UK Government

Evaluation of the Streamlined Energy and Carbon Reporting (SECR) Framework

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Completed by ICF Consulting Services Ltd and IFF Research for the Department for Energy Security and Net Zero.

Contents

Figures and Tables

Glossary

BEIS – Department for Business, Energy and Industrial Strategy

CCL – Climate Change Levy

CRC – CRC Energy Efficiency Scheme (formerly known as Carbon Reduction Commitment)

DBT – Department for Business and Trade

DESNZ – Department for Energy Security and Net Zero

DiD – Difference-in-Differences

ESOS – Energy Savings Opportunity Scheme

ETS – Emissions Trading Scheme

FAME – Financial Analysis Made Easy (Database)

FRC – Financial Reporting Council

GHG – Greenhouse Gas

IDBR – Inter-Departmental Business Register

ISSB - International Sustainability Standards Board

MGHG – Mandatory Greenhouse Gas

ND-NEED – Non-domestic National Energy Efficiency Data (framework)

PPN 006 – Procurement Policy Note 006 (formerly PPN 06/21)

QED – Quasi-Experimental Design

PSM – Propensity Score Matching

SBTi – Science-Based Targets Initiative

sDiD – Synthetic Difference-in-Differences

SECR - Streamlined Energy and Carbon Reporting

TCFD – Taskforce on Climate-Related Financial Disclosures

Executive Summary

Introduction

The UK Government's objective of achieving Net Zero by 2050 is a national priority which requires urgent actions driven by policy interventions that also enhance energy security, protect billpayers, and support economic growth. Reaching this target will require substantial reductions in overall energy demand from end-use sectors, and therefore, encouraging energy efficiency from organisations is a key lever that can contribute towards decarbonisation goals. Promoting energy efficiency can also offer significant direct benefits to organisations by lowering operational costs and reducing vulnerability to energy price fluctuations.

The Streamlined Energy and Carbon Reporting (SECR) framework was introduced in 2019, with the intention that companies in scope of the regulations will collect and report information on their energy consumption, carbon emissions, and energy efficiency measures to improve energy and carbon management and drive reductions in energy demand, ultimately reducing greenhouse gas (GHG) emissions. The SECR framework replaced the CRC Energy Efficiency Scheme, and aimed to simplify reporting requirements, reduce administrative burdens, and increase transparency while expanding the scope to cover more companies.

Since the introduction of SECR in April 2019, the corporate sustainability reporting landscape in the UK and internationally has undergone significant changes. SECR sits within a complex wider landscape of policies that directly or indirectly incentivise business energy efficiency improvement or decarbonisation, such as the Energy Savings Opportunity Scheme (ESOS), Emissions Trading Scheme (ETS), Climate Change Levy (CCL), Climate Change Agreements (CCAs), the Task Force on Climate Related Financial Disclosure (TCFD) recommended policies, and the upcoming policy decision on the UK adoption of International Sustainability Standards Board (ISSB) recommendations.

This evaluation draws on a range of primary and secondary research with the central aim of providing the Department for Energy Security and Net Zero (DESNZ) with evidence on the extent to which disclosures mandated by SECR drive energy efficiency and decarbonisation actions. The findings will inform a statutory post-implementation review, which is a requirement of SECR. In addition to the assessment of the impact and cost-effectiveness of SECR, this evaluation will contribute to the evidence base for wider sustainability reporting requirements. The results from this evaluation can help shape future policy developments within DESNZ and other departments considering the effectiveness of leveraging energy efficiency and carbon reductions through reporting requirements.

Key findings

- **There is evidence to suggest that SECR has led to reductions in energy use and GHG emissions from organisations in scope of the regulations**

Quantitative analysis using synthetic difference-in-differences (sDiD) methods found evidence that SECR led to measurable reductions in energy consumption among unquoted companies

and LLPs in scope of the regulations. For methodological reasons, quoted companies were not included in the sDiD analysis, but as they make up a small proportion of UK energy in scope of SECR, this has only a modest effect on the representativeness of findings. The results show an estimated energy saving of 4.5% in 2020 (based on an impact estimate which is statistically significant at the 10% level), 6.2% in 2021 (statistically significant at the 5% level) and 4.9% in 2022 (not statistically significant). This builds on past evidence that the introduction of mandatory greenhouse gas reporting for quoted companies in 2013 reduced carbon emissions (Downar et al 2021).

However, only 25% of SECR-compliant business survey respondents reported that SECR led to a reduction in energy use beyond other regulatory requirements, while 26% reported attributable reductions in emissions. Further, qualitative interview participants highlighted the difficulty of attributing reductions in energy use and GHG emissions to SECR, given the growth in the number of voluntary and mandatory reporting schemes and the presence of wider drivers of behaviour change, such as energy price shocks. This difference between survey and modelled results potentially indicates the multiple and overlapping driving forces motivating energy decisions within organisations, meaning respondents may struggle to isolate the specific impact of SECR from other concurrent initiatives and wider drivers.

Evidence from the quantitative impact analysis and a survey of organisations suggests that SECR appears to have a diminishing impact over time. Over the years observed in the impact analysis (2020 – 2022), the impact may have 'peaked' in 2021, with a subsequent decline in effects on energy use, emissions, and how organisations use information in operational decision making. This aligns with findings from qualitative interviews, that the role and status of SECR has changed over time and that it is now increasingly considered a compliance-based exercise, lacking mandated targets or action plans, in comparison to more strategic or investor-focused initiatives like the European Union's Corporate Sustainability Reporting Directive (EU CSRD) and policies aligned to TCFD. However, the impact of SECR appears to be clearer for organisations that also participate in other sustainability reporting initiatives, with businesses engaged in frameworks such as the Carbon Reduction Plan (CRP) required of Procurement Policy Note 006 (PPN 006), other published transition plans, and Science Based Targets initiative (SBTi), being significantly more likely to report that SECR contributed to emissions reductions. This highlights both the growth in the number of voluntary and mandatory schemes in the reporting landscape and the importance of ensuring alignment between SECR and existing and forthcoming reporting policies and frameworks.

- **SECR appears to have increased internal awareness and accountability of energy use and GHG emissions**

Increasing awareness through the process of compiling, reporting, and managing energy use and carbon emissions is a key behavioural mechanism through which SECR is intended to have an impact on energy use and emissions. Only 13% of businesses said SECR had no impact on how they handle energy and emissions data, and 79% of businesses reported that SECR prompted them to disclose data they otherwise would not have published. Qualitative interview findings also emphasised the importance of the placement of SECR disclosures in annual reports for driving board-level visibility and accountability.

However, the business survey also found that only 33% of SECR-compliant organisations agreed that SECR reporting heightened internal pressure to improve energy efficiency. This suggests that, while SECR raises visibility, its ability to drive internal behavioural change may be more difficult to attribute and/or limited. This complexity is supported by qualitative interview findings, as interviewees noted that the backwards-looking nature of SECR and its lack of mandated actions or targets may limit its ability to influence business behaviours.

- **SECR appears to have increased external awareness of energy use and GHG emissions, and is used by external stakeholders such as consumers and investors**

26% of organisations reported that SECR has led to external pressure, and of those, 86% cited external pressure from consumers, 69% from government entities, and 45% from investors as key drivers to reduce their energy consumption and GHG emissions. Qualitative interviews found that the inclusion of SECR disclosures in annual reports was thought to enhance external visibility through its alignment with mainstream financial reporting, aiding accessibility for stakeholders such as investors. This placement in annual reports may be most important in enhancing visibility with those stakeholders, such as investors, who are familiar with annual reports and know where to look for SECR disclosures, however, consumers who may be less familiar with annual accounts, are reported to be a key source of external pressure. While SECR data is rarely decisive in investment decisions, interviewees did provide evidence that it informs processes such as pre-investment screening, performance monitoring, and ongoing engagement. Its standardised format supports comparability and benchmarking, though limitations in scope, data consistency, and integration with financial reporting were noted.

- **The energy and emissions reporting landscape has developed significantly since the introduction of SECR, which has led to some complementarity but also duplication of efforts**

Qualitative interview findings emphasised the importance of understanding SECR in the context of an evolving landscape of mandatory and voluntary disclosure policies and frameworks. While interviewees noted the important role of SECR in normalising and standardising environmental disclosure, its influence may have waned as the Environmental, Social and Governance (ESG) landscape has matured. In particular, the international uptake of frameworks and policies such as TCFD and EU CSRD, which are considered to be more strategic and forward-looking, may have led to a shift in the perceived value of SECR in driving action to reduce energy use and emissions, and in providing decision-useful information to investors. This could suggest that SECR's relevance as a strategic disclosure tool used by both companies and their investors may be declining. However, SECR continues to play a role as a mechanism that is accessible to a wide range of organisations, enhances board-level and investor visibility of energy use and emissions, and provides a source of standardised and comparable information for stakeholders, such as investors. Interviewees indicated that, in cases where prior knowledge of energy and emissions monitoring and reporting practices were absent, SECR facilitated the establishment of frameworks within their organisations. Moreover, SECR-compliant business survey respondents indicated that data compiled for SECR was easy to reuse for other voluntary and mandatory reporting schemes. This, together with qualitative insights on how SECR data can supplement initiatives such as ESOS, SBTi, and

TCFD, shows SECR can serve as a consistent source of long-term energy and emissions data for tracking progress towards voluntary targets, demonstrating the role of alignment in supporting the ongoing use of SECR.

- **Non-compliance with SECR is higher than previously assumed, and there are complexities for the purposes of this evaluation with identifying in-scope organisations, given available data sources**

Overall evidence on levels of compliance with SECR is mixed. All evidence suggests that a majority of in-scope entities comply, but different evidence sources suggest various rates of non-compliance ranging from 10% to 34%. The survey of businesses suggests the rate of non-compliance is likely to be in the range of 14% to 23%. Qualitative interviews with SECR eligible organisations and SECR reporting service providers noted that, while SECR requirements were not considered onerous, complex eligibility criteria, limited guidance and challenges with data collection in certain circumstances may contribute to organisations failing to comply. This evidence also suggests a potential gap between awareness and compliance, and therefore a potential need for stronger enforcement mechanisms to ensure consistent and accurate reporting.

- **There is qualitative and quantitative evidence to suggest that SECR is delivering value for money**

Outputs from the central scenario of the cost-benefit analysis provide evidence that the energy savings resulting from SECR average 8 TWh per annum between 2020 and 2025, and the energy savings provide a range of social and environmental benefits, including average annual carbon savings of 1.7 MtCO2e and air quality improvements, which in total are monetised at £8,100m across the period 2020 – 2025. Costs of SECR include administration for organisations complying with the regulations, and capital, hassle and operational costs associated with energy efficiency measures taken up as a result of the regulations. Total costs over the period 2019 – 2025 are estimated to be £3,000m (in line with the 2018 SECR Impact Assessment, the costs to government of the regulations are estimated to be negligible in the context of other costs). The central scenario outputs of the cost-benefit analysis, therefore, suggest a Net Present Social Value of £5,100m and a benefit-cost ratio (BCR) of 2.72.

Due to uncertainties around input variables and assumptions, we have undertaken sensitivity analysis to test the outputs to changes in key inputs and assumptions. The sensitivity scenarios which had the biggest impact on the cost-benefit outputs relate to the application of the impact analysis findings on energy savings. If the cost-benefit analysis takes the 10th percentile of the probability distribution associated with the sDiD impact estimates, this gives energy savings between 0.8% to 2.2% depending on the year. This reduces the BCR to 1.48 and the NPV to £830m. Under a more extreme scenario where energy savings were only realised in 2021 (the year where impact estimates are significant at the 5% level), the BCR is still positive but reduces to 1.18 and the associated NPV is £270m. Assuming no energy savings for quoted companies and transport energy reduces the BCR and NPV by a relatively small amount to 2.58 and £4.4bn respectively.

Additional quantitative and qualitative evidence within a 5E's framework (which assesses 'Economy', 'Efficiency', 'Effectiveness', 'Equity', and 'Cost-Effectiveness') provides additional evidence that SECR is delivering intended benefits at a reasonable cost.

Introduction

Policy introduction

The UK Government has a commitment to reach Net Zero emissions by 2050, which will require significant reductions in energy use. One policy lever to incentivise business energy efficiency is through energy and carbon reporting, which aims to increase awareness and visibility of energy use and carbon emissions, and thereby lead to improvements in energy efficiency over time. The Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018, which implemented the Government's policy on Streamlined Energy and Carbon Reporting (SECR), came into force on 1 April 2019 and apply to financial years starting on or after 1 April 2019. The regulations require that in-scope organisations publish in their annual reports the amount of energy they use, their greenhouse gas (GHG) emissions, energy efficiency actions, and other related information for the current and previous financial years. SECR built on the UK's pre-existing Mandatory Greenhouse Gas (MGHG) regulations (2013), which required quoted companies to disclose their annual global greenhouse gas emissions in their Directors' Report.

The regulations were introduced by the Government as part of a package of changes to energy reporting. This included: the closure of the CRC Energy Efficiency Scheme, from the end of the 2018-19 compliance year; an increase in the Climate Change Levy (CCL) rates from April 2019; and the rebalancing of CCL rates for gas and electricity. The changes were designed to simplify the energy use and carbon reporting landscape and reduce administrative burdens on companies. In addition, the SECR framework aimed to encourage businesses to improve energy efficiency, lower GHG emissions, and assist in the UK's move towards a Net Zero economy. The reporting requirements of SECR are intended to achieve this through:

- reducing overall administrative burdens on previous CRC participants by identifying and removing CRC activities that are not relevant to the SECR framework (including incorporating CRC allowance price elements into the CCL);
- incentivising organisations to reduce energy bills and GHG emissions through raising awareness of energy use and emissions;
- driving behaviour changes by raising awareness of energy efficiency with decision makers;
- boosting the importance of energy efficiency and decarbonisation by introducing reputational drivers through public disclosure;
- increasing transparency for investors and other stakeholders and their ability to hold businesses to account on their energy use and related emissions.

