustrates the incremental impact of introducing a SECR framework once the CRC has been closed (Part 1a) and CCL rates increased and rebalanced (Part 1b). As such, the impacts presented below are additional to those presented in Part 1b.

Table 11 - Estimated costs and benefits of the different Options for a SECR framework, 2019-2035

Average Annual impacts, 2019 to 2035		Option 1	Option 2	Option 3	Option 4
Benefits	Increase in energy savings, TWh	0.0	1.90	2.44	2.69
	Decrease in noise pollution, 2016 £m	0.0	4.87	6.28	6.91
	Increase in traded carbon savings, MtCO ₂ e	0.0	0.19	0.24	0.26
	Increase in non-traded carbon savings, MtCO ₂ e	0.0	0.18	0.24	0.27
	Improvement in air quality, 2016 £m	0.0	4.08	5.03	5.54
Costs	Increase in business participants' administrative costs, 2016 £m	0.0	9.64	11.78	14.22
	Increase in capital, hidden and operational costs, 2016 £m	0.0	75	95	105

67. Under Option 1, no SECR framework is introduced. There are thus no additional costs or benefits after the CRC is closed and CCL rates are increased and rebalanced.
68. Comparing Options 2- 4 illustrates the trade-off between energy savings and administrative burdens. Option 3 has higher energy savings than Option 2 but it also has higher administrative burdens, due to the additional companies in scope. Similarly, energy savings associated with Option 4 are higher than Option 3 because of the additional reporting requirements that also lead to increased administrative burdens. Therefore, Option 3 is the central Option that lies between the two other options for a streamlined energy and carbon reporting framework.

Key risks and uncertainties

69. The largest uncertainty in the analysis is around the assumed energy savings from the SECR framework. There is limited evidence to quantify the impact of the specific reporting schemes that are proposed in each Option, so a combination of illustrative assumptions and evidence from related schemes have been used. As a result, the estimated energy savings may have been over- or underestimated.
70. Likewise, there is also considerable uncertainty over policy interactions, particularly with ESOS, and illustrative assumptions have been made in the absence of quantitative information. Given the materiality of these assumptions, sensitivity analysis is set out in Part 3. **Further, we invite views from respondents to the accompanying consultation on the analysis and evidence presented in this IA.**

PART 3 – IMPACT OF THE COMBINED PACKAGE

71. Part 3 of this IA presents the combined impact of the simplification package, aggregating the impacts of:
- Closure of the CRC (Part 1a);
 - Increasing and rebalancing CCL rates (Part 1b); and
 - Introducing a SECR framework (Part 2).

Costs and benefits associated with the Combined Package

72. Table 12 shows the combined annual average impact of the simplification package as compared to the counterfactual. Total impacts over the appraisal period are monetised and discounted in Table 14.

Table 12 – The estimated change in annual energy use, emission and business administrative burdens from the simplification package, 2019-2035

Average annual impacts, 2019 to 2035		Option 1	Option 2	Option 3	Option 4
Energy use, TWh	Counterfactual energy use	1,116.9	1,116.9	1,116.9	1,116.9
	<i>[Part 1a] Impact of CRC closure</i>	2.8	2.8	2.8	2.8
	<i>[Part 1b] Impact of CCL rate changes</i>	-5.0	-5.0	-5.0	-5.0
	<i>[Part 2] Impact of SECR framework</i>	0.0	-1.9	-2.4	-2.7
	<i>[Part 3] Impact of total package</i>	-2.2	-4.1	-4.6	-4.9
	After all policy changes	1,114.7	1,112.8	1,112.2	1,112.0
Emissions, MtCO ₂ e	Counterfactual emissions	237.1	237.1	237.1	237.1
	<i>[Part 1a] Impact of CRC closure</i>	0.5	0.5	0.5	0.5
	<i>[Part 1b] Impact of CCL rate changes</i>	-0.9	-0.9	-0.9	-0.9
	<i>[Part 2] Impact of SECR framework</i>	0.0	-0.4	-0.5	-0.5
	<i>[Part 3] Impact of total package</i>	-0.4	-0.8	-0.9	-0.9
	After all policy changes	236.7	236.4	236.2	236.2
Business administrative burdens, 2016 £m	Counterfactual administrative costs	22.6	22.6	22.6	22.6
	<i>[Part 1a] Impact of CRC closure</i>	-19.9	-19.9	-19.9	-19.9
	<i>[Part 1b] Impact of CCL rate changes</i>	0.0	0.0	0.0	0.0
	<i>[Part 2] Impact of SECR framework</i>	0.0	9.6	11.8	14.2
	<i>[Part 3] Impact of total package</i>	-19.9	-10.3	-8.1	-5.7
	After all policy changes	2.7	12.4	14.5	16.9

Source: EEP, CRC Cost of Compliance study. Figures may not sum due to rounding.

73. Table 13 presents the breakdown of carbon impacts for each change considered in this IA. Closing the CRC decreases total carbon savings by 8.8 MtCO₂e over 2019-2035, mostly in the non-traded sector, and increasing and rebalancing CCL rates after closing the CRC saves 15.6 MtCO₂e. Introducing the central SECR framework option saves an estimated additional 8.1MtCO₂e, meaning that the whole package saves approximately 14.9MtCO₂e over 2019-2035.

Table 13 - Estimated lifetime carbon savings of Option 3 by policy change, 2019-2035

MtCO ₂ e	Total impact, 2019 to 2035			Combined package (Sum of Parts 1 & 2)
	Closure of the CRC (Part 1a)	Increase & rebalance CCL rates (Part 1b)	Introducing a SECR framework - Option 3 (Part 2)	
Traded carbon savings	-1.3	5.5	4.0	8.3
Non-traded carbon savings	-7.5	10.0	4.1	6.6
Total carbon savings	-8.8	15.6	8.1	14.9

Figures may not sum due to rounding.

74. Table 14 illustrates the costs and benefits of the combined policy package in present value terms.

Table 14 - Estimated lifetime costs and benefits of the combined package for each Option, 2019-2035

2016 PV £m	Total impacts of package over 2019 to 2035 under			
	Option 1	Option 2	Option 3	Option 4
Energy savings	1,087	2,324	2,567	2,715
Traded carbon savings	139	235	257	269
Non-traded carbon savings	142	303	363	385
Air quality improvements	36	84	95	101
Noise pollution impacts	0	58	74	82
Total benefits	1,404	3,003	3,357	3,552
Administrative burden to business	-234	-118	-93	-64
Administrative burden to public sector	-66	-66	-66	-66
Capital costs	825	1,777	2,039	2,160
Hidden costs	117	172	186	193
Operational costs	95	204	234	248
Total costs	738	1,969	2,300	2,471
Net Present Value	666	1,034	1,057	1,081

Figures may not sum due to rounding. Positive figures indicate an increase in costs/benefits, while negative figures represent a decrease.

75. Although Option 1 has a positive NPV, the energy and carbon savings are significantly lower than the other options. If no SECR framework is introduced to replace the reporting elements of the CRC, it fails to address some barriers to energy efficiency like information failures or misaligned financial incentives. Option 1 is not considered a feasible option, given the undesirable consequences for energy savings and carbon emissions reductions.
76. Options 2-4, which involve the introduction of a streamlined energy and carbon reporting framework to replace the reporting elements of the CRC, have greater energy and carbon savings than Option 1. The NPVs of Options 2-4 are of a similar order of magnitude, and are all greater than that of Option 1. Option 3 has a slightly higher NPV than Option 2 because although it has greater administrative burdens, it also has higher energy and carbon savings. Similarly, Option 4 has a slightly higher NPV than Option 3 since it has higher energy savings despite having higher administrative burdens. Therefore, Option 3 is the central option since it lies between Options 2 and 4.
77. Table 15 presents the average annual and transition impacts of each option. Transition costs are defined as the initial one-off costs associated with the SECR framework (Annex E lists the 'one-off' and 'on-going'

activities required under the SECR framework)³⁴. As a SECR framework is not introduced under Option 1, there are no transition costs from the simplification package. Option 2 has higher transition costs than Options 3 and 4 because companies are required to measure their electricity use in order to determine whether they are in scope of the scheme (in Options 3 and 4 the scope is all qualifying large companies required to file annual reports, it is not defined by an energy use threshold). There are no transitional benefits associated with introducing a SECR framework. Note these figures are undiscounted and thus differ from table 14, but are identical to the estimates in the cover sheets. Tables 19 and 20 in the Sensitivity Analysis section give high and low estimates of transition costs and benefits.

Table 15 – Estimated lifetime transition costs and benefits of the combined package under each option, 2019-2035

2016 £m, undiscounted		Option 1	Option 2	Option 3	Option 4
Benefits	Total benefits	2,190.1	4,546.5	5,067.2	5,355.0
	<i>Of which transition benefits</i>	0.0	0.0	0.0	0.0
	Average annual benefits (excl. transition benefits)	128.8	267.4	298.1	315.0
Costs	Total Costs	590.5	2,026.8	2,413.2	2,616.9
	<i>Of which transition costs</i>	0.0	12.1	8.1	8.1
	Average annual costs (excl. transition costs)	34.7	118.5	141.5	153.5

78. Table 16 shows the incremental impact of each element of the package analysed in this IA for the central Option. From left to right, the first column ('Closure of the CRC') is compared to the counterfactual of all current and planned policies in place before Budget 2016, as set out in the introduction. The second column ('Increase & rebalance CCL rates') illustrates the incremental impact of increasing CCL rates following the closure of the CRC. The third column ('introducing a SECR framework') presents the impact of introducing a SECR framework (Option 3). The cumulative impact of the simplification package can be seen from the final column ('combined package'), which is the sum of the previous three columns.

Table 16 - Estimated costs and benefits of the combined package under Option 3 by policy change, 2019-2035

2016 PV £m	Total impact, 2019 to 2035			Combined package (Sum of Parts 1 & 2)
	Closure of the CRC (Part 1a)	Increase & rebalance CCL rates (Part 1b)	Introducing a SECR framework (Option 3) (Part 2)	
Energy savings	-739	1,826	1,481	2,567
Traded carbon savings	-38	177	118	257
Non-traded carbon savings	-393	535	221	363
Air quality improvements	-21	57	59	95
Noise pollution impacts	0	0	74	74
Total benefits	-1,191	2,595	1,953	3,357
Admin. burden to business	-234	0	141	-93
Admin. burden to public sector	-66	0	0	-66
Capital costs	-1,214	2,039	1,214	2,039
Hidden costs	-168	285	68	186
Operational costs	-152	247	140	234
Total costs	-1,834	2,571	1,562	2,300
Net impact	642	24	391	1,057

³⁴ The one-off costs to participants last one year.

Figures may not sum due to rounding. Positive figures indicate an increase in costs/benefits, while negative figures represent a decrease.

Impacts in Devolved Administrations

79. The analysis in this IA presents all results at the UK level, and assumes that the package of policy changes applies to all of the UK. This section presents a high level approach that could be used to disaggregate UK level impacts by each Devolved Administration (DA).
80. This approach involves apportioning UK impacts to each devolved area using the proportion of CRC and ESOS participants headquartered in each geography, as shown in Table 17. It is proposed that for Option 2, the proportion of CRC participants is applied to each of the three policy changes covered in this document, as there is no evidence to suggest that the relative impacts in each geography will differ considerably across each of the policy changes. For Options 3-4, the proportion of ESOS participants headquartered in each geography would be more appropriate, given the wider scope of this option. This approach assumes that the average costs and benefits of the policy changes per organisation are of a similar magnitude across each respective geography.

Table 17 - Potential disaggregation of impacts by DA

Data used for disaggregation	England	Scotland	Wales	Northern Ireland	UK total
Count of ESOS participants ³⁵	90%	6%	2%	2%	100%
Count of CRC participants ³⁶	88%	7%	3%	3%	100%

Figures may not sum due to rounding.

Qualitative analysis of non-monetised impacts

81. Although the impacts described below have not been quantified, it is not expected that their exclusion would affect the central Option or the ordering of the options considered in this IA. These impacts are expected to be proportionally similar across the options:
- **The rebound effect.** Bill savings resulting from energy efficiency investments may be spent on other energy-using goods and services. This reduces the estimated overall energy savings resulting from energy efficiency policies.
 - **Government resource costs.** There may be costs to government from implementing the SECR framework, e.g. providing guidance or gathering data which is reported. These costs have not been quantified at present, but will be included in the final IA to the extent that further information is available.
 - **Benefits from publishing data.** Improving publically available information on energy efficiency opportunities, by publishing reporting data could: (i) attract entrepreneurs and innovators to enter the market for energy efficiency, helping to overcome the ‘embryonic markets’ barrier; (ii) improve the evidence base available for policy development.
 - **Reputational impacts on businesses from publishing emissions.** Publicising an organisation’s emissions could affect revenue for the business from environmentally conscious customers, e.g. the improved image of products and services attracting customers away from rivals. Both mechanisms create an incentive to invest in energy efficiency.
 - **Productivity, competitiveness and economic growth impacts.** Energy efficiency has the potential to boost growth and lead to productivity gains for firms. Evidence suggests that small and positive

³⁵ Environment Agency data

³⁶ Environment Agency data

impacts exist at both economy wide and firm level.³⁷ Energy efficiency investments reduce business costs, meaning they can deliver more for less. Capital spending creates jobs for installers and manufacturers of energy efficient equipment. Investment in energy efficiency can also increase innovation.

- **Increased salience for energy efficiency.** By increasing the salience of energy efficiency at the board level, mandatory reporting could lead to energy efficiency investments being made in other parts of the organisation where reporting is not mandated. Having the opposite effect, organisations could switch fuels from those they have to report on to those they do not, but not improve their efficiency.
- **Security of supply.** Reducing energy demand through energy efficiency also improves security of supply. It reduces the UK’s exposure to volatile international energy markets and means less energy infrastructure is required, lowering the overall costs of the energy system.
- **Legacy of the CRC.** The analysis estimates legacy energy savings from actions attributed to the CRC (see paragraph 23). However the analysis assumes that no new energy efficiency actions attributable to the CRC will occur once the scheme finishes.

Sensitivity analysis

82. This section tests the assumptions with the greatest uncertainty to examine how materially they affect the results presented in this IA. For each assumption, lower and/or upper bounds have been informed by evidence where possible; however in some cases illustrative variations are applied.
83. In this consultation IA no preferred option is being given. The impacts on the NPV for Option 3 (central option) from varying these assumptions are presented in Figure 4.
84. Table 18 describes the specific assumptions tested. The most uncertain and material assumptions are marked with an asterisk ‘*’ and are combined to estimate ‘low’ and ‘high’ NPV scenarios for each Option in Tables 19 and 20. These are as follows: Energy savings of a SECR framework; Capital costs; Policy overlaps; Price elasticity of demand; Energy in scope; and Administrative burdens of the SECR framework.

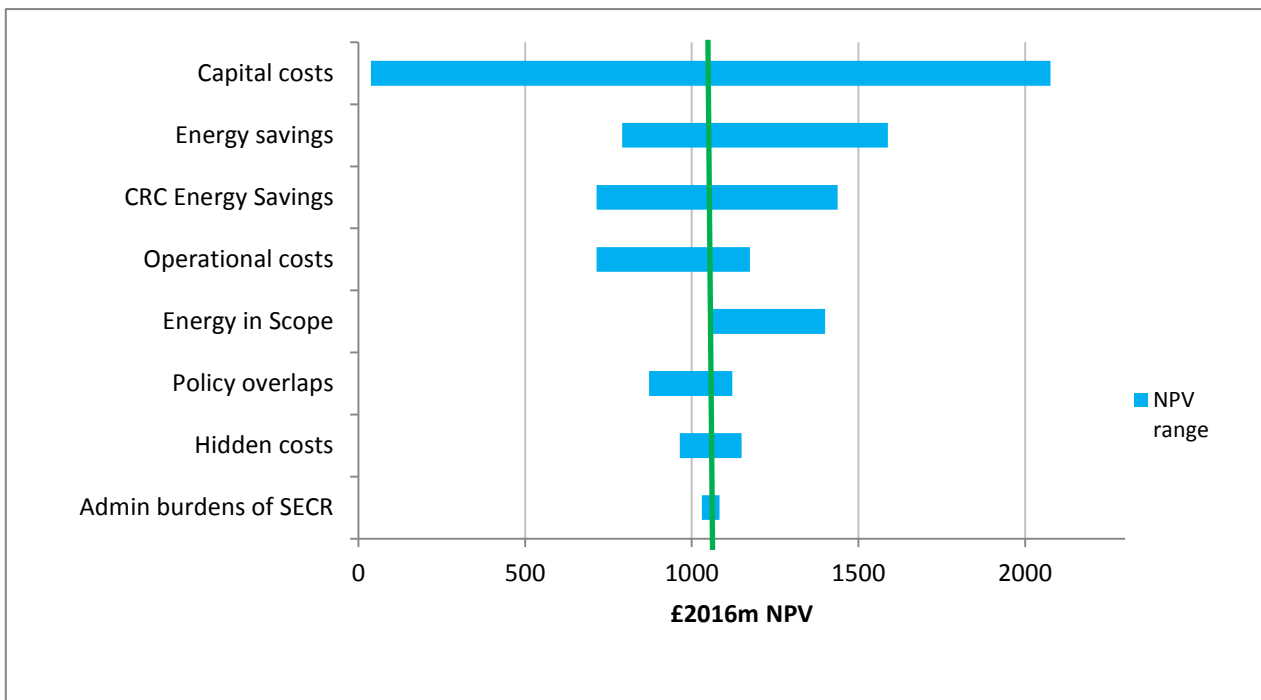
Table 18 – Summary of sensitivity analysis results for Option 3

Assumption	Description	Policy change affected	Impact on NPV (NPV Range, £m)
Energy Savings*	The lower and upper bound assumed energy savings of the SECR framework are used (see Table 29)	SECR framework	791 – 1,588
Capital costs*	The ratios of capital costs to energy savings are increased or decreased by 50%	All	38 - 2,076
Policy overlaps*	The lower and upper bound assumptions for policy overlaps are used (see Tables 27 and 28)	SECR framework	872 - 1,122
Price elasticity of demand*	The price elasticity of demand is increased and decreased by 50%	Change in CCL rates	1,045 - 1,069

³⁷ Vivid Economics, 2013, *Energy efficiency and economic growth*, http://www.vivideconomics.com/wp-content/uploads/2015/03/Vivid_Economics_-_Energy_efficiency_and_economic_growth.pdf
 Allan G, Hanley N, McGregor PG, Swales JK & Turner K (2007), The impact of increased efficiency in the industrial use of energy: A computable general equilibrium analysis for the United Kingdom, *Energy Economics*, 29 (4), pp. 779-798, https://dspace.stir.ac.uk/bitstream/1893/7681/1/Allan%20et%20al_Energy%20Economics_2007_turner%20last.pdf
 Cambridge Centre for Climate Change Mitigation Research, 2006, *The macro-economic rebound effect and the UK economy*, http://ukerc.rl.ac.uk/pdf/ee01015_final_b.pdf

Energy in scope*	Electricity and gas use of large organisations is increased by 50%. Note that a lower value is not applied as the current analysis already uses a lower bound assumption (see Annex D for details on estimating energy in scope)	SECR framework	1,057 - 1,400
Operational costs	The ratios of operational costs to energy savings are increased or decreased by 50%.	All	940 - 1,174
Hidden costs	The ratios of hidden costs to energy savings are increased or decreased by 50%.	All	964 - 1,150
CRC energy Savings	For the lower bound, lost energy savings from closing the CRC assumed to be zero. For the upper bound, legacy savings of the CRC assumed to be zero.	Closure of the CRC	714 - 1,438
Administrative burdens of the SECR framework*	Administrative burdens of the SECR framework varied by +/-15.5%, using the 95% confidence interval of from the Cost of Compliance Survey.	SECR framework	1,030 - 1,084

Figure 4 - Sensitivity analysis for Option 3



85. Tables 19 and 20 present 'high' and 'low' scenarios, which have been constructed based on varying the assumptions with the greatest uncertainty, and which the results are most sensitive to.