SECR scope and eligibility

Quoted companies of any size that are required to prepare a Directors' Report under Part 15 of the Companies Act 2006 are required to disclose information under the SECR framework.

Within the regulations, quoted companies are defined as those whose equity share capital is officially listed on the main market of the London Stock Exchange (LSE); or is officially listed in a European Economic Area (EEA) State; or is admitted to dealing on either the New York Stock Exchange (NYSE) or NASDAQ.

For unquoted companies or Limited Liability Partnerships (LLPs) to be in scope, they must meet two out of the three criteria below:

- turnover greater than £36 million;
- balance sheet total greater than £18 million;
- number of employees greater than 250.

However, there are complexities associated with identifying which organisations are in scope of the regulations, and further challenges in assessing whether in-scope entities are compliant with SECR. For instance, the definition of what constitutes a large company under SECR differs from the current Companies Act 2006 definition, so SECR has a standalone threshold, and the Companies Act 2006 includes a 'two-year rule' which SECR has adopted and means that often historic data for the company needs to be assessed before it can be judged as in scope of the regulations.[1] The complexity of determining SECR eligibility is further complicated by the following reporting exemptions.

- *De minimis threshold*: this provides a reporting exemption for otherwise eligible entities that consume less than 40 MWh of energy per annum. However, under this exemption, the organisation is still required to measure energy use and disclose that the measured energy is below 40 MWh in the entity's Directors' Report.
- *Consolidation provisions*: Subsidiary organisations do not need to report if they are included in a UK-based parent organisation's consolidated Directors' Report, assuming the subsidiary's data is aggregated into the group report. There is no requirement for subsidiaries to state this exemption in their own report, and there is no requirement for the consolidated Directors' Report to detail which subsidiaries are included.
- *Prejudicial exemption*: if it is prejudicial to the entity, or is not practical, to disclose energy and GHG emissions data. This can be applied to all relevant SECR information or individual pieces of information and must be stated in the Directors' Report.

Taking into account the criteria and exemptions described above, for the purpose of this evaluation, the following definitions are used.

[1] If in its first account a company meets two or more of the three criteria above, it is in scope of SECR unless and until it does not meet two or more of the criteria for two consecutive years. For companies that have filed accounts previously, a company needs to have met two of the three criteria for two consecutive years at some point and since that point has not failed to meet two of the three criteria for more than one year consecutively. What this means is that a company that meets two of the three criteria in a given year is not necessarily in scope; conversely a company that does not meet two of three criteria in a given year may still be in scope based on historic data.

- *In Scope*: organisations that are required to report information on energy use and GHG emissions somewhere (i.e. a subsidiary whose energy use and GHG emissions are reported via its UK-based parent company is still in scope).
- *Compliant*: organisations that are in scope and report in line with SECR requirements. Note there are degrees of non-compliance, e.g. it may be the case that an organisation reports no information, limited information, or information in an incorrect format. The evaluation team recognises that a full assessment of compliance is not possible without in-depth auditing but has used partial evidence from Mycelium compilation of emissions data and summary findings from the Financial Reporting Council's review of a sample of SECR disclosures.

Based on the definitions above, analysis by DESNZ estimates there are approximately 19,900 quoted companies, large unquoted companies, and large LLPs that need to report, either themselves or via a parent, under the SECR. Most (14,000) must report the data themselves and cannot rely on a parent company's disclosure. In addition to the 19,900, Mycelium data suggests a further 1,300 entities claim the de minimis exemption (i.e. they are low energy users that do not need to disclose SECR data).

SECR reporting requirements

Table 1 provides an overview of the information that in-scope entities must report and disclose annually in their accounts. Reporting requirements differ between quoted and large unquoted companies / large LLPs. Quoted companies must report on their annual global GHG emissions and underlying global energy use, and unquoted companies / large LLPs must report on their UK energy use and associated GHG emissions.

Table 1: Overview of reporting requirements under SECR

Quoted companies	Large unquoted companies and LLPs
Annual GHG emissions from activities for which the company is responsible including combustion of fuel and operation of any facility; and the annual emissions from the purchase of electricity, heat, steam or cooling by the company for its own use	UK energy use (as a minimum gas, electricity and transport, including UK offshore area)
Underlying global energy use	Associated greenhouse gas emissions
Previous year's figures for energy use and GHG	Previous year's figures for energy use and GHG

At least one intensity ratio (measures energy per unit of an appropriate activity metric)	At least one intensity ratio (measures energy per unit of an appropriate activity metric)
Energy efficiency action taken	Energy efficiency action taken
Methodology used to calculate reported data	Methodology used to calculate reported data

For both quoted and large unquoted companies / large LLPs, the disclosure of Scope 3 emissions is voluntary but is recommended in the Environmental Reporting Guidance.[2] However, large unquoted companies and large LLPs are required to include reporting of energy consumption from fuel used in personal / hire cars on business use (which technically falls under Scope 3 emissions in the category of business travel). There is no requirement for entities to develop emissions reduction targets or strategies as part of their SECR disclosures, but the enhanced transparency and visibility of SECR public reporting may drive performance improvement and the setting of more ambitious targets. Companies and LLPs are required to include disclosures within their Annual Report - either in the Directors' Report (for companies) or the Energy and Carbon Report (for LLPs) - which is then filed with Companies House.[3] Both of the reports are filed at Companies House as part of a company's annual report to shareholders, and there is no dedicated repository for SECR disclosures.

SECR in the UK's reporting landscape

The UK's reporting policy landscape for energy efficiency and decarbonisation is characterised by multiple existing and incoming mandatory and voluntary initiatives, each differing in scope, target entities, reporting requirements and intended outcomes.[4] The evolution of policies and frameworks reflects a growing policy ambition and need to drive climate-related action across sectors and organisational types, recognising that the achievement of net zero by 2050 will require substantial reductions in overall energy demand from end use sectors. An assessment of the interaction between reporting policies has highlighted the following:

[2] Department for Business, Energy & Industrial Strategy (BEIS). (2019). Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance (March 2019). London: BEIS. Available at: https://assets.publishing.service.gov.uk/media/67161e8696def6d27a4c9ab3/environmental-reporting-guidance-secr-march-2019.pdf, p.62

[3] Currently, only a minority of companies in scope of SECR file digital versions of their annual reports (in format known as 'XBRL'). As such, for the majority of companies in scope of SECR data is only available in PDF format, the versions of which are available via Companies House are not easily machine-readable.

[4] Including but not limited to the following existing and incoming policies: Streamlined Energy and Carbon Reporting (SECR); Energy Savings Opportunities Scheme (ESOS); Procurement Policy Note 006 (PPN 006); Transition Plans; UK Emissions Trading Scheme (UK ETS); Climate Change Agreements (CCAs); Climate Change Levy (CCL); Energy Efficiency Directive (EED); Energy Performance Certificates (EPC); Energy Intensive Industries (EII) Exemption Scheme; Combined Heat and Power Quality Assurance Programme (CHPQA); Carbon Border Adjustment Mechanisms (CBAMs); Product Classifications; Policies aligned with the recommendations and framework from the Taskforce on Climate Related Financial Disclosures (TCFD); International schemes such as the European Union's Corporate Sustainability Reporting Directive (EU CSRD); Forthcoming UK endorsement of the Sustainability Reporting Standards based on the International Sustainability Standards Board (ISSB).

- *Scope and applicability:* Policies differ in which organisations they apply to. SECR targets individual quoted or large unquoted companies and LLPs, while ESOS applies to large undertakings and their full corporate groups based on different turnover and balance sheet thresholds. Alternatively, frameworks aimed at informing investment decisions, such as TCFD and Transition Plans, are aimed at listed companies and financial institutions, as well as very large private companies and LLPs.
- *Reporting entities and type of reporting:* While most schemes require reporting at the corporate level (e.g. SECR, TCFD, Transition Plans), some policies (e.g. EPCs, CCAs) require site-specific assessments, while other product-level schemes (e.g. CBAMs, Product Classifications) focus on the emissions attributes of specific goods.
- *Reporting requirements*: For instance, SECR requires annual reporting of energy and emissions, while ESOS mandates four-yearly energy audits and recommendations. Alternatively, TCFD and Transition Plans emphasise forward-looking climate-related financial disclosures, including information on governance and risk management. While the frequency of dual energy and emissions reporting is high, some schemes (e.g. ESOS, CHPQA, EII Exemption) do focus exclusively on energy use.
- *Intended Outcomes*: Stated policy objectives range from driving energy efficiency and decarbonisation (SECR, ESOS), informing investment decisions (TCFD, Transition Plans), enabling green procurement (PPN 006), to preventing carbon leakage (CBAMs). The diversity of objectives contributes to the complexity of aligning reporting efforts across schemes.

Previous work has been conducted to estimate the impact of Mandatory Greenhouse Gas (MGHG) reporting regulations introduced in 2013 for quoted companies. Downar et al[5] and Bolton and Kacperczyk[6] find a causal link between the introduction of reporting requirements and a reduction of GHG emissions, along with an increase in the number of firms that disclose their carbon emissions. In the case of Downer et al, this effect on emissions is estimated to last for the first two years post the policy introduction, but then levels converge again suggesting the effect on emissions is transitory. This impact of carbon reporting on emissions largely validates the then government's predictions in its 2011 Impact Assessment prior to the 2013 regulations coming into force. The Impact Assessment estimated that carbon reporting for quoted companies would lead to an up to 4% reduction in carbon emissions.[7] The current evaluation aims to build on this work by focussing on the effect of SECR requirements on top of the pre-existing MGHG regulations.

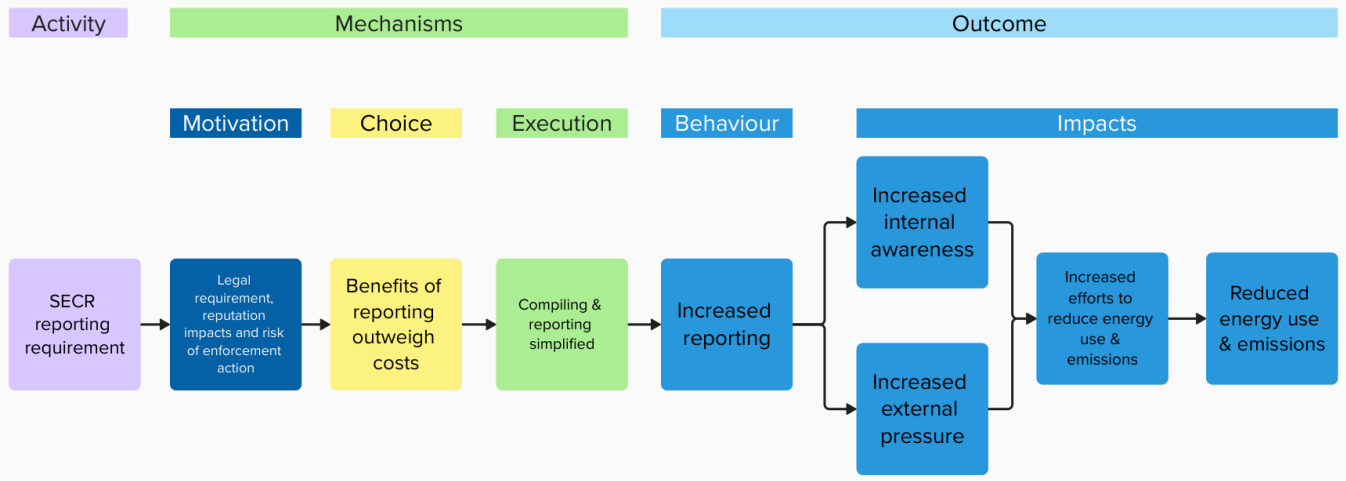
SECR theory of change

ICF, in collaboration with DESNZ and IFF Research, developed a behavioural theory of change (ToC) for SECR. This type of ToC focuses on the behaviour that an intervention is

[5] Downar, B., Ernstberger, J., Reichelstein, S., Schwenen, S., & Zaklan, A. (2021). The impact of carbon disclosure mandates on emissions and financial operating performance. Review of Accounting Studies, 26(3), 1137-1175.
[6] Bolton, P., & Kacperczyk, M. T. (2025). Carbon disclosure and the cost of capital. Available at SSRN 3755613
[7] Department for Environment, Food and Rural Affairs (Defra). (2012). Impact Assessment of Options for Company GHG Reporting: Final IA (DEFRA1334). London: Defra. Available at: https://assets.publishing.service.gov.uk/media/5a797bc640f0b642860d87f8/20120620-ghg-consult-final-ia.pdf

trying to influence and aims to identify the mechanisms that link the intervention activities to the targeted behaviour. The integrated model of behaviour (Barnard, 2023)[8], which nests and integrates a wide range of existing approaches along the whole of the behavioural pathway, was used to support the development of the ToC. The ToC was further refined through collaboration with the project steering group, which included stakeholders from DESNZ, the Department for Business and Trade (DBT), the Financial Reporting Council (FRC) and Companies House. A graphical representation of the SECR ToC is shown in figure 1 below, and the different elements are then described.

Figure 1: SECR behavioural ToC



Activity

SECR is a policy requiring certain organisations to compile and report data on their energy use and GHG emissions. There are a number of ways in which enforcement actions can be taken against businesses that are required to report under the regulations but do not do so. These two elements constitute the activities of SECR i.e. they are the elements of the policy or intervention that are expected to lead to changes in behaviour and are what would not be present if SECR had not been implemented.