Table 19 - Sensitivity analysis: results of low NPV scenario

Low NPV Scenario, 2016 £m	Option 1	Option 2	Option 3	Option 4
Total transition costs	0	14	9	9
Total transition benefits	0	0	0	0
Average annual undiscounted costs	-26	-12	-8	-5
Average annual undiscounted benefits	16	40	44	47
Total costs (PV)	-282	-91	-47	-7
Total benefit (PV)	117	391	442	475
NPV	399	481	489	482

Figures may not sum due to rounding.

86. The **low NPV scenario** assumes low energy savings, high capital costs, high policy overlaps, a low price elasticity of demand for energy, no change to the assumed energy in scope (since the central assumption is already considered to be conservative) and high administrative burdens of the SECR framework. The NPVs for all options are positive, and of a similar order of magnitude. Energy savings under the low scenario are considerably smaller than the central scenario for all options, resulting in lower benefits and thus lower NPVs.
87. The costs are negative for all options, because the increase in costs from changing CCL rates and introducing the SECR framework are outweighed by the reduction in costs from the closure of the CRC. The assumptions in the low scenario (such as a lower price elasticity of demand and lower energy savings from reporting) cause a reduction in the energy savings from the CCL changes and the SECR framework, but they do not affect the change in energy savings from closing the CRC. The capital, hidden and operational costs associated with these energy savings are therefore reduced for the CCL changes and the SECR framework, and thus become outweighed by the changes in capital, hidden and operational costs from closing the CRC.
88. The **high NPV scenario** assumes high energy savings, low capital costs, low policy overlaps, a high price elasticity of demand for energy, and a high estimate of the energy in scope and low administrative burdens of the SECR framework. The NPVs for all options are positive and significantly greater for Options 2-4 than for Option 1. Energy savings under the high scenario are significantly larger than the central scenario for all of the options, which results in greater benefits and therefore greater NPVs. The total costs are also larger for the high scenario, because the increase in energy savings leads to an increase in the capital, hidden and operational costs associated with energy efficiency measures.

Table 20 - Sensitivity analysis: results of high NPV scenario

High NPV Scenarios, 2016 £m	Option 1	Option 2	Option 3	Option 4
Total transition costs	0	10	7	7
Total transition benefits	0	0	0	0
Average annual undiscounted costs	66	293	356	386
Average annual undiscounted benefits	246	912	1,062	1,143
Total costs (PV)	1,121	4,422	5,331	5,765
Total benefit (PV)	2,734	10,419	12,148	13,089
NPV	1,614	5,996	6,817	7,325

Figures may not sum due to rounding.

Equivalent Annual Net Direct Cost to Business

89. The EANDCB and Business NPV estimates presented on the cover sheet capture the following:
- Reduced administrative burdens from removing MGHG reporting;

- Increased administrative burdens from introducing a SECR framework.

Estimates of the total administrative burden of the policy options (including the closure of the CRC) can be found in Table 21 and 22 below.

90. As the CRC is classed as an environmental tax³⁸ for the purposes of regulatory accounting, the fall in administrative burdens from closing the CRC is not in scope. This is consistent with the treatment of the CRC in the 2013 Impact Assessment³⁹. As a result, for the purposes of Option 1 (where no SECR framework is introduced to replace the reporting elements of the CRC) would not entail any direct costs or benefits for businesses. In reality, however, the closure of the CRC will result in a reduction in administrative burdens for businesses which will offset the increase in burdens resulting from introducing the SECR framework in Options 2-4. Hence, in addition to the regulatory EANDCB (presented on the cover sheet), this IA also provides a total EANDCB. This latter value includes the reduction in direct costs from closing the CRC. While the tax review package is classed as an 'IN' for regulatory purposes, including the impact of closing the CRC results in a negative total EANDCB and a reduction in administrative burdens to business. Both EANDCBs estimates exclude impacts on the public sector.
91. The business NPV and EANDCB does not include changes to cost recovery charges to participants of CRC or the SECR framework. Robust estimates are not currently available: the final stage IA will attempt to include this.
92. Table 21 shows the business NPVs for each option. These estimates are used to calculate the EANDCB by applying annuity rates and rebasing to 2014 prices and 2015 present values.

Table 21 - Estimated Business NPV for each option, 2019-2035

2016 prices, 2016 present value	Option 1	Option 2	Option 3	Option 4
Regulatory Business NPV	£0m	-£116m	-£141m	-£170m
<i>Total Business NPV</i>	<i>£234m</i>	<i>£118m</i>	<i>£93m</i>	<i>£64m</i>

93. Table 22 outlines the EANDCB values for each option. In line with BEIS Impact Assessment guidance, the EANDCB values have been converted into 2014 prices using the GDP deflator from the Business Impact Target Calculator⁴⁰, rather than the GDP deflator in the IAG appraisal guidance⁴¹ which has been used elsewhere in the analysis presented in this IA.

Table 22 - Estimated EANDCB values for each option, 2019-2035

2014 prices, 2015 present value	Option 1	Option 2	Option 3	Option 4
Regulatory EANDCB	£0m	£8.5m	£10.2m	£12.3m
<i>Total EANDCB</i>	<i>-£17.0m</i>	<i>-£8.6m</i>	<i>-£6.8m</i>	<i>-£4.7m</i>

Small and Micro business assessment

³⁸ HMT, 2012, *Definition of environmental tax published*, <https://www.gov.uk/government/news/definition-of-environmental-tax-published>

³⁹ Paragraph 5, DECC, 2013, *Simplification options for the CRC Energy Efficiency scheme to help businesses*: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/138377/CRC_Simplification_Final_Stage_Impact_Assessment_December_2012_updated.pdf

⁴⁰ BIS, 2016, *Impact assessment calculator*, <https://www.gov.uk/government/publications/impact-assessment-calculator--3>

⁴¹ BEIS, *Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal*.

94. A Small and Micro business assessment (SaMBA) is mandatory for all new domestic regulatory proposals. As outlined in paragraph 56, individual small and medium companies will not be in scope of the regulatory SECR framework, which will apply under Option 2 only to company groups using over 6GWh of electricity (assumed to all be large under ESOS definition, which is assumed to be a good proxy for coverage under other definitions – see paragraphs 57-8 and Table 9) or under Options 3 and 4 only to large companies: thus by definition there is no risk that it will generate disproportionate impacts for small and micro businesses. This is consistent with the SaMBA presented in the ESOS IA, which has a similar organisational scope.

Distributional impacts

95. The administrative burdens vary across organisations depending on what policies they are currently covered by. Table 23 illustrates how these impacts vary. All options see a reduction in administrative burdens for the average organisation currently subject to MGHG reporting and/or in the CRC . For organisations not currently in the CRC or subject to MGHG reporting, Options 3 and 4 result in an increase in administration burdens on average.

Table 23 - Estimated change in administrative burdens by organisation type, 2019-2035

Average change in annual administrative burden per organisation, 2019-2035, 2016 £		Option 1	Option 2	Option 3	Option 4
Businesses in the SECR framework	In the CRC but not in MGHG reporting	-4,200	-1,100	-1,200	-1,000
	In the CRC and in MGHG reporting	0	-3,600	-3,700	-3,400
	Not in the CRC or MGHG reporting	0	0	500	700

Figures have been rounded.

Competition Test

96. There will be no significant impacts on competition as a result of the overall package of policy changes. Under the existing policy landscape, businesses pay different tax rates on their energy use. Organisations in the CRC pay higher tax rates than their non-CRC, full CCL rate equivalents. Removing this asymmetry will remove competitive distortions, to the extent that they exist, between CRC and non-CRC firms operating in the same market.

Enforcement

97. Monitoring of non-financial reporting is undertaken by the Financial Reporting Council, and looks for false/reckless disclosures but does not check non-financial content. It is not proposed that additional monitoring or enforcement activities are added to this regime.

Evaluation plan

98. If implemented, the Government will review the impact of the SECR framework. This review may include an evaluation of the quantitative impact of the SECR framework and a qualitative understanding of the process through which it affects the energy efficiency of different enterprises.

99. Provisional evaluation questions may include:

- What have been the outcomes and impacts of the SECR framework?
- Which, if any, are the most influential aspects of the SECR framework?
- What explains any impacts seen / how have they come about (or not)?
- How has this differed for the organisations in scope of the SECR framework?

- What are the administrative burdens of the SECR framework, for different organisations and compared to the previous reporting systems?

100. The key metrics used to evaluate the policy may include:

- The number of organisations reporting under the SECR framework;
- The overall change in costs to businesses reporting;
- Any energy and associated emissions savings realised by the SECR framework through reporting energy use and emissions;
- Financial savings to non-SMEs, delivered by the SECR framework.

As well as a qualitative assessment of e.g. the benefits to investors and others from increased transparency.

Key evaluation issues

Establishing additionality

101. In order to evaluate the impact of a SECR framework, it is necessary to isolate the impact directly attributed to the policy and strip out all other effects. This identifies the energy savings achieved as a result of the SECR framework *that would not have been achieved otherwise*. Additionality can be identified by comparing a ‘treatment’ group (those in the SECR framework) with a ‘counterfactual’ – organisations with identical characteristics, though not being in the policy. This can be difficult: characteristics are often related to eligibility for the policy, meaning there is no relevant population to compare to the ‘treatment’ group.