Mechanisms

The mechanisms in the ToC describe the 'active ingredients' of the intervention i.e. they are an explicit description of how the interventions activities are assumed to affect the targeted behaviour. Using the integrated model, SECR's mechanisms are seen as encompassing three elements, discussed below.

- **Motivation:** organisations may have a range of motivations for compiling and reporting energy use and GHG emissions data, for example, a genuine commitment to pro-environmental practices. However, the ToC aims to isolate those motivations that would not be present in the absence of SECR. Within this context, the motivations identified are firstly the legal requirement to report, as businesses may wish to ensure they comply (or even go beyond) with the legal requirement for reputational reasons, both to avoid negative publicity and to gain positive enhancements of reputation. Secondly,

[8] Barnard, M. (2023). The integrated model of behaviour.

businesses may desire to avoid possible enforcement action, including potential fines. In addition, the motivation to report may be enhanced by increased competition between organisations in terms of transparency.

- **Choice:** motivation to comply with the regulations may not be sufficient for an organisation to do so. There will be a wide range of activities and actions they wish to undertake, but as they have limited time and resources, they will need to make choices about which of those actions they actually undertake. This means they will assess the costs (including resource costs, external consultants etc.) and benefits (including the avoidance of fines), of complying with SECR as part of a constrained optimisation exercise and only do so if compliance forms part of their optimum set of actions.
- **Execution**: alongside the fundamental costs and benefits of complying, which influence business choices, compiling and reporting data requires a number of practical steps, which are not necessarily straightforward. SECR aimed to simplify the business energy efficiency landscape, which may facilitate compliance with the regulations. However, the ease of compliance may vary, for example, data availability may differ between sectors, which could influence organisations' opportunity and capability to comply.

Outcome

As highlighted in the integrated model, human activity is generally goal directed and therefore relevant outcomes of a behaviour change process involves both the behaviour and the impact of the behaviour. Experiences of both these elements can play a role in influencing future motivations, choices, and implementation. SECR's targeted behaviour and its anticipated impacts are described below.

- **Behaviour:** for SECR, targeted behaviour is the reporting of energy use and GHG emissions data. As noted above, there are specific requirements around reporting, meaning that in this case, the behaviour is not binary (comply/did not comply), but instead degrees of compliance are possible.
- **Impacts:** it is anticipated that there will be a range of linked impacts of the reporting behaviour, which in fact are the main purpose of the regulations:
- *Increased internal awareness of energy use and GHG emissions:* the most immediate anticipated impact of compiling and reporting the data will be increased awareness of both energy use and GHG emissions within organisations (potentially supported by more accurate information about both), which it is hoped will lead to the identification of opportunities to reduce energy use and GHG emissions and may lead to internal pressure to do so.
- *Increased external pressure to reduce energy use and GHG emissions:* in addition to internal awareness of energy use and GHG emissions, the fact that data is public is anticipated to lead to increased pressure from stakeholders such as investors, pressure groups, consumers, and the press, to reduce both energy use and GHG emissions. This 'pressure' could also be in the form of gaining benefit from being seen as a green market leader and to illustrate green credentials.

- *Increased efforts to reduce energy use and GHG emissions:* the combination of internal awareness and external pressure are together anticipated to lead organisations to increase their efforts to reduce their energy use or their GHG emissions or both.
- *Reduced energy use and GHG emissions:* reducing energy consumption and GHG emissions is not necessarily straightforward, and therefore, although it is hoped that efforts to reduce both will be successful, there is no guarantee that they will be. Hence, the actual reduction is a final and crucial step in the ToC.

The ToC is presented as a linear process for clarity, but in reality it is likely to be more dynamic and to have multiple feedback loops. For example, greater 'external awareness' may increase motivations to report and reduce energy use and emissions through increased consumer and capital market pressures. Although these are not represented in the diagram, the qualitative component used open-ended, non-leading questioning to allow participants to describe their perceptions and experiences in-depth and to describe more dynamic processes where they existed.

Evaluation aims and objectives

The primary objective of this evaluation was to assess the impact of SECR on energy efficiency and decarbonisation activities. In addition, the evaluation aimed to provide evidence to support its statutory Post Implementation Review, and policy development in the wider reporting landscape.

The evaluation was structured around the following themes agreed with DESNZ:

- How has the delivery and implementation of SECR worked and how does it relate to the wider context of energy efficiency reporting?
- What have been the outcomes and impacts of SECR and to what extent have they been additional?
- What is the overall cost-effectiveness of the policy?

Methodology

A mixed-methods approach was used, incorporating a range of primary and secondary evidence sources that allow for triangulation of evidence to provide robust insights into the impacts and cost-effectiveness of SECR. The methodology included: a scoping review; theory of change development; a business survey; qualitative interviews; quasi-experimental impact analysis; and, a value for money (VfM) assessment. Each of these elements are discussed in turn below.

Scoping review

ICF conducted a desk-based review to understand the policy background, wider energy reporting landscape, and any other evidence that would support the evaluation. Relevant

literature was provided by DESNZ and sourced through web searches conducted by the ICF research team.

The evidence collected through the review was supplemented by scoping interviews with a range of SECR stakeholders, including those from DESNZ, DBT, FRC, and Companies House. The purpose of the interviews was to fill knowledge gaps identified by the ICF team and suggest additional literature for review. Each interview was recorded and transcribed to allow the ICF evaluation team to revisit if necessary, and responses were managed using a Microsoft Excel-based tool. Evidence from the scoping review was used to inform the theory of change development and inform the approach to the methodologies outlined below.

Business survey

IFF Research conducted a quantitative business survey to gather evidence on how businesses experience SECR, the findings of which contributed to both impact and VfM research questions. The survey targeted organisations that were believed to be in scope of SECR (based on available data regarding their size) or just outside of the SECR eligibility requirements (used as a comparison group). Using a sample provided by a commercial provider (Market Location), the initial targets were to achieve 420 eligible and 280 ineligible organisations. However, due to challenges in fieldwork, these targets were revised to 200 eligible and 300 ineligible organisations. Challenges included a lack of accurate sampling data, which made it difficult to target businesses within the sample that would help achieve quotas, as well as businesses not being able to provide the relevant information to understand eligibility, leading to them being screened out and unusable.

The survey lasted around 20 minutes and was routed so that there were specific questions for three groups of respondents: (1) seemingly eligible for SECR and complying; (2) seemingly eligible for SECR and not clearly complying (either because they are unaware of SECR or they state their business has not provided an SECR disclosure); (3) ineligible for SECR questions (confirmed out of scope or cannot confirm eligibility). Before the survey was launched, 10 cognitive interviews were carried out across different sectors and sizes to ensure that the questionnaire was clear to respondents and that questions were interpreted as intended. Following this, a pilot was undertaken to ensure the survey was working as intended and to identify any areas where the data collected would be weaker and need triangulating from other sources. After both of these stages, amendments were made to the survey based on discussions with DESNZ to maximise response rates and quality of data – this largely required shortening the survey and simplifying a number of the questions.

During the analysis stage, weights were added to respondent answers to help ensure that the findings reflected the whole population of relevant organisations.[9] DESNZ was able to provide a full list of known entities that appear in scope of SECR[10], against which the SECR compliers could be compared. Weights were calculated using a size classification (1-250 staff; 251-500 staff; 500+ staff) combined with a sector classification (primary or secondary industry; services

[9] Post stratification weighting was applied, where weights were added to respondents to ensure they match a known population base, in this case the database of known SECR-eligible businesses

[10] The methodology for determining which entities are in scope of SECR is outlined in Annex: Fame data analysis.

or knowledge based). Non-SECR companies were not weighted due to the lack of a sufficient database to weight against. This does mean that the responses from non-SECR companies are not representative of the wider population.

There were limited responses to questions relating to internal time and external costs. The survey asked respondents to provide specific hours for internal time and specific amounts for external costs. If these could not be provided, the survey asked if they could provide banded responses. When calculating the means for internal time and external costs, only exact responses were included (excluding banded responses), and any clearly inaccurate records were removed (such as one respondent who claimed it took over 1000 hours of management time).

As with all survey-based research, it is essential to consider potential sources of bias before drawing conclusions. In this instance, stakeholders highlighted a possible self-selection bias – businesses with strong climate-conscious values may have been more inclined to participate in the survey than those placing less emphasis on energy use and emissions reduction. This could influence the representativeness of the findings and should be taken into account when interpreting survey results.

Qualitative interviews

Qualitative semi-structured interviews were conducted with the aim of developing an in-depth understanding of the process of SECR disclosure and the behavioural mechanisms that underpin the achievement of SECR objectives. In total, 21 stakeholders across the following three key stakeholder groups were interviewed.

- SECR eligible organisations (n=7): these interviews explored the processes, costs and challenges of SECR disclosure to gain a nuanced understanding of the behavioural mechanisms that support the achievement of SECR objectives and any barriers to their operation.
- SECR reporting service providers (n=6): these interviews explored the processes, costs and challenges of SECR disclosure and how this may vary between companies and sectors.
- Investors (n=8): these interviews explored how SECR disclosures are understood and used by investors in their decision-making processes and any barriers or limitations to their use.

The interviewees were purposively sampled to select participants with sufficient knowledge and experience of SECR to be able to provide in-depth, meaningful insights into the process and impacts of SECR disclosure. The sampling and recruitment strategy was tailored to each stakeholder group to maximise response rates and potential insights. For SECR eligible organisations, this involved the use of a sampling matrix (see Annex: Qualitative Interview Methodology) to ensure a range of SECR-related experiences from organisations in and out of scope of SECR and other reporting requirements. This was used to select and recruit business survey participants who agreed to be contacted for a follow-up interview. For SECR reporting service providers and investors, stakeholders were initially sampled from the longlist of

participants in the DESNZ Scope 3 Emissions in the UK reporting Landscape Call for Evidence (CfE) Analysis Report. These organisations were purposively selected to ensure that there was widespread representation across entities that had participated in the CfE, as well as those who had not. This sample was supplemented by stakeholders identified by DESNZ and ICF's network of experts to ensure organisations that had not participated in the previous DESNZ CfE had the opportunity to contribute.

The semi-structured interviews were conducted on Microsoft Teams and lasted between 30 minutes to an hour. Interviews were carried out with the aid of stakeholder-specific topic guides, which were iteratively co-developed between the evaluation team and DESNZ. The guides were used flexibly as an aide-mémoire, allowing interviewers to adapt the conversation to the expertise and experience of each participant while ensuring consistency across core themes. This approach was chosen to balance structure with openness, enabling the collection of nuanced insights and the exploration of unanticipated subjects while maintaining comparability across stakeholder groups.

Thematic analysis was then undertaken. A deductive approach to the structuring and interpretation of qualitative data was used, with the research team coding data to pre-identified themes. This grounded the analytical approach in a pre-existing framework developed through document review, theory of change development and collaboration with DESNZ.

Quasi-experimental impact analysis

The impact evaluation of SECR used the following two data sources:

- Non-Domestic National Energy Efficiency Data (ND-NEED) Framework, which provided data on metered gas and electricity energy consumption data for buildings in England and Wales associated with UK enterprises; and
- Financial Analysis Made Easy (FAME), which contained key financial indicators for UK companies.

As ND-NEED data covers metered gas and electricity on UK-based premises, some categories of energy consumption are not captured:

- For unquoted companies and LLPs: transport energy
- For quoted companies: Consumption of all other fuels (both transport and non-transport), and all non-UK energy consumption.

Data from FAME and ND-NEED were matched using a lookup file which linked each unique enterprise reference number from the Inter-Departmental Business Register (IDBR) (this is the unit of analysis for the ND-NEED dataset) with the unique company registration number (the company's identifier in FAME). The ND-NEED and FAME datasets and the lookup file were provided by DESNZ. For further information (Annex: Quasi-experimental impact evaluation).

The approach to data cleaning and management is described in 'Annex: Quasi-experimental impact evaluation'. The final sample comprised 13,591 enterprises, of which 899 were in scope for SECR based on their headcount and financials (i.e. they were considered as large based

on the two-year rule) and 12,692 were out-of-scope. Likely as a result of excluding companies that file consolidated accounts (as a way of removing the problem of double counting financial metrics), this sample did not contain records for quoted companies. However, subsidiaries of quoted companies that themselves meet SECR criteria and have unconsolidated accounts were still included in the dataset.[11] Therefore, the impact evaluation covered only large unquoted companies and Limited Liability Partnerships (LLPs). However, analysis of ND-NEED data for 2022 suggests that enterprises comprising quoted companies are responsible for at most 5% of gas and 10% of electricity in scope of SECR. The potential impact of this partial coverage is therefore limited and is assessed in the cost-benefit analysis section of the report. Finally, as noted earlier, previous studies have investigated the impact of carbon reporting requirements on quoted companies.

Table 2 shows the sample available for impact analysis, distinguishing companies between high and low energy users (depending on whether they appeared to use more than 40 MWh of energy in 2020 according to ND-NEED data) and whether they were considered as in or out of scope for SECR in 2020 based on the two-year rule.

Table 2: Sample size, by energy use and SECR eligibility status based on the two-year rule

	Potential low Energy User based on ND-NEED data (<40 MWh)	Known higher Energy User (40+ MWh)
In scope for SECR in 2020	50	849
Out of scope of SECR in 2020	2,839	9,853

The SECR rules stipulate that only companies which are high-energy users and satisfy the two-year rule are in scope for SECR. This means that, in our sample, there are 849 companies in scope of SECR. The remaining 12,742 companies are out of scope for SECR because they do not satisfy the two-year rule, they may not satisfy the de-minimis energy threshold, or both.

Impact evaluation design

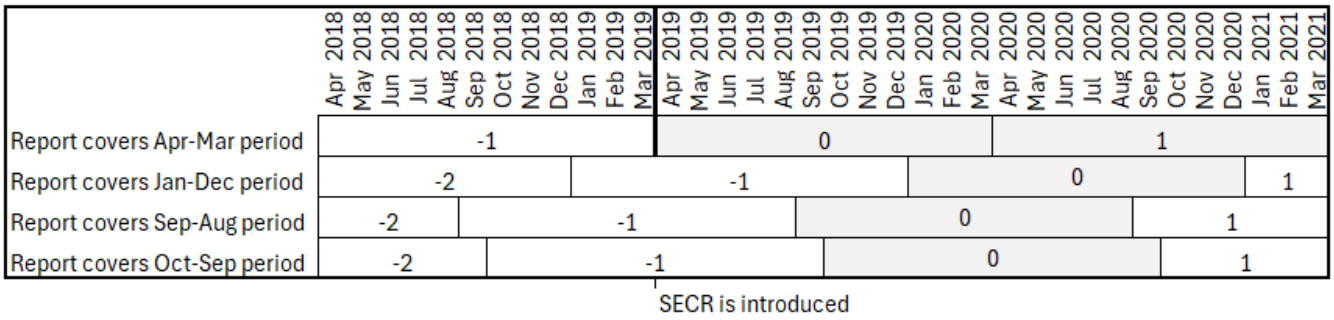
The impact evaluation design is illustrated in Figure 2. It was developed to reflect the timing of the introduction of the SECR (1st April 2019) and accommodate the data structure (i.e. companies in scope for SECR in 2020 which filed accounts ending in 2020 that covered the time period April 2019 to March 2020 or January 2020 to December 2020). The energy consumption reported by companies in 2020 is the first post-SECR outcome observed. It reflects any change that companies in scope for SECR in 2020 experienced through reporting their energy use and carbon emissions in that year. For these companies, in addition to estimating the SECR impact in 2020 (immediate impact, associated with the period denoted by

[11] E.g. Tesco Stores Limited is an unquoted subsidiary of the quoted company Tesco PLC.

0 in the diagram), impacts in 2021 and 2022 were also assessed (one and two years after, associated with period 1 and 2, respectively).[12]

As the SECR introduction happened in the 2019 reporting period for some companies (those which filed accounts covering the period Jan 2019 to Dec 2019), this period could not be considered as a pre-SECR period for these companies. Accordingly, the year 2018 was selected as the pre-treatment year. This period runs from Jan to Dec 2018 for some companies and from Apr 2017 to Mar 2018 for others.

Figure 2: Impact evaluation design



Quasi-experimental technique selection

To assess the causal effect of the SECR policy, two quasi-experimental approaches were first explored: propensity score matching (PSM) and difference-in-differences (DiD). However, substantial disparities in characteristics between companies in and out of scope of SECR rendered PSM ineffective in identifying a credible comparison group. Regarding DiD, its validity hinges on the parallel trend assumption – that, in the absence of SECR, the outcomes for both groups would have followed similar trajectories over time. In this case, this assumption could not be clearly demonstrated. Detailed findings and technical discussions related to both PSM and DiD are provided in 'Annex: Quasi-experimental impact evaluation'. As a result, the synthetic difference-in-differences (sDiD) approach was used, which offers a more robust framework under these conditions.

Synthetic Difference-in-Differences (sDiD)

The sDiD method (Arkhangelsky et al., 2021)[13] incorporates features of both the Synthetic Control (SC) and DiD methods. It was chosen for its robustness and flexibility (it can accommodate situations in which the DiD parallel trend assumption does not hold). The sDiD is a weighted DiD estimator which uses two sets of weights, namely, company and time weights. By design, the company weights impose the average energy consumption for the companies in scope for SECR to be approximately parallel to the weighted average of the energy consumption for companies out of scope for SECR. The time weights are constructed in such a way that the average post-SECR introduction energy consumption for each of the companies out of scope for SECR differs by a constant from the weighted average of the pre-

[12] Note period 2 has not been included in the diagram due to space reasons
[13] Arkhangelsky, D., Athey, S., Hirschberg, D., Imbens, G., & Wagner, S. (2021). Synthetic difference-in-differences. American Economic Review, 111(12), 4088 – 4118.

treatment outcomes for the same companies. Applying these weights makes the parallel trend assumption more plausible.

Similarly to the standard DiD approach, the sDiD method (with covariates) accounts for unobserved individual and time fixed effects. Individual fixed effects include company characteristics whose effect on the energy consumption outcome does not change over time (e.g. if the effect that a company's size or sector has on the company's energy use does not vary over time, then company size or sector can be considered as an individual fixed effect, and it will cause estimation bias if it is not controlled for). Time fixed effects include time-related events that affect companies in scope for SECR and companies out of scope in the same way (e.g. a common economic shock or regulatory change). However, differently from DiD, sDiD can control for unobserved factors which affect the same individuals differently at different time points (these are called idiosyncratic transitory shocks; an example would be company size or sector in situations where the effect that a company's size/sector has on the company's energy use varies over time). The chief advantage of sDiD is that it is a doubly-robust estimator: it performs well when the parallel trend holds and where deviations from the parallel trends appear to be present (this often happens in the presence of idiosyncratic transitory shocks).

Value for money evaluation

The mixed-methods VfM evaluation framework approach was developed to reflect the complexity of the energy and carbon reporting policy landscape and tailored to the specific design and implementation of SECR. The approach combines a quantitative social cost-benefit analysis (CBA) with evaluative indicators and metrics in-line with the National Audit Office (NAO) guidance on a ‘5Es’ approach.

Cost-benefit analysis

In-line with His Majesty’s Treasury’s (HMT) Green Book and Magenta Book guidance, the evaluation used a cost-benefit analysis approach as the primary source of assessing VfM. The CBA is based on a model initially used by BEIS at the policy development stage, with updates made to assumptions, evidence, and input data where possible to reflect the outturn impact of the scheme and to draw comparisons with the expected impact. The CBA produces a benefit-cost ratio (BCR), which compares the overall social costs of the programme to the benefits, and a net present social value (NPSV), which expresses the discounted value of all benefits less costs. The result is all benefits and cost which can reasonably be quantified and monetised are included in this analysis. This drew on the full range of evidence available through the evaluation to appropriately quantify and monetise all feasible costs associated with SECR, including quantitative estimates from the quasi-experimental impact analysis, business survey, qualitative interviews, and evidence provided by DESNZ.

There are multiple costs associated with the implementation of SECR. At a minimum, there are administrative costs to businesses to comply with the regulations (through compiling and analysing data, reporting, managing the process, and approval and verification activities) where businesses would not already be undertaking these activities. Where SECR induces businesses to implement measures to reduce energy consumption or carbon emissions, there will be capital expenditure and/or operational costs associated with these measures, alongside

hassle costs associated with the implementation of such measures. The 2018 SECR Impact Assessment[14] assumed any measures induced by SECR would relate to energy efficiency, not other forms of decarbonisation – this assumption is continued in the cost-benefit analysis here. For some organisations, there may be additional costs, including legal and consultancy fees, which are paid to external organisations for services related to SECR administration and implementation. Costs are expected to be greater in the initial period following compliance with SECR due to the need for familiarisation and setting up of processes, with lower ongoing costs of compliance.

The main monetised benefits associated with compliance with SECR are driven by energy savings resulting from the implementation of efficiency measures. Reductions in energy use have benefits to society through lower carbon emissions and improved air quality.

5Es

The cost-benefit outputs have been supplemented with a 5Es framework that encourages a mixed method approach and the use of both quantitative and qualitative data sources. This framework draws on evaluative indicators and metrics in-line with National Audit Office (NAO) guidance on a 5Es approach to assess the criteria of: (i) Economy; (ii) Efficiency; (iii) Effectiveness; (iv) Equity; and (v) Cost-Effectiveness. For each criterion, ICF worked with DESNZ stakeholders to develop a set of context-specific questions (as seen in Table 3) to ensure the framework was appropriate to SECR and its evaluation.

Table 3: 5Es criteria and SECR-specific questions

Element of 5Es framework	Generic definition	SECR-specific questions
Economy	Are inputs of appropriate quality bought at a minimised price?	Is energy and emissions data being collected at a high quality? Is energy and emissions data being collected at a minimised price?
Efficiency	How well were inputs transformed into outputs?	How well are SECR eligible organisations converting their energy use and emissions data into compliant SECR disclosures? What is the level of compliance with SECR regulations? Is energy and emissions data additional?

[14] Department for Business, Energy & Industrial Strategy (BEIS). (2018). Streamlined energy and carbon reporting framework: Final IA (BEIS016(F)-18-CG). Available at: SECR_and_CRC_Final_IA__1_.pdf

Effectiveness	How well do the inputs achieve intended outcomes?	Intermediate: How well is compliant SECR reporting by eligible organisations increasing the internal and external awareness of energy use and emissions? How well is compliant SECR reporting by eligible organisations increasing internal and external pressure on energy use and emissions? Long-term: Has there been a reduction in energy use and emissions?
Equity	Are the benefits distributed fairly?	Is the cost of compliance proportionate to the means of eligible organisations and the impact it has on energy consumption and carbon emissions? In the context of the wider non-financial reporting landscape, is SECR reporting placing an undue burden on particular organisations or industries?
Cost-effectiveness	Does the value returned justify the resources invested?	Do the benefits outweigh the costs of the programme?

Other Evidence Sources

Mycelium data

Mycelium, a data company, has scraped data from the PDFs of Annual Reports filed with Companies House. The data scraping uses machine learning, including Large Language Models, to identify SECR disclosures in the image-based PDFs and extracts reported emissions data. The resulting data was made available to DESNZ and ICF for the purposes of this evaluation. As the PDFs scraped are image-based, even with sophisticated machine learning techniques there are known to be some data inaccuracies, for instance where the LLM struggles to detect emissions data. In the way the Mycelium data is used in this evaluation, the main caveat to note is that Mycelium data is likely to underestimate the number of companies reporting emissions data.

Financial Reporting Council (FRC) reviews

The FRC undertakes Corporate Reporting Reviews on annual reports and accounts of public and large private companies to assess compliance with the law and other reporting requirements. Where relevant, these reviews also include assessments of whether SECR reporting requirements are met. As these reviews are weighted heavily towards the largest

companies, findings are not representative of all companies in scope of SECR. However, given the thoroughness of the reviews, high level findings are referenced in this evaluation as an alternative source of insight on compliance to the self-reported information from businesses and the more comprehensive but potentially lower accuracy data scraped from Annual Reports.

Results

This section outlines the evidence generated through the evaluation against the key evaluation themes. This includes findings from the business survey, insights gathered from the qualitative interviews, quasi-experimental impact analysis outputs, and the value for money framework.

How has the delivery and implementation of SECR worked and how does it relate to the wider context of energy efficiency reporting?

Compliance with SECR

Three evidence sources are drawn on to answer this question:

- Mycelium data is used to identify whether companies that appear in scope of SECR have reported carbon emissions in their annual reports. This Mycelium data is available for 92% of companies in scope, and of the three evidence sources is the most comprehensive in scale.[15] However, the disclosure of carbon emissions in annual reports is just one requirement of SECR, so the data provides only a partial test of compliance. Importantly, because Annual Report PDFs filed with Companies House are image-based, there are known issues with the machine learning approach identifying all instances of reported emissions. As such, the Mycelium data is likely to underestimate the number of companies that disclose emissions data.
- The business survey attempted to identify whether the respondent's company was in scope of SECR by asking a series of detailed questions.[16] It then asked whether the respondent had heard of SECR, and if they had, whether their latest account[17] included an SECR disclosure. The survey is intended and weighted to be representative of the wider population of businesses in scope of SECR, but some businesses may have been more likely to respond than others – e.g. those already highly engaged in carbon reduction. The survey's accuracy is dependent on the individual who responds on behalf of the business. It is possible that a company provided a SECR disclosure but the respondent was not aware of the SECR disclosure, at least not by name. Finally, the survey only asked whether the company included an SECR disclosure and cannot provide an assessment of whether the disclosure complied with the relevant

[15] Of the 21,200 companies and LLPs that are quoted or meet relevant size criteria, 19,800 were able to be matched to the dataset produced by Mycelium using Company Registration Number. Removing companies that were eligible for a subsidiary exemption or which actively disclosed a low energy exemption in their annual account left 12,800 companies and LLPs whose Mycelium data were analysed.
[16] This included asking headcount and financial measures over a number of years, whether a UK parent company filed consolidated accounts, and whether the company used less than 40 MWh of energy. Specific questions shown in Annex: Quantitative business survey Methodology.
[17] In the case of subsidiaries eligible for a subsidiary exemption, the respondent was asked whether their parent's consolidated account included an SECR disclosure.

requirements. As such, it is only a partial measure of compliance. Overall, it is not clear whether the survey would be more likely to over- or underestimate compliance.

- The Financial Reporting Council (FRC) performs reviews of company accounts to assess compliance against a wide range of reporting requirements, including SECR. The FRC's reviews are more in-depth and accurate than the other two evidence sources in assessing compliance. However, these reviews are deliberately not representative of the whole population of businesses in scope of SECR. The reviews are weighted towards FTSE and other listed companies, with a smaller number of private companies in scope. If quoted companies are more likely to comply with SECR than in-scope unquoted companies, then extrapolating the results of FRC reviews would overestimate compliance rates.