102. Approaches to establishing the counterfactual could include:

- Establishing the amount of energy efficiency potential identified in an organisation;
- Identifying action taken as a result of annually reporting this potential to decision makers;
- Identifying action taken as a result of publishing energy use and emissions;
- Accounting for organisations that would have published their energy use and emissions in the absence of mandated reporting; and
- Comparing the energy efficiency behaviours of organisations just within the eligibility threshold with those of organisations just below the threshold.

If a suitable counterfactual can be identified, an evaluation will also have to ensure that there is data which can estimate robustly the different impacts for the SECR framework and comparison groups.

Policy overlap

103. An evaluation of the SECR framework would need to consider the impact of other policy mechanisms designed to bring about improved energy efficiency in organisations. As outlined in Part 2, there will be a number of overlaps with policies such as ESOS. This means that any evaluation would need to distinguish between the impact of the SECR framework and overlapping policies. Evaluation would align closely with wider non-domestic research and other policy evaluations, in order to account for cumulative impacts, where this would be found to be feasible.

104. The Government is committed to reviewing the SECR framework, if implemented. The planned publication date for the post-implementation review will be set out in the final stage IA.

Annex A – Costs and benefits of reporting global GHG emissions by quoted companies

Costs of reporting global GHG emissions

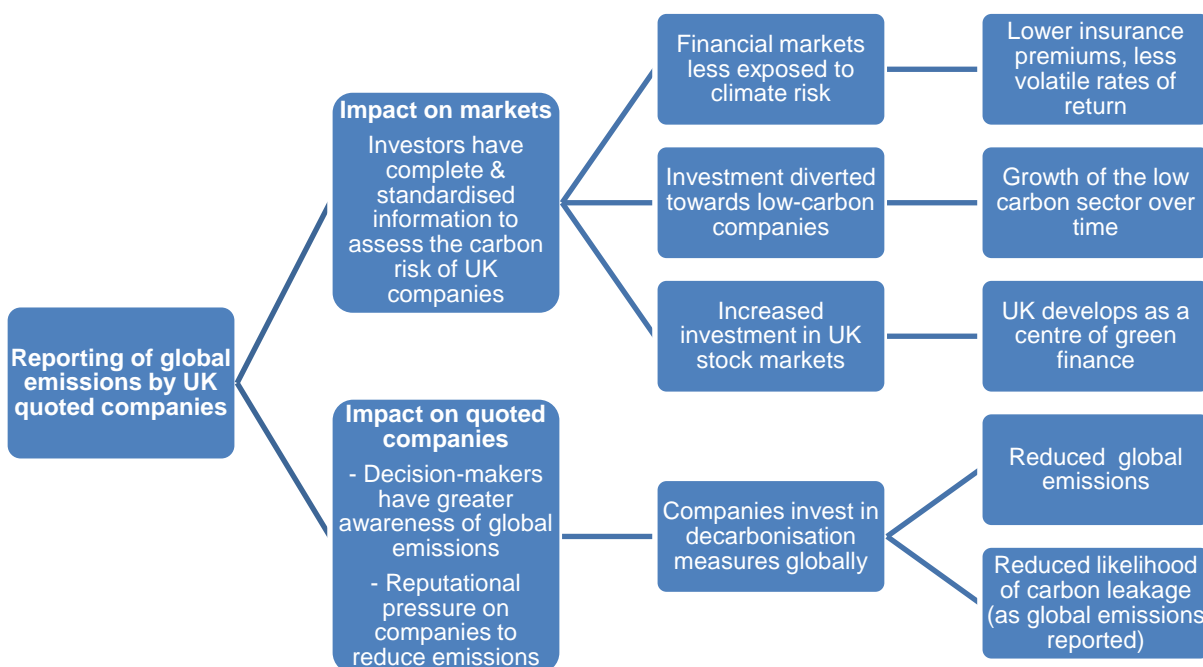
As discussed in paragraph 55, it is assumed that quoted companies would already be required to measure and report their UK GHG emissions for the purposes of the SECR framework. Thus only the reporting of international GHG emissions (and underlying energy) represents an additional burden compared with the unquoted companies in scope. In the final impact assessment for MGHG reporting⁴², the cost of reporting international emissions was not included in the NPV estimate, due to the lack of evidence available.

However, the CRC Cost of Compliance survey attempted to capture the administrative burdens of MGHG reporting for CRC participants. Based on this survey data, the average annual cost of reporting international emissions for MGHG reporting was estimated at £1,400 per business. Multiplied by the number of quoted companies in the UK (1,242 companies as at 31st March 2016⁴³), this provides a total estimated cost of approximately £1.7m per year from reporting international emissions. However, this should be treated with extreme caution, as the sample is very small (a total of only 17 respondents), and may suffer from selection bias, given that survey respondents were selected based on their participation in the CRC.

Benefits of reporting global GHG emissions

Figure 5 identifies the main benefits of global emissions reporting and how they are likely to occur, distinguishing between impacts on financial markets and impacts on the companies which are reporting.

Figure 5 - The benefits of requiring quoted companies to report on their global GHG emissions



Impact on markets - Providing standardised information on global emissions to investors allows them to evaluate effectively the exposure of assets to climate risk – for example which companies are most at risk

⁴² Defra, 2012, *Impact Assessment of Options for Company GHG Reporting*.

⁴³ London Stock Exchange, <http://www.londonstockexchange.com/statistics/companies-and-issuers/companies-and-issuers.htm>

of reputational damage or increased environmental regulation. This addresses the issue of incomplete information and allows financial markets to function more efficiently, as investors and insurers are better able to assess risks. This is likely to result in more stable outcomes in financial markets, such as lower insurance premiums and less volatile rates of return. As investment is attracted towards companies with lower global emissions, the rate of return of low carbon technologies is likely to increase, facilitating the long-term growth of the low carbon sector.

The requirement for global emissions reporting could provide the UK with a competitive advantage over other financial markets, where standardised information on global emissions is not available. Investors are likely to be attracted to the UK stock market if it provides a greater amount of investment information than other international markets, which can help to position the UK as a global centre of green finance.

There is a lack of quantitative evidence available to monetise the benefits that have been described, as MGHG reporting has not been evaluated. However, these benefits have been qualitatively supported by a number of stakeholders in response to the 2015 consultation on the Business Energy Efficiency Landscape⁴⁴.

Impact on quoted companies - As set out in Part 2 and Annex B of this IA, the evidence on reporting suggests that the mandatory reporting of energy use/emissions is likely to drive organisational and behavioural change. For example, reporting energy and emissions can create a reputational incentive to act and increases the profile of energy/carbon issues with senior decision-makers. These findings are likely to be particularly applicable for international GHG emissions (and underlying energy) reporting, for example in geographies where emissions reporting is not required; in such cases, companies may have less knowledge of their carbon impact. Also, the reputational driver of reporting is likely to be enhanced for quoted companies, as investors can react immediately to the information by divesting in companies with high levels of global emissions. The likelihood of carbon leakage (defined as businesses deciding to relocate some operations to countries which have less regulation on carbon emissions) may also be reduced if international emissions cannot go unreported.

The final IA for MGHG reporting attempts to monetise carbon savings from international emissions in the sensitivity analysis, but does not include them in the main results due to the level of uncertainty associated with these estimates. The IA illustratively assumes, based on the available literature, that MGHG reporting causes international emissions savings of between 0% and 4%, for companies new to reporting global emissions. It estimates that the FTSE350 account for 652 MtCO_{2e} of international emissions per year, and that 108 of these companies are new to reporting. This method estimates emissions savings of between 0-8MtCO_{2e} per year. It should be noted that this analysis does not capture the impact on quoted companies outside of the FTSE350, meaning this estimate is likely to understate the emissions savings across all 1,242 quoted companies.

⁴⁴ Paragraph 2.9, HMT, 2016, *Reforming the business energy efficiency tax landscape*.

Annex B – Summary of literature review on the quantitative impact of reporting

The 2014 Eunomia reviewed the evidence on the impact of reporting of energy use⁴⁵. A selection of its conclusions is as follows:

- Qualitative evidence suggests reporting schemes drive energy efficiency behaviour; quantitative evidence on the causal relationship is limited;
- Mandatory reporting schemes appear to be more effective than voluntary reporting;
- Mandatory board-level sign off on reporting can drive investment in energy efficiency;
- Public disclosure of emissions (less evidence for energy use) is likely to incentivise behavioural change through reputational drivers; and
- Comparability is important when data are published: information that can be directly compared is more effective than information disseminated by individual organisations.

The 2014 CRC evaluation gathered evidence on the impact of the CRC between 2010 and 2012.⁴⁶ The evaluation found the main mechanisms driving the energy and emissions savings of the CRC were:

- The cost of allowances (both in raising awareness of, and in slightly improving the business case for, energy efficiency investments);
- Improved data and internal reporting on energy use;
- High-level sign-off of CRC allowances, which raised awareness at board level within some organisations;
- The reputational aspects of complying with the CRC; and
- Reputational aspects of CRC publications.

The lower bound assumption of the energy savings from the SECR framework has been informed by a literature review on the impact of energy reporting schemes. The evidence from this review is presented in Table 24 and clusters around an estimated annual energy savings of approximately 2%.

Table 24 - Summary of the quantitative evidence on the impact of reporting

Policy	Estimated energy savings	Source
National Australian Built Environment Rating System (Australia)	8%	2013/14 NABERS annual report ⁴⁷
Energy Star (US)	2%	Energy Star Data Trends report ⁴⁸
Display Energy Certificates (UK)	2%	Page 31, 2014 ESOS IA ⁴⁹
Energy Efficiency Opportunities (Australia)	2%	Page 83, 2014 Eunomia report ⁵⁰

⁴⁵ DECC, 2014, *Evidence Review of the Impact of Central and Public Disclosure Methods for Reporting Energy Use and Energy Efficiency*.

⁴⁶ DECC, 2015, *CRC Energy Efficiency Scheme Evaluation*.

⁴⁷ IPD, 2013, *IPD Australia Green Investment Property Index*, <https://www.nabers.gov.au/AnnualReport/life-of-program-statistics.html>

⁴⁸ Energy Star, 2012, *Benchmarking and Energy Savings*,

http://www.energystar.gov/ia/business/downloads/datatrends/DataTrends_Savings_20121002.pdf?3d9b-91a5

⁴⁹ DECC, 2014, *Energy Saving Opportunity Scheme IA*.

⁵⁰ DECC, 2014, *Evidence Review of the Impact of Central and Public Disclosure Methods for Reporting Energy Use and Energy Efficiency*.

Annex C – Detailed methodology for estimating number of organisations in scope, energy savings and administrative burdens

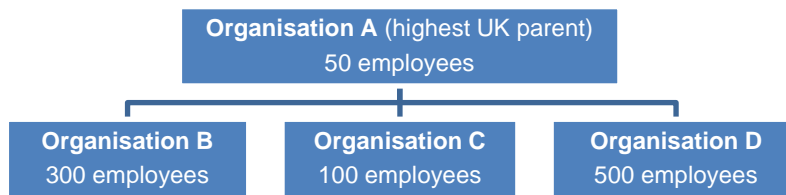
Number of organisations in scope

All UK quoted companies currently in scope of MGHG reporting will be in scope of SECR. It is assumed that these around 1,200 companies are a subset of the large company populations set out below. **We welcome views and evidence in relation to this assumption.**

In ESOS, the highest UK-based parent of each corporate group is responsible for ensuring compliance⁵¹. This is a different grouping rule to the CRC, where private and third sector organisations are grouped to their highest ultimate global owner. Different rules again apply under the Companies Act 2006 (see consultation Chapter 3 ‘Who should report’ for a description of grouping rules and the roles of parents under the approaches under consideration – those under the Companies Act 2006, ESOS and CRC), In all cases, it is clear that many of the groups in the SECR framework will therefore consist of several individual organisations.⁵²

The distinction between groups and individual organisations is illustrated in Figure 6. Figure 6 shows a corporate group, as at least one organisation within the group meets one of the ESOS criteria of ‘large’. The energy use and emission of all four organisations A, B, C & D in the group would be in scope of Options 3 and 4, and the entity(s) responsible for reporting would need to include the proposed energy and carbon information, either individually or for all organisations in the group, in annual reports to comply.

Figure 6 – An illustrative example of a group in the SECR framework



The analysis in this IA uses administrative burden estimates from the CRC Cost of Compliance study⁵³ to estimate the burden for the SECR framework. This requires the number of organisations in the CRC to be compared to the number of organisations in scope of the SECR framework. While data on total number of individual organisations in ESOS and the CRC is unavailable, the total number of individual ‘large’ organisations can be estimated.

The number of individual large private and third sector organisations in scope of ESOS (so under the ESOS definition, Table 9, which includes organisations like A and C above who may not individually meet the definition of ‘large’) is estimated at 10,700, based on the latest estimate from the EA. Data from the Business Population Estimates publication⁵⁴ indicate that 85% of large (in this case defined as those with 250 or more employees) private and third sector organisations are registered as companies, so the number of large companies in scope of Option 3 is therefore estimated at 9,100 (assuming that one ‘large’ definition is a good proxy for the other).

⁵¹ This role can be assigned to another group member, subject to an agreement from group members.

⁵² This IA focuses on the number of organisations in scope of the SECR framework, rather than the number of groups. This is because data gathering is likely to occur at the organisation rather than group level: thus administrative burdens are likely to be more closely related to the number of organisations, rather than the number of groups.

⁵³ BEIS, Assessment of costs to UK participants of compliance with Phase 2 of the CRC Scheme

<https://www.gov.uk/government/publications/assessment-of-costs-to-uk-participants-of-compliance-with-phase-2-of-the-crc-energy-efficiency-scheme>

⁵⁴ BIS, 2015, *Business population estimates*, <https://www.gov.uk/government/collections/business-population-estimates>

The estimated number of large private and third sector organisations in scope of the CRC is approximately 4,700. This figure was originally estimated in the ESOS IA⁵⁵ for Phase 1 of the CRC, and has been scaled down to reflect the lower number of participants in Phase 2. This number is also scaled down to 85% to reflect the proportion of organisations which are UK registered, unquoted companies, which produces an estimated scope of 4,000 companies under Option 2. Table 25 shows the number of individual large organisations and companies in the CRC and ESOS.

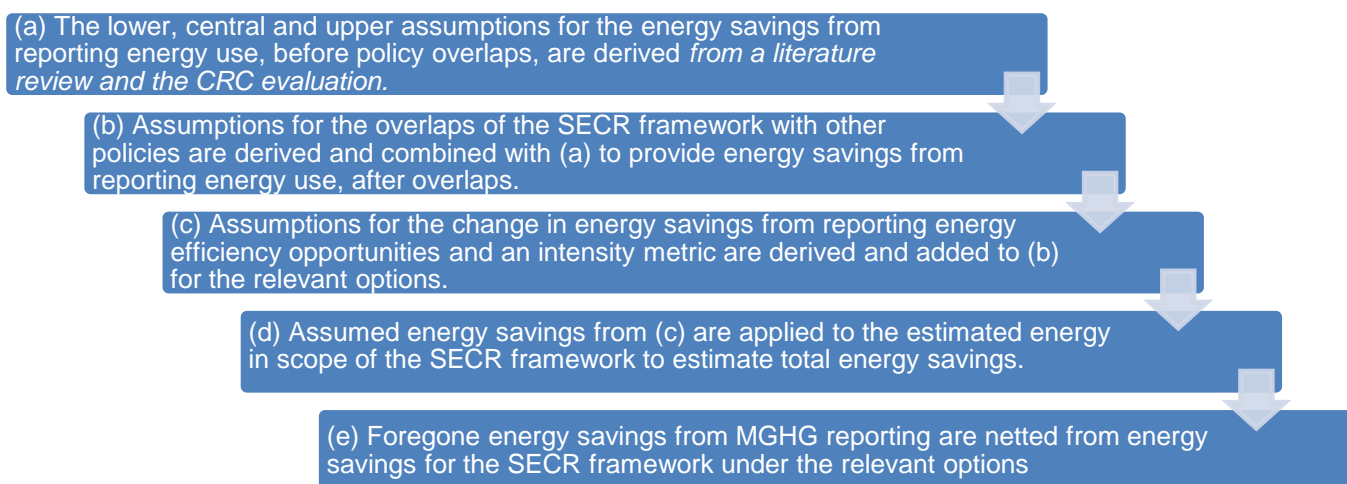
Table 25 - Estimated large organisations in the CRC and ESOS by sector

Policy	Large private and third sector	Of which are companies	Source
CRC (Phase 2)	4,700	4,000	ESOS IA, CRC data
ESOS	10,700	9,100	Estimate from the EA

Figures have been rounded.

Energy savings

Figure 7 - Methodology for estimating the energy savings of the SECR framework



a) Energy savings for new reporters

Table 26 presents the lower, central and upper bound assumptions for annual energy savings from reporting energy use. These assumptions are informed by evidence on ‘new reporters’, i.e. those not required to measure or report on energy use for other policies.

Table 26 - Annual energy savings assumptions (before overlaps) for reporting energy use

	Lower bound	Central	Upper bound
Estimated impact	2%	4%	8%
Informed by:	Literature review	Various	Analysis of CRC evaluation

This 2% estimate is used as a lower bound as the policies examined in the literature review lack one or more of the key drivers of behaviour change, as identified from the Eunomia report and CRC evaluation (see Annex B). There is uncertainty around this estimate as the evidence relates to various policies across different countries and policy contexts.

⁵⁵ Annex D, DECC, 2014, *Energy Saving Opportunity Scheme IA*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/323116/ESOS_Impact_Assessment_FINAL.pdf

The 8% upper bound assumption is derived from the CRC evaluation. The CRC evaluation compared CRC participants' energy use to the control group of 'information declarers' (organisations which fell just below the CRC electricity use threshold). The total savings estimated in the CRC was split into the 'price' element (from the purchase of CRC allowances), and the 'reporting' element (assumed to be the residual). The price element was estimated using the price elasticity of demand approach previously used to estimate the impact of the CCL on energy savings in Part 1b. Removing the 'price' element of these savings produces an estimate of annual energy savings from the reporting elements of the CRC of approximately 8%. However since the CRC evaluation relates to the early years of the scheme, these large energy savings may be short-term effects. The econometric analysis in the evaluation shows some evidence that energy savings began to fall towards the end of the period. Thus the estimate of 8% is used as an upper bound assumption.

The central assumption of 4% has been informed by a number of factors:

- 4% is a conservative midpoint between the lower and upper bound estimates of 2% and 8%.
- Using the energy savings of the CRC employed in EEP to estimate the reporting elements of the CRC yields an estimate of approximately 4%. This data is considered more appropriate than the evaluation for estimating the long term impact of the scheme.
- Evidence from the Energy Efficiency Opportunities Program in Australia found long term impacts of reporting to be approximately half the short-term impact (2-3 years)⁵⁶. Applying this ratio to the 8% estimate from the CRC evaluation, which captures the first three years of the scheme, yields approximately 4%.

There is limited evidence quantifying the impact of reporting transport energy use. The analysis in this IA therefore applies the same energy savings assumptions to both onsite and transport energy use.