Of companies that appeared in the Mycelium dataset and which would be expected to report SECR disclosures in their own annual reports (i.e. they were not eligible for subsidiary exemption and had not claimed a low energy exemption), the Mycelium data detected 67% of these companies reporting both scope 1 and scope 2 emissions.[18] This was higher for quoted companies (85%) than for unquoted companies and LLPs (66%).

In the business survey, 77% of in-scope businesses reported that they were aware of and had complied with the regulations. The remaining 23% of businesses were made up of 14% who were eligible but did not compile or report energy or carbon data, and 9% who did compile and report on energy and carbon data but had not heard of SECR (so could not be asked if they had included an SECR disclosure). It seems possible that a number of these companies had, in fact, complied with SECR, but the respondent was simply unaware of the SECR name.[19]

Findings from a Financial Reporting Council (FRC) review of companies' accounts to assess compliance against reporting requirements, including SECR, have found a generally higher level of compliance than findings from the interviews or business survey. The review finds that compliance is improving over time, with 26% of eligible accounts having had breaches in 2021, which has fallen each year since. In its review of 2024 reports and accounts, the FRC did not identify any actual or suspected breaches of the requirements which it considered significant enough to make enquiries of the company. The FRC reviews were heavily weighted towards FTSE and other listed companies, which may drive the result of higher compliance, as those companies are more likely to have the systems in place to comply with SECR.

Analysis of Mycelium data suggests that 34% of SECR eligible organisations do not publish any required carbon emissions. The business survey suggests that at a minimum 14% did not comply, rising to 23% if we also assume as non-compliers those who had not heard of SECR but did state their organisation compiled and reported energy and carbon data (termed 'possible compliers'). The FRC's most recent reviews in the 2024 review cycle found 10% of in scope accounts had, in its assessment, only minor compliance issues, meaning no compliance

[18] At least one of either location-based or market-based scope 2 emissions.
[19] The precise wording of the question in the survey was: "Have you ever heard of Streamlined Energy and Carbon Reporting (SECR) requirements? IF NECESSARY: SECR requires UK registered companies that are large or listed on certain stock markets report their carbon emissions and energy consumption."

issues were noted in the remaining 90%. As both Mycelium data and business survey show quoted companies having higher compliance rates than unquoted companies, compliance issues are very likely to be higher across all in-scope businesses than the 10% rate found through the 2024 FRC reviews. Combined with the fact that Mycelium data is likely to overestimate non-compliance, it appears likely that the actual rate of non-compliance is in the 14% to 23% range provided by the survey.

Table 4: Comparison of compliance evidence

Evidence source	Coverage and representativeness	Ability to assess compliance	Likely over or underestimate non-compliance?	% Suspected non-compliance
Mycelium	Very high	Low	Overestimate	34% had no carbon emissions detected
Business survey	Medium	Low-Medium	Unclear	14 - 23% reported not complying (or were 'possible compliers)
FRC reviews (2024)	Deliberately not representative	Very high	Underestimate	10% had minor non-compliance

What are the administrative burdens of SECR?

Businesses that comply with SECR tend to report that administrative burdens are not overly onerous. Most businesses either agreed or strongly agreed that data is easily accessible for total energy use (70%), data on Scope 1 emissions (63%), data on Scope 2 emissions (64%), and data to inform efficiency actions taken in the past year (58%). With this said, data on energy intensity ratios and Scope 3 emissions[20] appear to be more difficult for businesses to

[20] The survey asked about scope 3 emissions as a catch-all category, not just the scope 3 emissions required for some SECR disclosures (e.g. business travel). Some respondents may have interpreted this question as asking about the ease of access of all scope 3 emissions, while others may have interpreted it as asking only about SECR relevant scope 3 emissions.

access, with only 47% and 18% of businesses, respectively, either agreeing or strongly agreeing that this data is easily available.

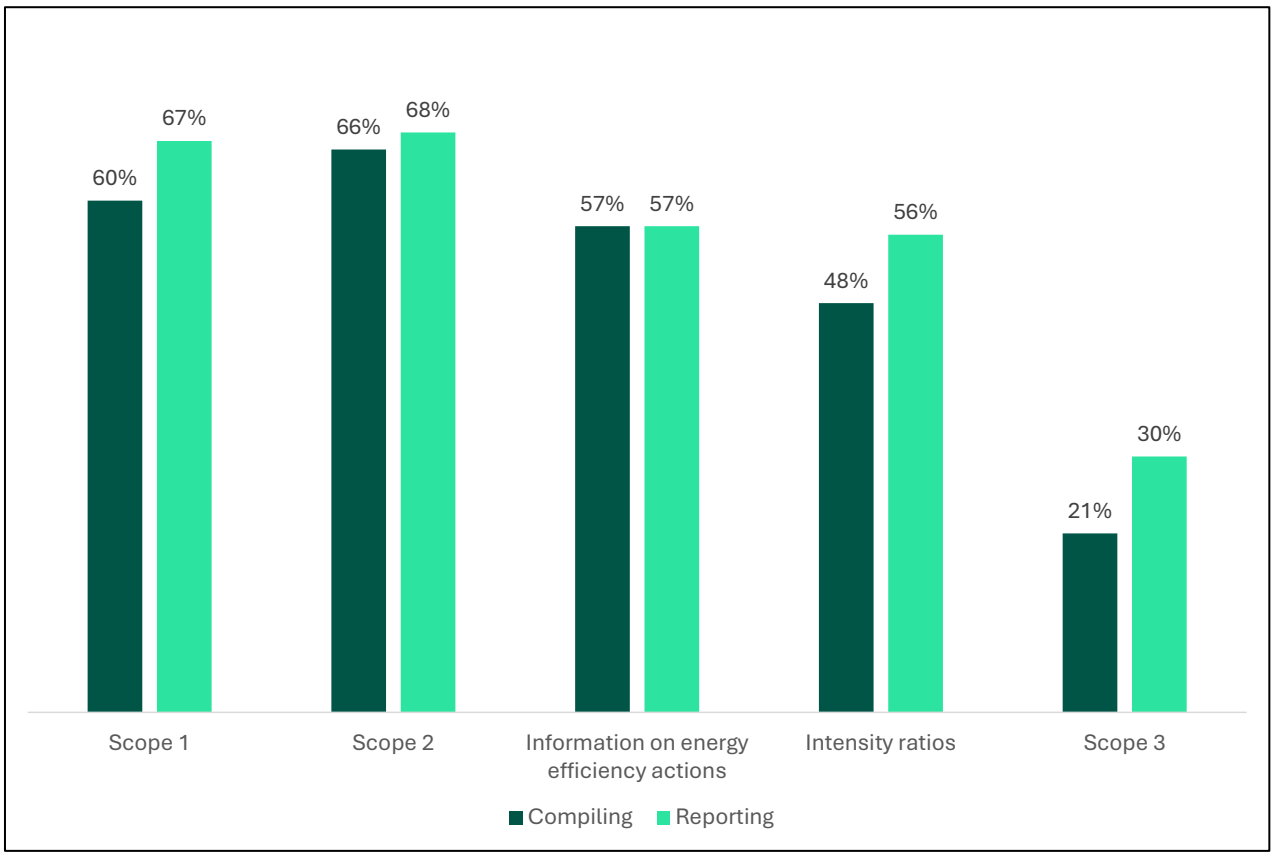
Similar patterns are apparent when examining responses about the ease of compiling and reporting climate and emissions data. Most businesses had a good understanding of SECR requirements. Although 19% of in-scope survey respondents were not aware of SECR, of those that did comply, 88% either strongly agreed or agreed that they had a good understanding of the SECR requirements around compiling and reporting data. This was largely consistent with findings that most complying organisations rely, to at least some extent, on internal staff for compiling energy use and carbon emissions data. Respondents indicated that a range of departments were relied on to do this, most frequently including accounting/finance departments (36%), safety/environmental departments (20%), estates and facilities managers (19%), sustainability teams (17%), and compliance officers (12%). Small or medium sized businesses were more likely to use their accounting or finance teams (50% compared to 36% average).

Most businesses either agreed or strongly agreed that it was easy to compile data on total energy use (61%), Scope 1 emissions (60%), Scope 2 emissions (66%), and information on energy efficiency actions taken in the last year (57%). However, data on intensity ratios (48% agree) and Scope 3 emissions[21] (21% agree) are more difficult to compile for most businesses. Similarly, for reporting, more than half of businesses either agree or strongly agree that data on total energy use (72%), Scope 1 emissions (69%), Scope 2 emissions (68%), data to inform intensity ratios (57%), and information on energy efficiency actions (57%) are easy to report, while 28% agree or strongly agree that data on Scope 3 emissions[22] are easy to report.

Analysis of data collected from Mycelium suggests that, of companies reporting scope 1 and 2 emissions, over half (54%) reported at least one category of scope 3 emissions. It should be noted that once category 6 scope 3 emissions are removed (i.e. those relating to business travel), this proportion reporting any other category of scope 3 emissions drops to 7%. Reporting of scope 3 emissions other than category 6 is also reported to be much higher for quoted companies (44%) compared to unquoted companies (6%).

[21] It is possible that some respondents may have understood this question as related to all Scope 3 emissions, while other may have interpreted it as only some Scope 3 emissions.
[22] As footnote above.

Figure 3: Percentage of compliant businesses that agree compiling and reporting energy and emissions data is 'easy'



Base: Compiling: All that comply with SECR and compile data themselves (142). Reporting: All that comply with SECR and use internal staff to report (111)

Finally, businesses that comply with SECR report using a variety of methods to ensure that the energy use and carbon emissions data that they report are accurate, without any single approach being dominant. Most commonly, these include third-party verification (30%), information from energy providers (22%), internal audits (20%), and cross-checks with industry benchmarks (18%).

This aligns with qualitative interview findings, which suggest that, overall, the administrative procedures for making disclosures are not widely regarded as burdensome. Moreover, several interviewees from both SECR eligible organisations and SECR reporting service providers noted increased familiarity with SECR requirements and associated data collection and reporting processes since its inception in 2019. In some cases, this increased familiarity and associated improvements in internal capabilities were reported to lead to eligible organisations no longer needing external consulting support. Organisations, across both reporting providers and in-scope entities also noted that SECR reporting requirements have remained stable since its inception. This stability has contributed to ensuring that the process of SECR disclosure is straightforward and not excessively burdensome. However, interviewees did note that the lack of a single prescribed reporting template for SECR disclosures has led to inconsistency in the placement and format of SECR reports and can contribute to the *"height and the steepness of*

the learning curve" for reporting under SECR. Improved signposting to the existing reporting template and updated guidance and examples of SECR reporting could be provided to assist eligible organisations and also enhance consistency of SECR reports across companies for those reviewing these reports.

Interviewees from SECR eligible organisations and reporting service providers noted that once the relevant data had been collected and analysed, the process of reporting SECR disclosure is often completed within a focused timeframe of a few days rather than over extended periods of time. Discussions also revealed that while the complexity of SECR requirements varied depending on the company's organisational structure and number of buildings, this did not result in the metered information being inaccessible. This ease of access, combined with increased familiarity with the regulations, was the reason that organisations found it relatively straightforward to carry out requirements. One organisation for example estimated that the time and cost required to carry out their SECR reporting had reduced by as much as 75% compared to when these requirements were first introduced.

Precise estimates of time and money spent complying with SECR are provided in the 'What is the overall cost-effectiveness of the policy?' and the 'Annex: Cost data' sections of this report.

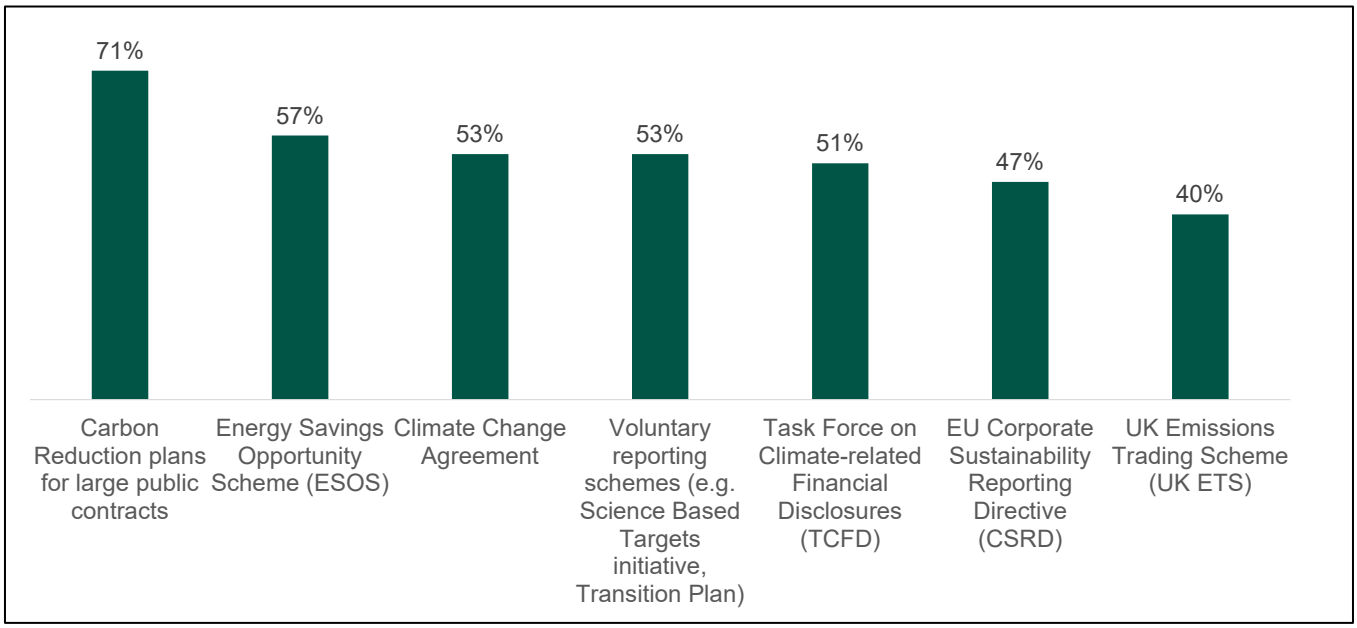
How does SECR interact with other policies in the area?