(b) Energy savings after policy overlaps

Some organisations in scope of the SECR framework are already required to measure or report some of their energy use through other policies. The estimates in Table 26 do not account for policy overlaps, and therefore need to be scaled down to avoid double-counting.

The main overlap is with ESOS, which requires all large private and third sector undertakings to conduct an energy audit once every four years (or to take an alternative route to compliance such as being ISO50001 compliant). There is uncertainty over which energy efficiency measures will be taken up as a result of these audits: this results in uncertainty over the size of the overlap. As a result, illustrative lower, central and upper overlap assumptions are used.

Both ESOS and the SECR framework require the measurement of energy consumption; once every four years under ESOS, and annually for the SECR framework. Assuming measurements of energy use from ESOS can be re-used for the SECR framework (as SECR electricity, gas and transport is a subset of ESOS total energy use scope). In any given year, an average of 25% of organisations in the SECR framework are assumed to already be measuring their energy use. Thus the overlap is assumed to be at least 25%. (As noted below, there is no change in scope of emissions reported proposed for UK quoted companies, and underlying energy is already measured to calculated total global emissions).

⁵⁶ Page 83, DECC, 2014, *Evidence Review of the Impact of Central and Public Disclosure Methods for Reporting Energy Use and Energy Efficiency*.

Further, an ESOS assessment produces a list of energy efficiency recommendations for organisations undertaking audits: this may lead to additional overlaps. In the absence of quantitative evidence, an illustrative assumption that this overlap is the same size as the overlap from measuring energy use is made. Further, given the uncertainty, lower and upper bounds of $\pm 25\%$ are used.

Table 27 summarises the overlap assumptions made for the SECR framework and ESOS. A higher percentage means that a greater overlap has been assumed, and fewer energy savings are therefore attributed to the SECR framework.

Table 27 - Overlap assumptions between ESOS and the SECR framework

	Lower bound	Central	Upper bound
Overlap due to measuring energy use in ESOS	25%	25%	25%
Overlap due to identification of energy efficiency recommendations in ESOS	50%	25%	0%
Total overlap between ESOS and the SECR framework	75%	50%	25%

Transport intensive organisations – e.g. those in the rail, bus and haulage sectors – are likely to spend a larger proportion of their total costs on energy than organisations that are not transport-intensive⁵⁷. The ESOS IA accounts for this through illustrative assumptions to scale down the impact of ESOS⁵⁸. The same overlap assumptions, presented in Table 28, have been used here to scale down the impact of the SECR framework. These are indicative and will be tested further with stakeholders.

Table 28 - Overlap assumptions for transport energy use

Transport	Overlap assumption
Aviation, rail & shipping	100%
LGVs & HGVs	50%
Buses & coaches	50%
Company cars	0%

Source: ESOS IA

Table 29 presents the assumed energy savings from reporting energy use after all policy overlaps from Tables 27 and 28 have been applied to the assumptions in Table 26.

Table 29 - Assumed energy savings (after overlaps) from reporting energy use

	Lower	Central	Upper
Onsite energy use	0.5%	2.0%	6.0%
Transport energy use			
Aviation, rail & shipping	0.0%	0.0%	0.0%
LGVs & HGVs	0.25%	1.0%	3.0%
Buses & coaches	0.25%	1.0%	3.0%
Company cars	0.5%	2.0%	6.0%

(c) Additional energy savings assumptions

⁵⁷ The ESOS IA estimates that for transport-intensive organisations, energy costs are 10% of total expenditure, compared to 2% for services sectors.

⁵⁸ Section 6.4.7, DECC, 2014, *Energy Saving Opportunity Scheme IA*.

As illustrated in Table 8, Option 4 requires the scale of, and progress against, energy efficiency opportunities be reported. Stakeholders ranked reporting energy efficiency opportunities as one of the features with the highest expected impact. Annually reporting progress against these opportunities may enhance the impact of energy audits by providing more frequent board-level awareness of (i) available opportunities; and (ii) the extent to which the organisation has exploited those opportunities.

As only an interim process evaluation has been carried out on ESOS, the analysis here relies upon qualitative feedback gathered from stakeholders. Stakeholders were asked to compare expected energy savings from various reporting requirements during workshops (e.g. reporting energy efficiency opportunities; transport energy use; global emissions), and validated the assumptions used here. An illustrative assumption has been made that reporting on energy efficiency opportunities increases the impact of the SECR framework by 10%. As a result of this assumption, the assumed energy savings for onsite and transport (shown in Table 29) would increase by 10% (e.g. from 2% to 2.2%) for Option 4 which requires reporting on energy efficiency opportunities.

In Options 2 - 4 it is also proposed that organisations report an intensity metric based on information that has already been gathered, for example energy use per £m of turnover. The rationale for this requirement is that it will allow more meaningful comparisons of data across companies in the SECR framework. This analysis has not assumed any additional energy savings from the requirement to report an intensity metric, due to the uncertainty around what information would be reported and therefore its likely impact.

Table 30 illustrates the central energy savings assumption for each option in this IA. Applying these assumptions to the energy use in scope, described below, provides the estimate of energy savings from the SECR framework.

Table 30 - Central energy savings assumptions (after overlaps) for each of the SECR framework options

	Option 1	Option 2	Option 3	Option 4
Onsite energy use	0%	2.0%	2.0%	2.2%
Transport energy use				
Aviation, rail & shipping	0%	0%	0%	0%
LGVs & HGVs	0%	1.0%	1.0%	1.1%
Buses & coaches	0%	1.0%	1.0%	1.1%
Company cars	0%	2.0%	2.0%	2.2%

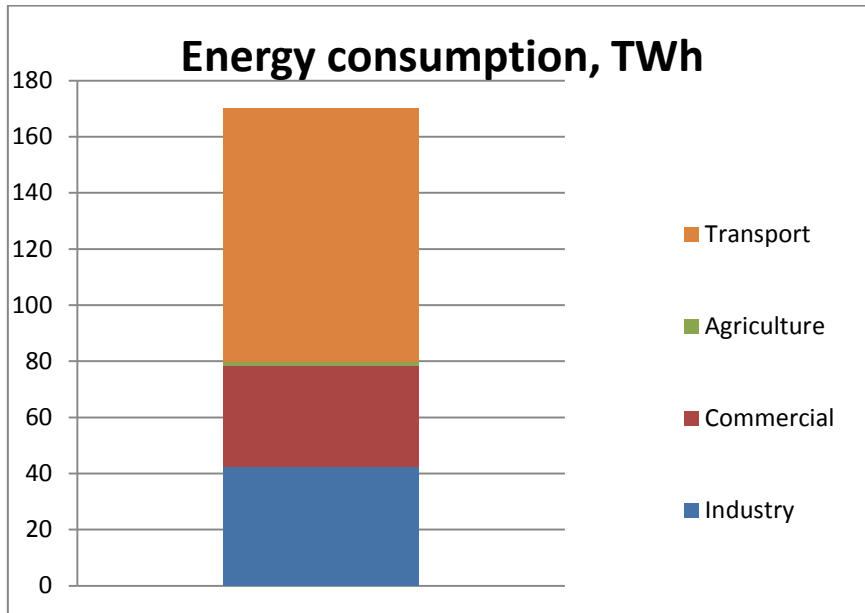
(d) Energy use in scope

The average annual energy consumption proposed to be subject to new reporting requirements once CRC is removed in Option 3 of the SECR framework over the appraisal period is estimated at 170TWh. This reflects energy use which is not already reported outside the CRC, for example in CCAs or EU ETS, across companies in the transport, industrial, commercial and agricultural sectors, as shown in Figure 8. Whilst total energy consumption by large companies is proposed to be reported (including that covered by e.g. CCAs and EU ETS), this is the scope of energy use within which new energy and carbon savings can be realised.

The energy use in scope of the SECR framework is estimated using different data sources for each sector. The Non-Domestic National Energy Efficiency Data (ND-NEED) framework splits energy use into SMEs and large organisations (using the Business Populations Estimates definition of large as having 250 or more employees, and we assume again that one 'large' definition is a good proxy for another); and

Department for Transport (DfT) datasets are used for transport. For more detail on the approaches used, see Annex D.

Figure 8 - Annual energy use proposed to be subject to new reporting requirements once CRC is removed under Option 3 of the SECR framework by sector, 2019 - 2035



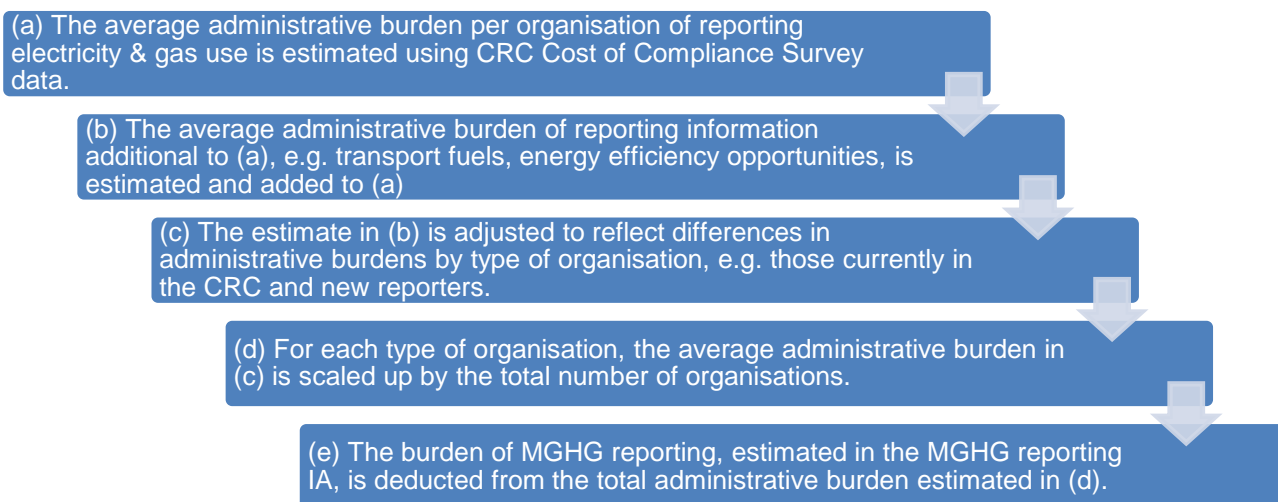
Source: ND-NEED, BIS, DfT

(e) *Forgone energy savings from moving from separate MGHG reporting*

It is assumed that there is no impact on energy savings from moving from separate MGHG reporting. This is because it is proposed that quoted companies continue to report on domestic and international GHG emissions for which they are responsible, and an intensity metric, in the SECR framework (as well as starting to report underlying total global energy use).

Administrative burdens

Figure 9 - Methodology for estimating the administrative burdens of the SECR framework



(a) *Reporting electricity and gas use*

The CRC Cost of Compliance survey estimates the administrative burdens of the CRC, and is used as a starting point for estimating the administrative burdens of the SECR framework. The activities required for the CRC that are not relevant to the SECR framework are identified and excluded. Examples include purchasing/trading CRC allowances, and for Options 3 and 4 determining eligibility for the scheme, as organisations in scope have already been determined as they are companies required to provide the proposed energy and carbon reports (e.g. in Directors' reports or Strategic reports, or another report), and will have assessed if they are 'large' for the purposes of ESOS as assumed in this indicative analysis (or otherwise they will know they are 'large' within the meaning of the Companies Act regime [see Table 9], the alternative approach to defining 'large' in the consultation document - see Annex E for a detailed list of activities). After this process, only activities relating to the measurement/ reporting of electricity and gas use remain. In the SECR framework, participants would be required to convert energy use into emissions (while in the CRC this is calculated automatically), but it is assumed that the additional burden of doing this would be negligible if there are published factors available for use.

The average administrative burden per large organisation is then calculated. Table 31 presents estimated first year burdens, before and after the activities not relevant to the SECR framework are stripped out. First year costs presented below include a single year of one-off costs and on-going costs.

Table 31 - Average administrative burdens per large organisation in the Cost of Compliance study by sector, 2016 prices

	First year administrative burden per large organisation
All activities in the CRC	£6,800
Reporting electricity and gas use only	£3,700

Source: CRC Cost of Compliance study. Figures have been rounded.

(b) Reporting additional information

The proposed options require some additional information to be measured and reported which is not currently required under the CRC. These are:

- Transport energy use ;
- Energy efficiency opportunities identified (e.g. in their last energy audit) and the proportion which have been implemented (for Option 4); and
- An intensity metric

Transport energy use – In Options 2-4 it is proposed that transport energy is in scope of the SECR framework. The ESOS IA used illustrative assumptions, tested with stakeholders, to estimate the burden for transport energy use as approximately 25% of the burdens for onsite energy use. The analysis in this IA uses the same assumption.

Energy efficiency opportunities– In Option 4, it is proposed that organisations would be required to report on the scale of, and progress against, their energy efficiency opportunities. The ESOS IA proposed a similar option, where organisations were required to report their audit results to the scheme administrator in some detail. This analysis assumes that on balance, the burden of reporting this information is equivalent to the administrative burden of the relevant option in the ESOS IA. Adjusted for wage inflation, this results in an estimated average annual cost of approximately £300.

Intensity metric – In Options 2 -4, it is proposed that organisations report an intensity metric based on information that has already been gathered, for example energy use per £m of turnover. The rationale for this requirement is that it will allow more meaningful comparisons of data across companies in the SECR

framework. As the intensity metric is likely to be based on information that is already available, it is assumed that there are no additional administrative burdens from this requirement.

Table 32 shows the average estimated burden of reporting information in addition to gas and electricity use for Option 3. It builds upon the estimates in Table 31 using the approach outlined above. The burdens resulting from reporting additional information are added when estimating the administrative costs for Option 4.

Table 32 - Average administrative burdens associated with reporting different information for CRC organisations, 2016 prices

	First year administrative burden per large organisation
Reporting electricity and gas use only (from Table 31)	£3,700
Adjustment from reporting transport energy use	+ £900
Total	£4,600

Source: EEP, ESOS IA. Figures have been rounded.

(c) Estimating average administrative burdens by organisation type

The data on administrative burdens in (a) and (b) are based on the CRC Cost of Compliance Survey. This may not be applicable to organisations not currently in scope of the CRC, who could have a different scale and pattern of energy use. Stakeholder feedback indicated that the burden of reporting would likely differ between organisations currently in and out of the CRC. This is because the latter are likely to have i) lower or less complex energy use, and ii) a greater proportion of energy use in scope of other policies such as CCAs or EU ETS.⁵⁹ The following paragraphs deal with these two factors in turn.

Administrative burdens for non-CRC participants are estimated to be 40% lower (£1,800 per organisation) than for CRC participants, using data from Annex D of the MGHG reporting IA. These estimates are used to calculate the difference in burdens for large organisations in the CRC versus large organisations outside the CRC (under the ESOS definition of 'large', consistent with the rest of the analysis in this IA), reflecting the lower energy consumption and less complex energy use of non-CRC participants.

The analysis then adjusts the cost of reporting to take into account the proportion of energy used by organisations in the SECR framework which is already reported under CCAs and the EU ETS, and therefore is likely to not require gathering again in the SECR framework. CRC participant data and the ND-NEED framework were used to estimate that approximately 65% of total energy use in CRC organisations is not reported under CCAs and the EU ETS, so organisations would be required to gather data on this energy use.

These data were also used to estimate that only 17% of total energy use in large organisations not currently in the CRC would be in scope of the SECR framework, with a much larger proportion of energy use already reported under CCAs and EU ETS. Thus large organisations not currently in the CRC are required to report on approximately 74% less of their energy use compared to organisations in the CRC. Following the assumed linear relationship between administrative costs and reported energy use, the estimated burdens of reporting is reduced by 74% for non-CRC organisations (equivalent to £2,100 per organisation).

⁵⁹ This assumption is supported by the Cost of Compliance Survey, which found that administrative burdens increase as energy use and the number of meters increase

The difference in the proportion of energy use covered by CCAs and EU ETS between the CRC and non-CRC populations is driven by the design of the CRC as a scheme which is intended to target large, non-energy intensive organisations. Eligibility for the CRC applies only to consumption which is not already covered by CCAs or EU ETS, ensuring most energy-intensive organisations are out of scope of the policy.

Stakeholders indicated in the 2016 workshops they expect the one-off costs of the new reporting scheme to be similar for both CRC and non-CRC organisations: both groups would have to put in place new systems to measure energy use. This finding is supported by the Cost of Compliance survey. Average Year 1 administrative burdens of Phase 2 were approximately 4% lower for new participants, compared to those already in the scheme in Phase 1. The analysis in this IA therefore includes no additional one-off costs for organisations not currently covered by the CRC.

Table 33 adjusts the estimated administrative burdens of CRC organisations in Table 32 to reflect different organisation types using the approach outlined above.

Table 33 - Average administrative burdens of Option 3 for CRC and non-CRC organisations, 2016 prices

	First year administrative burden per large organisation
CRC organisations (from Table 32)	£4,600
<i>Adjustment due to lower energy use of non-CRC organisations</i>	<i>-£1,800</i>
<i>Adjustment from lower proportion of energy use in scope of reporting</i>	<i>-£2,100</i>
Non-CRC organisations	£700

Sources: ND-NEED, CRC participant data. Figures have been rounded.

(d) Scaling up average administrative burdens to the population

The average administrative burdens per business are then scaled up by the total number of large organisations in each of the following groups:

- Companies currently in the CRC ;
- Companies not currently in the CRC; and

As discussed above in Annex C an appropriate metric for comparing the CRC and ESOS populations is the number of individual large organisations. Like in the ESOS IA, it has been assumed that all companies in the CRC are large companies, and therefore would be in scope of Options 3 and 4.

First year administrative burdens for populations are presented for Option 3 in Table 34.

Table 34 - Estimated administrative burdens of Option 3 by organisation types, 2016 prices

	First year burdens per organisation (from Table 33)	Number of individual large organisations	Total first year burdens
Companies in CRC	£4,600	4,000	£18.4m
Companies not in CRC	£700	5,100	£3.7m
Total	-	9,100	£22.1m

Source: the EA, ESOS IA, BIS. Figures have been rounded.

(e) Deducting the administrative burdens from MGHG reporting

In addition to reporting on UK emissions, MGHG reporting also requires that all UK quoted companies report on the global emissions for which they are responsible in their annual reports. In Options 2-4 it is proposed that the requirement for quoted companies to report on global GHG emissions is retained within the new reporting scheme, and that there is no separate MGHG reporting.

This means that quoted companies would still have to measure and report their international GHG emissions as before. Underlying energy use is proposed to be reported, but that would have had to be calculated to derive associated emissions. Therefore it is assumed that the administrative burden of reporting international emissions does not change for all options, and there is no additional burden from reporting underlying energy use. However, it is assumed that quoted companies would already be measuring and reporting their UK emissions and energy use for the purposes of the SECR framework, so the administrative burdens relating to this activity are removed. These administrative burdens are taken directly from the MGHG IA⁶⁰, which are then subtracted from the figures in the right-hand column of Table 34 to estimate the net administrative cost of Options 2-4.

Table 35 illustrates the impact of removing MGHG reporting on administrative burdens. This approach assumes that all companies reporting under MGHG would be in scope of the SECR framework – which matches consultation proposals to retain such reporting by UK quoted companies.