Evidence from the business survey suggests that SECR compliant businesses also participate in several other initiatives in the sustainable reporting landscape. The most common was the Energy Savings Opportunity Scheme (ESOS), of which 70% of compliant businesses surveyed also comply with. Other initiatives included the Climate Change Agreements (31%), Carbon Reduction Plans required for large public contracts[23] (30%), Science Based Targets Initiative (25%), disclosing a Transition Plan (22%), the EU corporate sustainability report (20%) and the Task Force on Climate-Related Financial Disclosures (16%).

When asked how easy it was to reuse data collected and compiled for these schemes for SECR reporting (or vice versa), responses ranged from 40% to 71% of businesses considering them easy to reuse. The initiative where respondents reported the greatest interoperability with SECR was Carbon Reduction Plans required for large public contracts (71% easy), while the least interoperable was the UK Emissions Trading Scheme (40% easy). Over half (57%) stated that the data compiled for the Energy Savings Opportunity Scheme was easy to reuse for the purposes of SECR (or vice versa).

[23] As required by PPN 006.

Figure 4: Percentage of organisations that find it easy to reuse SECR data for other initiatives, or vice versa



Base: Those that comply with SECR and participate in the listed other initiatives

Qualitative interview evidence from both reporting providers and eligible organisations also highlighted that the information compiled for SECR closely aligns with the requirements of other frameworks, such as ESOS, TCFD and SBTi, and so can be used for their development and reporting processes. In particular, the Scope 1 and Scope 2 emissions required as part of SECR meant that organisations in many cases did not have to duplicate efforts required to carry out additional reporting. The overlap of SECR with other reporting requirements also meant that for some eligible organisations, the time required to carry out further obligations was reduced. SECR reporting providers also commented that they often carry out SECR obligations alongside a range of other compliance exercises. The overlap of reporting requirements meant that the time required for reporting providers is reduced, as many of these tasks can be carried out concurrently.

Although many organisations were positive about the similarity of SECR to wider reporting frameworks, some did note that the current reporting landscape presented challenges. Some eligible organisations found that, although SECR's similarity to other environmental reporting schemes allowed information to be reused for different requirements, it could nevertheless lead to duplication of effort. As noted, familiarity with SECR, along with other environmental reporting, has improved significantly but there was still a desire for additional alignment across current reporting frameworks. Eligible organisations noted that this alignment is increasingly important to ensure that duplication of effort and administrative burden is reduced. Organisations that operate in multiple jurisdictions around the world also observed that greater alignment between domestic and international requirements would be beneficial. Reporting providers and eligible organisations expressed strong support for aligning current SECR requirements with International Sustainability Standards Board (ISSB) and the EU's Corporate Sustainability Reporting Directive (CSRD). Reporting businesses and providers also recognised that SECR, with its more backwards looking focus, could be aligned with TCFD

requirements, which have a forward-looking emphasis. Interviewees recognised that this increased alignment would help to reduce duplication of report preparation while also helping to improve comparability across jurisdictions.

The business survey also highlighted those who reported going beyond their SECR requirements. Of those who complied with SECR, 83% stated that they went beyond the requirements. Around half stated they reported Scope 3 emissions[24] (55%) and a similar number flagged setting and/or disclosing carbon reduction targets (52%). Just under half (48%) reported that they seek external assurance and verification of the data included in the report. Two fifths (39%) stated they provide more granular data than required[25], with a similar figure publishing a standalone sustainability report (37%) or reporting additional metrics (36%). A quarter provided global energy and emissions data (26%).

Where is SECR reported?

Under the Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018, SECR disclosures must be included in the Director's Report or the Strategic Report section (where energy and GHG use is of strategic importance) of a company's annual report. Interviewees, particularly those representing SECR reporting service providers and investment institutions, noted that placing SECR disclosures in publicly available Directors' Reports, which require board-level sign off and auditing, helps to increase the organisation's level of accountability. However, some interviewees from eligible organisations and reporting service providers thought that SECR reporting can often be lost within annual reports due to a lack of consistency in their placement. Such interviewees also reflected that SECR disclosures are often only read by a select few people due to limited awareness of their presence and location in annual reports.

These interviewees were more likely to suggest that SECR-generated information should be uploaded into a centralised database or portal rather than being placed within annual reports. Those in favour of this idea argued that having a centralised location would increase the level of transparency and improve the comparability and benchmarking of emissions and energy use data across companies and sectors. However, other interviewees from these same stakeholder groups expressed reservations on centralising SECR information in a single database. For instance, interviewees noted a perceived risk of increased mistakes and data inaccuracy if organisations were required to copy information into a centralised database, as this may become a quick 'copy and paste' exercise. This concern may be linked to the fact that a centralised portal, unlike disclosures in company annual reports, is likely to have less internal board-level oversight and associated assurance and verification processes.

[24] As above, these findings should be interpreted with caution given that it is possible that some respondents may have been reporting on all Scope 3 emissions while others might have been referring only to SECR-relevant Scope 3 emissions.

[25] Although this may be interpreted as the business survey being skewed towards large organisations, this is unlikely given that the survey results are weighted and business size is a variable in this weighting. Instead, it is possible that these figures reflect a skew in terms of commitment to climate goals (i.e. those businesses that are more committed to achieving climate goals were more likely to participate in the survey).

Even among stakeholders who were generally supportive of a central database, support was conditional on certain caveats being met, including that the information could be easily accessed by the central government and private stakeholders. Investors specifically emphasised that while making information in such a database publicly accessible is important, it is also essential to provide the data in a format that is easy to download and analyse for optimal effectiveness. Eligible organisations acknowledged that establishing a database of this magnitude would require substantial initial and ongoing investment and would be most useful if this centralised data were reviewed and used by government entities to highlight the trends and solutions of different sectors and organisations. Organisations would also require time to become more familiar with the new reporting approach and there would likely be challenges as companies get up to speed with new reporting requirements.

Interviewees across reporting providers, eligible organisations, and investors also proposed changes regarding the current placement of SECR information within annual reports. Investors noted that while this information would become increasingly important as part of investment decision making, presenting this information consistently across annual reporting could help increase the usability of this data. Some investors suggested that this information could be pulled out into a separate report focused solely on environmental information and strategies. Interviewees argued that this report would not get lost alongside the financial information contained in wider annual reports but would instead be clearly separated and so more readily visible to external stakeholders. However, several interviewees, especially within eligible organisations, noted that integrating environmental disclosure data into broader financial reporting does enable non-financial information to be accessible to audiences that might not otherwise encounter such data. Hence, interviewees suggested that moving climate-related disclosures away from financial information may limit the ability of SECR to generate wider external stakeholder awareness and pressure. To support external accessibility and awareness, interviewees across the stakeholder groups also noted the potential value of providing prescribed templates for SECR reporting to increase consistency of SECR disclosures across organisations and over time.

“I do think it (SECR) has played an important role in transparency and in advancing better practices…I know that banks and other stakeholders find it [to be] useful information because they can access it, they know where to access it, and they're accessing it in the same place as they're accessing other [financial] materials already. So, actually, it being in the Directors’ Report actually made it easier for banks and investors to make use of this because they're already using tools to pull information out of these things.” (SECR Reporting Service Provider)

Summary of findings

- Evidence indicates that reporting SECR disclosures is considered a straightforward process and current SECR requirements are perceived as manageable and not excessively burdensome.
- Analysis of Mycelium data suggests moderate levels of SECR compliance, particularly among quoted companies, but its reliance on machine-read annual reports likely leads to under-detection of disclosures. In contrast, the 2024 FRC reviews show higher

compliance but are skewed towards larger, listed firms, limiting their representativeness. Together, these sources indicate improving compliance over time, though gaps remain in coverage and accuracy across the wider business population. This increased compliance appears to align with survey and qualitative findings that companies are becoming increasingly familiar with how to ensure they comply with SECR reporting requirements. The survey of businesses which, unlike other available sources, is intended to be representative, suggests the rate of non-compliance is likely to be in the range of 14% to 23%.

- While compliance rates have risen, data from business survey indicates that some organisations remain unaware of SECR and the necessary compliance steps. This suggests that levels of non-compliance may be higher than currently reported as part of the 2024 FRC reviews and that this rate is likely to be most prevalent across private organisations and LLPs.
- Since the policy's inception, there appears to be an increasing familiarity and understanding of SECR requirements and the data collection and reporting processes required for compliance. While eligible organisations may continue to rely on specialised reporting providers due to concerns about internal expertise or limited resources, qualitative interviews indicated that some eligible organisations now feel confident and capable of compiling emissions data and producing the required reports in-house.
- Qualitative interview evidence suggests that the consistency of SECR requirements since 2019 has played a key role in helping firms understand the reporting process and put in place appropriate data collection processes. Hence, interviewees noted that the time and costs associated with SECR reporting have decreased significantly over time.
- Despite increasing familiarity and the view that SECR requirements are not overly burdensome, qualitative interviews with SECR reporting service providers and eligible organisations highlighted that SECR disclosure can still present challenges for organisations with complex structures, multiple sites or leased properties.
- Survey responses suggest that it was easy to reuse data collected and compiled for other reporting requirements for SECR reporting (or vice versa) - responses ranged between around a half to two-thirds of businesses considering them easy to reuse. SECR reporting service providers and eligible organisations observed that the information gathered through SECR can be repurposed to support other domestic and international environmental reporting frameworks. This alignment was widely appreciated and contributed to the perception that SECR requirements are generally manageable. However, interviewees still suggested that further steps could be taken to simplify and harmonise the broader reporting landscape in order to reduce duplication of effort.
- Interviewed stakeholders expressed mixed views on the effectiveness of the current placement of SECR reports. While stakeholders differed between whether information should be placed within public annual reports, reported separately or uploaded into a central government database, what organisations found most important was for information to be consistent, accessible and accurate.

What have been the outcomes and impacts of SECR and to what extent have they been additional?

Have the policy objectives been met?

Impact on energy use and GHG emissions

Using a DiD approach and its 'synthetic' variant, the quantitative impact analysis found evidence of SECR reducing energy consumption for companies in scope of the policy. For these companies, SECR was found to have reduced energy use in their first annual report, which would have included an SECR disclosure (i.e. in 2020) and in the two subsequent years (2021 and 2022). Over the years observed in this analysis, the impact seems to have reached its 'peak' (maximum value, in absolute terms) in 2021 and then experienced a reduction in 2022. While this may suggest that gains from learning-by-reporting and peer pressure are short-lived, this issue warrants further research.[26]

Covariate adjusted sDiD

The sDiD estimator was implemented with controls for: companies' total assets; turnover; employment; energy intensity; total area; and, whether eligible for ESOS. The sample used included 818 companies in scope for SECR and 2,875 companies out of scope. These were all companies with non-missing values on all the above confounders over the period 2015-2022 (assets, turnover and employment variables are available only from 2015).

The findings from the implementation of the covariate adjusted sDiD estimator are illustrated in Figure 5. The impact estimate for 2019 is disregarded because the sample used for analysis was selected based on eligibility for SECR in the financial year ending in 2020, and this is the first year for which we can assess the impact of introducing SECR in April 2019. This is the reason that 2019 appears as year 0 in the graph.

The red points appearing after year 0 represent the estimated impacts of SECR in 2020, 2021 and 2022, i.e. approximately one, two and three years after introducing the policy, respectively. The impact 'one year after' is obtained by using the change in energy consumption between 2018 (which is one year before the introduction of SECR) and 2020 (the first year after SECR is introduced) for companies in and out of scope for the policy. The impact 'two years after' is obtained by using the change in energy consumption between 2018 and 2021 (the latter is the second year after the introduction of SECR), and the 'impact three years after' is based on the change in energy consumption between 2018 and 2022.

The red points before 2019 are not actual impacts, as they represent the impacts of a fictional policy (SECR had not been implemented yet) and are used to assess the plausibility of the parallel trend assumption. These fictional impact estimates are calculated in the same way as the impacts one, two and three years after, in that they are based on outcome differences

[26] This also tallies with past research on the impact of the 2013 Mandatory Greenhouse Gas Reporting regulations that applied to quoted companies (Downar et al 2021). The impact on reducing carbon emissions was transient. But it is worth noting that the population for that study was ETS operators, who may overall see less impact from mandatory carbon reporting.