Table 35 – Estimated administrative burdens of the SECR framework (Option 3) and the removal of MGHG reporting, 2016 prices

	Total first year burdens	Average annual burdens
SECR framework only (from Table 34)	£22.1m	£14.5m
Removal of MGHG reporting	-£2.7m	-£2.7m
Total	£19.4m	£11.8m

Source: MGHG IA. Figures may not sum due to rounding.

Table 36 shows the estimated average annual burdens after the impact of removing MGHG reporting for each Option, ranging from **£9.6m to £14.2m**.

Table 36 – Estimated burdens of the options for a SECR framework and removal of MGHG reporting, 2016 prices

	Average annual burdens
Option 1	£0.0m
Option 2	£9.6m
Option 3 (from Table 35)	£11.8m
Option 4	£14.2m

Figures may not sum due to rounding.

⁶⁰ Note that the administrative burdens presented in the MGHG IA do not capture the cost of reporting international emissions.

Annex D – Energy use in scope

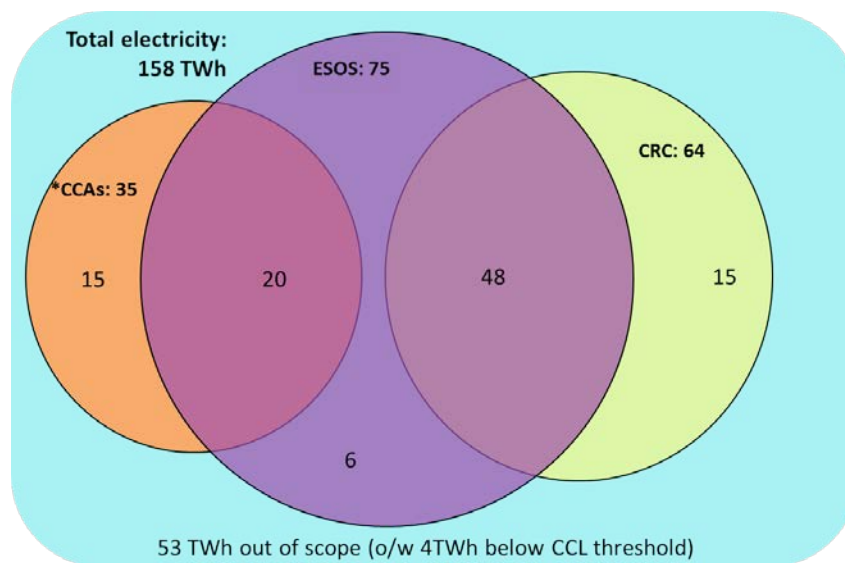
Business energy use

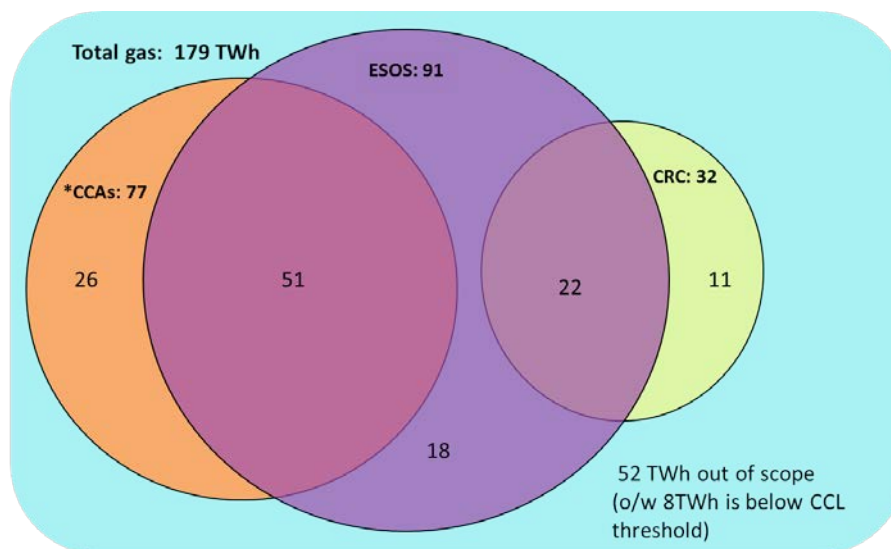
The analysis of large business energy use for the ESOS IA was based on high-level assumptions, which were partially informed by an early version of the non-domestic National Energy Efficiency Data Framework (ND-NEED). These assumptions were calibrated by comparing business estimates against data from BIS business population statistics. To derive the split of energy use covered by different policies such as CCAs and the CRC, programme data from the various policies were used, where energy use was presented in primary energy equivalent terms.

Over the intervening period, ND-NEED has improved such that the sample data can be weighted to be representative of the population, and matched with Experian data to identify whether businesses are SMEs or non-SMEs. This means that final energy consumption data for electricity and gas from ND-NEED are now used as the main input in assessing large business energy use within this IA, and how this energy use is covered by different policies. However, it has been established that this approach underestimates large business energy use, as the Experian data do not fully aggregate some businesses, and therefore do not identify them as large. The impact of this issue on the final NPV is explored further in the sensitivity analysis.

The ND-NEED data are used in conjunction with programme data to estimate the final energy use covered by different policies. CRC registration data are used to identify meters in ND-NEED that are covered by the CRC and by CCAs, and the total energy use covered by CCAs is estimated based on CCA sector information and data on CCL receipts. Figure 10 shows the estimates of business energy use which are covered by ESOS, the CRC and CCAs. EU ETS energy use is assumed to be covered already by CCAs or in consumption by the fuel industry. The data from ND-NEED are only available for electricity and gas use in England and Wales in 2012, so they provide only a partial estimate of the energy in scope of large businesses. This analysis is therefore supplemented with data from EEP to provide projected energy use over time, and to provide coverage of energy use not captured by ND-NEED, such as use non-metered fuels, consumption from the fuel industry and UK-wide business energy use.

Figure 10 - Business electricity and gas use from ND-NEED split by ESOS, the CRC and CCAs, England & Wales 2012





*CCA energy consumption expressed here is an estimate of 'eligible facility' consumption that is eligible for the reduced rate of CCL.

This is based on ND-NEED version 3 (2012). The methodology will be refined further in the future.

Transport energy use

Transport energy use associated with large organisations is estimated using the same approach as taken in the ESOS final IA, and key data sources have been updated, such as total transport energy consumption. Further detail on this approach is provided in Annex E of the final ESOS IA, but it can be summarised as follows:

- Projections of transport energy consumption are taken from EEP;
- The amount of transport energy consumption attributable to business for each transport mode is then estimated, using DfT data such as the National Travel Survey⁶¹ and Road Freight Statistics⁶²;
- The amount of transport energy consumption attributable to large businesses for each transport mode is then estimated, using data from BIS Business Population Estimates⁶³ and illustrative assumptions (including that the Business Population Estimates 'large' population is a good proxy for the data for the ESOS 'large' population as considered in this IA, and so can also be used to estimate energy use for the CRC subset of that 'large' population).

⁶¹ DfT, 2016, *National Travel Survey statistics*, <https://www.gov.uk/government/collections/national-travel-survey-statistics>

⁶² DfT, 2016, *Road freight statistics*, <https://www.gov.uk/government/collections/road-freight-domestic-and-international-statistics>

⁶³ BIS, 2015, *Business population estimates*, <https://www.gov.uk/government/collections/business-population-estimates>

Annex E – List of activities included in the SECR framework

This annex lists the activities required under the CRC and labels those in scope of the SECR framework. The costs of activities in scope are used to estimate the administrative burden of the SECR framework.

Two activities ('Undertaking internal quality assurance'; 'Internal auditing process') are assumed to be less burdensome in the SECR framework than under the CRC. Given that the information reported will not be used to determine the amount of allowances to be purchased, the level of validation under the SECR framework is assumed to be less rigorous than under the CRC. An illustrative assumption has been made that these costs would be half from that of the CRC under the SECR framework.

ONE-OFF COSTS	In scope of the SECR framework?
Time spent to understand the rules of CRC efficiently to understand whether within scope	Option 2 – Yes Options 3-4 - No
Collect and collate energy to understand if within scope of CRC phase 2	Option 2 – Yes Options 3-4 - No
Once determined in scope, time spent to understand fully rules of CRC phase 2 (including attending internal or external training, and accessing consultants)	Yes
Determining organisational boundaries and structure as at 31st March 2013: defining legal structure, parent entity and 'participant equivalent' units	No
Identify any exclusions as a result of CCA / EU ETS and non-policy factors	Yes
Identifying all the settled Half Hourly Meters for inclusion	No
Declare emissions in registration year (2013/14)	No
Any other time spent registering for Phase 2	Yes
Any costs of installing software and equipment for compliance with the CRC (this includes any meters and software)	Yes
Other one-off compliance activities not included above	Yes

ONGOING COSTS	In scope of the SECR framework?	
On-going maintenance of monitoring and reporting systems	Yes	
Collating energy supplies	Gather and collate energy consumption data from CRC meters	Yes
	Gather information on renewable energy supplies	Yes
	Understand and apply exclusions	Yes
Reporting	Preparing annual report according to CRC guidance	No
	Undertaking internal quality assurance	Yes (50%)
	Senior officer sign off	Yes
	Submission of report	Yes
Purchase and surrender of allowances	Deciding on overall approach in relation to forecast window (whether forecast sale and / or buy to comply sale)	No
	Order allowances from regulator.	No
	Payment for allowances	No
	Surrendering allowances	No
Record keeping and auditing	Adding record of supplies and other information in your evidence pack.	Yes
	Internal auditing process	Yes (50%)
	Engaging with external compliance auditing by the regulator	Yes
Notifying regulator of any changes	Administrative changes (e.g. new contact registration)	No
	Mergers, acquisitions, sales, termination of operation	No
	Any other notifications	No
Other annual compliance activities not included above	Yes	
Voluntary activities: Costs incurred for activities that are not mandatory to fulfilling the requirement e.g. attendance at meetings	No	