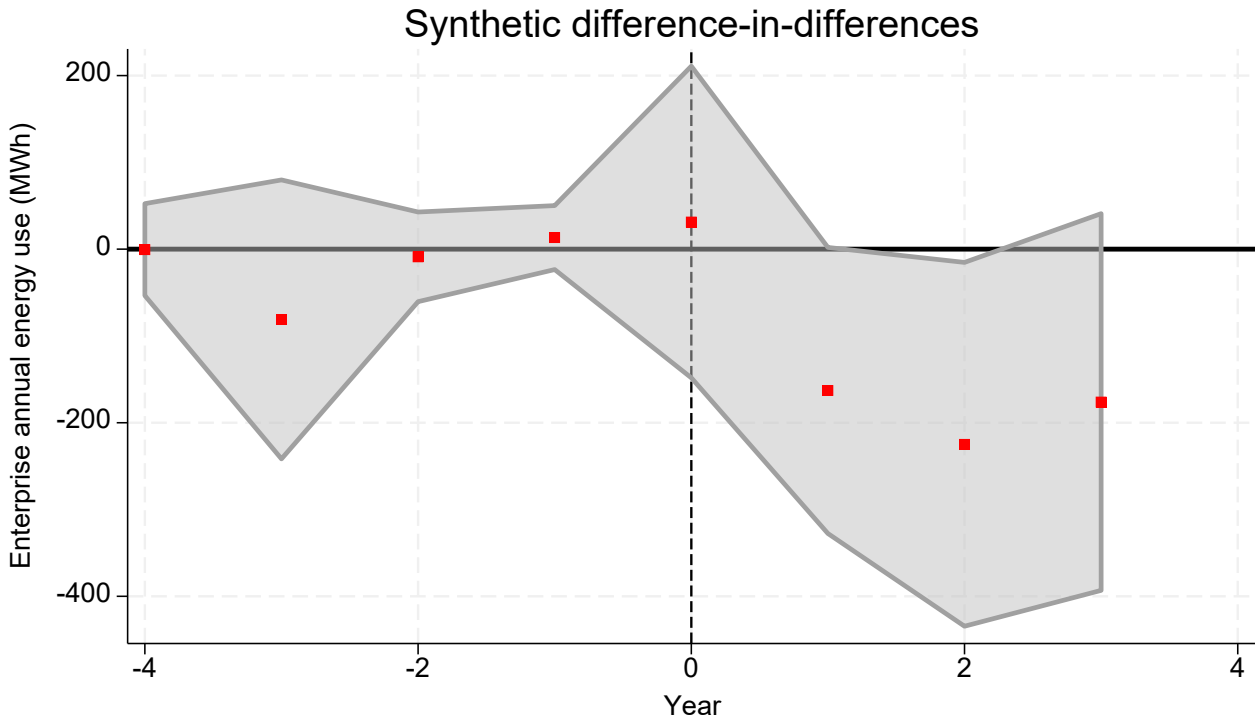
which use 2018 as the reference point. Specifically, the estimate associated with the time point '-1' is obtained using the change in energy consumption between 2017 and 2018 for companies in and out of scope for SECR. The estimate at time point '-2' is based on the change in energy consumption between 2016 and 2018, and the estimate at time point '-3' uses the change in energy consumption between 2015 and 2018.

Figure 5 confirms the following points:

- The fact that the grey shaded areas in pre-SECR periods cross the 0 in the y-axis means that the (fictional) impacts are not statistically significant. In other words, the energy consumption of companies in scope for SECR and companies out of scope (used to create a synthetic comparison group) developed in parallel over the entire pre-SECR period. This trend has been enforced by the sDiD estimator through the application of company and time weights.
- Energy consumption reduced in the period after the introduction of SECR. In the immediate post-SECR period, the average energy consumption of a company in scope for SECR reduced by 162.8 MWh. The impact one year after was larger. Two years after, the impact reduced in size. These impacts are larger (in absolute value) than those obtained using the covariate unadjusted sDiD (see in Annex: Quasi-experimental Impact Evaluation). Furthermore, one of them (specifically, the 2021 estimate) is found to be statistically significant at the 5% level. The 2020 estimate is significant only at the 10% level. The 2022 estimate was not found to be statistically significant at any conventional level (i.e., at the 10% level).

This reinforces the findings of a beneficial effect of SECR, in terms of energy reductions, for the companies in scope for the policy in the first year they submitted an annual report and (although to a lesser extent) in the year after.

Figure 5: Impact of the SECR (event study sDiD with covariates)



Sample size: 3,693 companies (818 in scope for SECR and 2,875 out of scope).

It is important to note that the validity of the impact estimates presented here crucially relies on the plausibility of the parallel trend assumption, which concerns the post-2019 period and is therefore not testable. Therefore, an important caveat is that the estimated impacts would be biased if, after 2019, companies in and out of scope for SECR experienced idiosyncratic shocks (i.e. shocks which affected companies in scope and out of scope for SECR at the same time but in a different way). This caveat would apply to any DiD-based estimates, not only to those in this report. Data checks suggested that COVID-19 is unlikely to have biased the estimates over the post-SECR period explored (see 'Annex: Quasi-experimental impact evaluation'). The energy crisis experienced in 2022 (if it was an idiosyncratic shock, as defined above, which would need to be explored) would bias the impact estimates observed three years after the SECR introduction, but not the estimates one and two years after.

Table 5: Covariate adjusted sDiD estimates of the impact of the SECR

	Estimate	Standard Errors	Lower bound 95% Confidence Interval	Upper bound 95% Confidence Interval
ATT	-133.1	86.4	-302.5	36.2
Effect_1 (2019)	31.3	103.3	-171.2	233.7
Effect_2 (2020)	-162.8	85.2	-329.7	4.1
Effect_3 (2021)	-224.9	114.7	-449.8	.005
Effect_4 (2022)	-176.1	116.9	-405.3	53.0
Placebo_1 (2018)	13.3	20.8	-27.5	54.2
Placebo_2 (2017)	-8.9	30.7	-69.2	51.4
Placebo_3 (2016)	-80.9	80.0	-237.8	75.9
Placebo_4 (2015)	-.6	27.5	-54.4	53.3

Sample size: 3,693 companies (818 in scope for SECR and 2,875 out of scope)

Table 5 shows the savings produced by SECR as measured by the energy reduction caused by SECR on a typical company in scope for the policy (i.e., the estimated impact) as a percentage of the counterfactual. The counterfactual in a given year is calculated as the difference between the average energy consumption observed among companies in scope for SECR in that year and the estimated impact. The ‘estimated energy saving’ figures depend on

the exact impact estimation method used. The estimated energy savings are 4.5% in 2020, 6.2% in 2021, and 4.9% in 2022.[27]

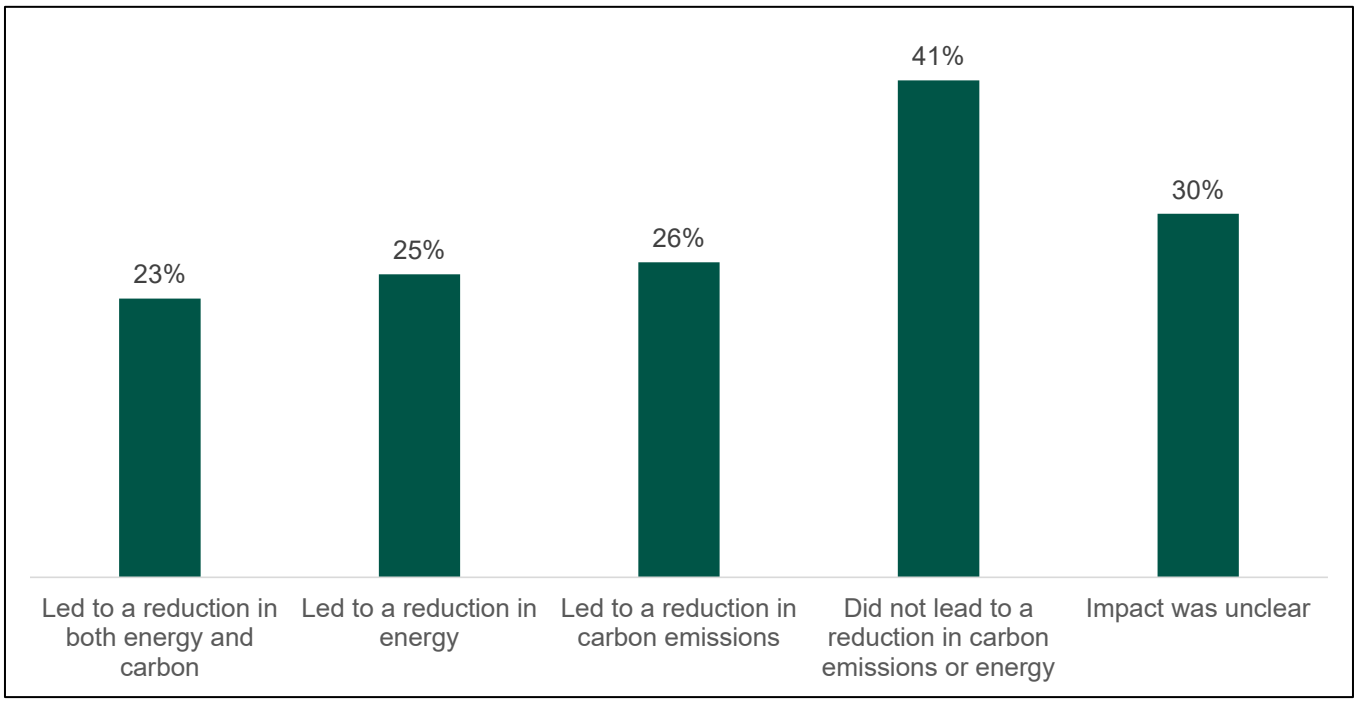
Table 6: Energy savings attributable to the SECR (Covariate-adjusted estimates)

Covariate-adjusted sDiD estimates	Average observed energy consumption for companies in scope for SECR (in MWh)	Counterfactual outcome (in MWh)	Estimated impact (in MWh)	Estimated energy saving (%)	Number of companies in scope for SECR
2020	3,471.7	3,634.5	-162.8	4.5	818
2021	3,384.8	3,609.7	-224.9	6.2	818
2022	3,410.0	3,586.1	-176.1	4.9	818

The evidence from the business survey indicates that the average impact of SECR on energy use and emissions may have been the result of changes in only a portion of eligible and compliant organisations. Only 25% of businesses in scope of SECR said the regulations had led to a reduction in energy usage, with 26% reporting that it had led to a reduction in carbon emissions. By contrast, 41% of businesses reported that SECR has led to a reduction in neither energy use nor carbon emissions. A relatively large group (27% for carbon, 30% for energy) said that SECR's impact was unclear. The survey did not pick up any statistically significant differences between smaller and larger, quoted and unquoted entities in whether they felt SECR had led to reductions to energy usage or carbon emissions.

[27] As outlined earlier in the methodology section, these estimates cover only metered electricity and gas for unquoted companies. As analysis of ND-NEED suggests quoted companies make up no more than 5% of gas and 10% of electricity in scope of SECR, even if quoted companies saw no energy savings, the overall energy saving across electricity in scope of SECR would be 4.3% in 2020, 5.9% in 2021, 4.6% in 2022, and for gas 4.1%, 5.6% and 4.4% over the same years. The cost-benefit analysis later in the report assesses more fully different scenarios for savings attributable to transport and quoted companies.

Figure 6: How businesses reported SECR impacting their energy usage



Base: All compliers (159)

Interaction with other reporting requirements

The growth in reporting requirements in recent years risks burdening reporting entities with complexity but also brings potential opportunities for reporting initiatives to complement one another. For instance, respondents to a government call for evidence on Scope 3 emissions in the UK reporting landscape highlighted the complementarity of SECR and ESOS *'whereby the former helps to increase the visibility of GHG emissions year-on-year, and the latter helps in terms of identifying opportunities to make energy efficiency improvements in the business'*. Mandatory SECR disclosures may also help to drive engagement with voluntary standards, and improved interconnectivity of UK regulatory reporting requirements could increase the impact of emissions disclosures by linking them to the assessment of climate-related risks and opportunities. However, qualitative interviews highlighted a perception that SECR was often primarily a "compliance-based exercise", and though SECR served as a useful initial lever, its lack of mandated forward-looking targets limited its potential for influencing behaviour.

"One of the drawbacks for SECR is that it doesn't mandate any action… people are just treating it as reporting without having to do any actual implementation." (SECR Reporting Service Provider)

This was contrasted with other reporting requirements, such as ESOS and PPN 006, which require eligible organisations to put forward reduction plans and so were thought by some to have *"had a more direct impact on identifying and implementing energy-saving measures"*. Interviewees also highlighted the range of additional factors that may have impacted energy use and GHG emissions, which made it difficult for businesses to isolate the contribution of SECR to behaviour change. This included the fact that SECR's introduction coincided with the emergence of Science Based Targets Initiative (SBTi) and transition plans, alongside factors

such as ongoing engagement with schemes like ESOS and PPN 006, energy price shocks, and the broader transition of electricity generation away from fossil fuels and towards low-carbon sources. However, such time-fixed and idiosyncratic effects are accounted and controlled for in the sDiD method and so do not undermine the findings of the quantitative impact analysis.

The business survey found further evidence on the interaction between participation in SECR and other energy and emissions schemes. Analysis indicated that respondents were more likely to feel SECR has led to a reduction in carbon emissions if their organisation had also participated in other initiatives. Although energy and emissions schemes varied in their goals, combining forward- and backward-looking requirements may have made SECR more effective at reducing carbon emissions. For instance, 52% of respondents whose businesses whose businesses disclosed a transition plan, 46% of respondents whose businesses prepared Carbon Reduction Plans for large public contracts, and 40% of respondents whose businesses had participated in the SBTi said that SECR has reduced emissions (compared with a baseline of 26% of all companies). As SECR requires organisations to identify energy and emissions data each year, there is a reputational incentive to stick to targets set in forward-looking schemes such as these.

SECR impact over time

In line with evidence generated through the quasi-experimental impact analysis in this study and that from published studies on the impact of 2013 carbon reporting regulations, interviewees from eligible companies said that the impact of SECR on energy and emissions, along with how this information was used as part of operational decision making, was greatest when the policy was first introduced. They noted that in 2019, when the policy came into effect, knowledge around energy consumption and carbon emissions was less sophisticated than it is currently, and consequently, SECR prompted companies to not only monitor this information but also proactively consider organisational strategies designed to reduce them. However, interviewees also widely acknowledged that SECR's lack of forward-looking action plans or targets and the introduction of other more strategic and comprehensive disclosure frameworks may have limited its impact in the long-term. Interviewees observed that more forward-looking reporting frameworks, such as the Science Based Targets initiative (SBTi), are increasingly important in encouraging the integration of climate considerations into business behaviour and strategy and so driving reductions in energy use and emissions.

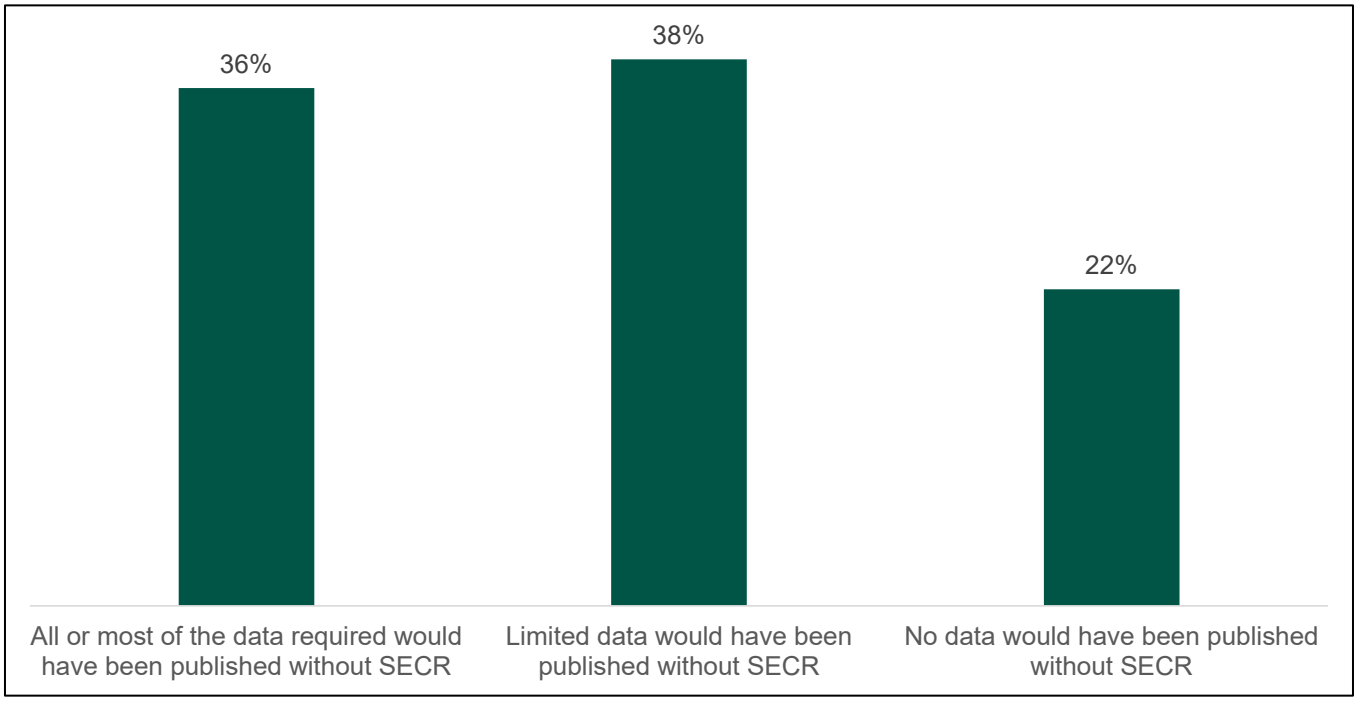
Impact on compiling and reporting energy use and emissions data

In the business survey, respondents from SECR-compliant businesses reported that the regulations have had a mixed impact on how they compile, report, and use data on energy usage and carbon emissions. Around three quarters of businesses (73%) said that SECR had impacted how they handle energy use and emissions data, and only 13% felt it had no impact. Over half (61%) reported that the introduction of SECR has increased boardroom interest in their organisation's energy use and carbon emissions. Similarly, a majority of those surveyed said that SECR was responsible for better tracking of energy efficiency projects within their organisation (56%) and greater internal collaboration when it comes to the handling of energy

and emissions data (55%). However, less than half reported that the regulations had impacted their use of intensity metrics (43%) or had enabled comparison with competitors (36%).

Further, there is evidence that SECR has prompted businesses to report data that they otherwise would not have. Only 18% of businesses said that all of the data required by SECR would have been published on a regular basis had the regulations not been put in place. This compares with 16% that said most of the data would have been published, 41% that said only limited data would have been published and 22% that said no data would have been published had it not been required by SECR, and 3% did not know. This means that for 79% of those that comply with SECR, the regulations have led to additional data being in the public domain. For 63% of SECR compliers, SECR has made a substantial difference to how much of their energy and carbon data is in the public domain on a regular basis.

Figure 7: Levels of data published if SECR did not exist



Base: All compliers (159)

Impact on internal awareness

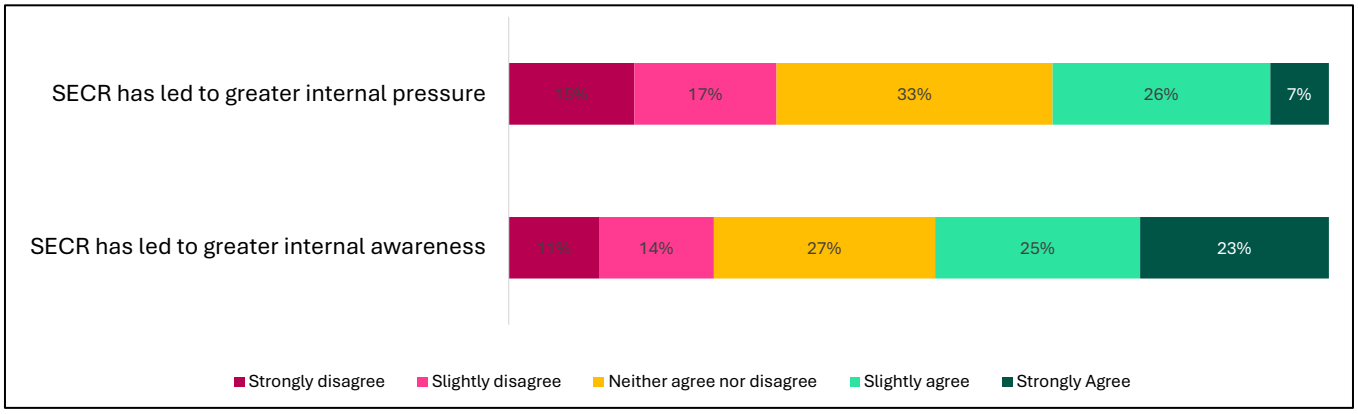
Around half of businesses (47%) that complied with SECR reported that SECR had led to greater internal awareness, with a quarter (25%) disagreeing. There were no significant differences (statistically or substantively) in the reported impact on awareness between larger and smaller businesses, nor quoted versus unquoted entities. Interestingly, those businesses that have produced a transition plan and those who had Carbon Reduction Plans for large public contracts were more likely to report that SECR had increased awareness (78% and 61% respectively).

Only 33% of SECR-complying organisations agree that SECR reporting has heightened internal pressure to improve energy efficiency and reduce emissions. This is notably lower than

the 53% of out-of-scope organisations who believe their reporting activities drive pressure for behavioural change.

Across both groups, those who agreed that reporting had increased internal pressure reported that this pressure was primarily driven by senior leadership teams (85% for eligible compilers and 73% for ineligible (or eligibility unknown) businesses that reported other forms of data), with shareholders reported as the second largest source of pressure for eligible compilers (65%).

Figure 8: How SECR affected internal pressure and awareness of energy usage and carbon emissions



Base: All compliers (159)

Among businesses eligible for, and compliant with, SECR, 81% reported that their board or leadership places a ‘very high’ or ‘fairly high’ priority on understanding energy use, while 84% reported the same for emissions. These figures are higher than those reported by SECR-eligible businesses that are not compliant with or have not heard of SECR (77% for energy use, 65% for emissions) and those not eligible for SECR or who were unable to confirm their financial information (66% and 64%, respectively). Similarly, SECR-compliant businesses were more likely to indicate that their leadership places a high priority on both energy efficiency (82%) and emissions reduction (83%). By comparison, these priorities were reported by 77% and 63% of non-compliant, eligible businesses, and by 73% and 64% of ineligible businesses.

Across all business types, environmental and social responsibility was most frequently identified as the primary reason for leadership’s emphasis on reducing carbon emissions. However, SECR-compliant businesses were less likely to cite this reason (58%) than non-compliant (81%) or ineligible businesses (66%). Notably, cost savings and efficiency gains were more commonly cited by SECR-compliant businesses as causes of board-level interest in carbon emissions reduction (37%), compared to non-compliant (19%) and ineligible businesses (35%).

The in-depth interviews show how, for some businesses, SECR can increase awareness of energy use and GHG emissions. For instance, one interviewee noted that SECR reporting had made the business reflect on and evaluate business practices more widely and another suggested that SECR had increased internal awareness through this reporting process, being

linked to a business-wide ESG committee and their publications. Some reporting service provider interviewees also explicitly stated that SECR disclosures had elevated internal awareness and visibility, especially with finance teams and board-level stakeholders, through their placement in the company Directors' Report. Their inclusion in Directors' Reports was thought to have raised awareness through the alignment of SECR reporting with wider financial reporting that requires board-level sign off and auditing and is expected to be reviewed by investors and other stakeholders.

"It's a board responsibility. The Directors' Report is a board-level responsibility, and they all put their names to it… I think it being in the Directors' Report does give it a sense of 'this is really important'" (SECR Reporting Service Provider).

"I think there has been increased awareness since the introduction of SECR in 2019… A lot more finance teams, who wouldn't necessarily be aware of carbon and energy data, are now more aware through having to include it in their financial statements" (SECR Reporting Service Provider)

Some interviewees also noted that, in comparison to other energy reporting requirements like ESOS, the requirement to report SECR annually also facilitated year-on-year comparison and encouraged continued awareness and engagement with corporate energy use and GHG emissions. A sub-set of investors also had a positive perception of SECR's impact on internal awareness and accountability, with one interviewee highlighting the *"certain level of accountability that comes when it's a regulatory requirement… It isn't just a marketing document that's published on a website"*. Similar to the interviewed reporting providers, these interviewees noted that the placement of SECR disclosures in annual reports and the associated alignment with financial reporting enhanced board-level awareness and accountability.

However, interviewee responses across eligible organisations and reporting providers highlighted the uncertainty in attributing this impact solely to SECR. This was due to the growth in the number of climate-related reporting frameworks, meaning that: (a) it was unclear how additional SECR reporting is at this point; and (b) SECR may have been a useful "initial lever", but its ongoing impact by itself may be limited due to its lack of forward-looking targets and transition planning. Some interviewees viewed SECR as a policy tool that helped to kick-start attention but has increasingly shifted into a compliance-oriented exercise that provides limited additional insight or impact on corporate behaviour, especially in comparison to more forward-looking initiatives like the SBTi. Furthermore, interviewees identified a range of other factors that have influenced attention on energy use and emissions, including energy price shocks and increased public awareness of climate change.

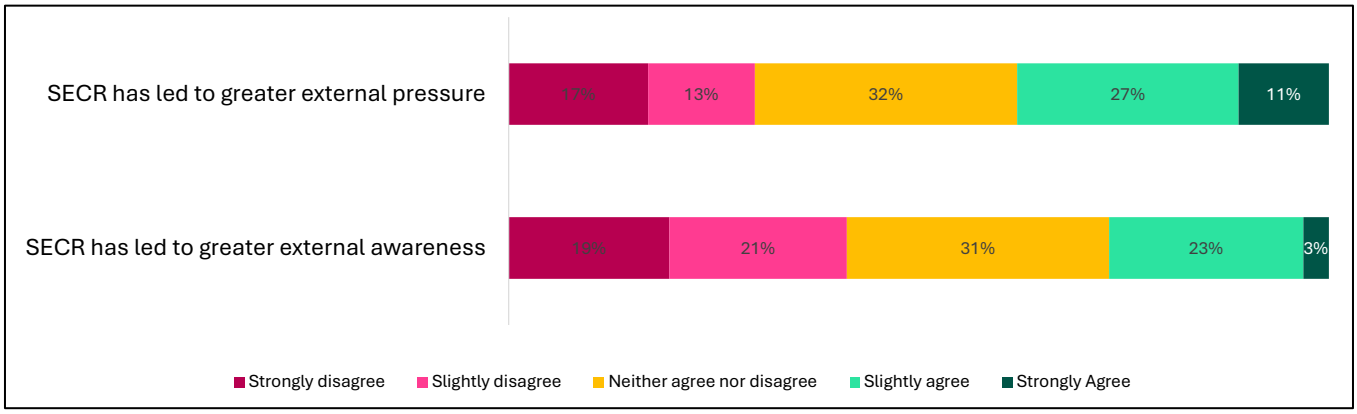
Impact on external awareness, accountability and reputational drivers

Over a third (37%) of compliant businesses that participated in the survey agreed that SECR regulations had led to greater external awareness regarding energy use and carbon emissions of their organisation, with under a third (29%) disagreeing. Small or medium sized businesses were more likely to agree that it had led to greater awareness (50%). Similarly to findings

regarding internal awareness, businesses that produced a transition plan and a carbon reduction plan equally reported increased external awareness (56% and 72% respectively).

Around a quarter (26%) of compliant businesses that participated in the survey agreed that SECR regulations had led to greater external pressure, with around two fifths (40%) disagreeing. There were no significant differences regarding business size, whether they were quoted on the stock market, or had participated in other energy usage schemes.

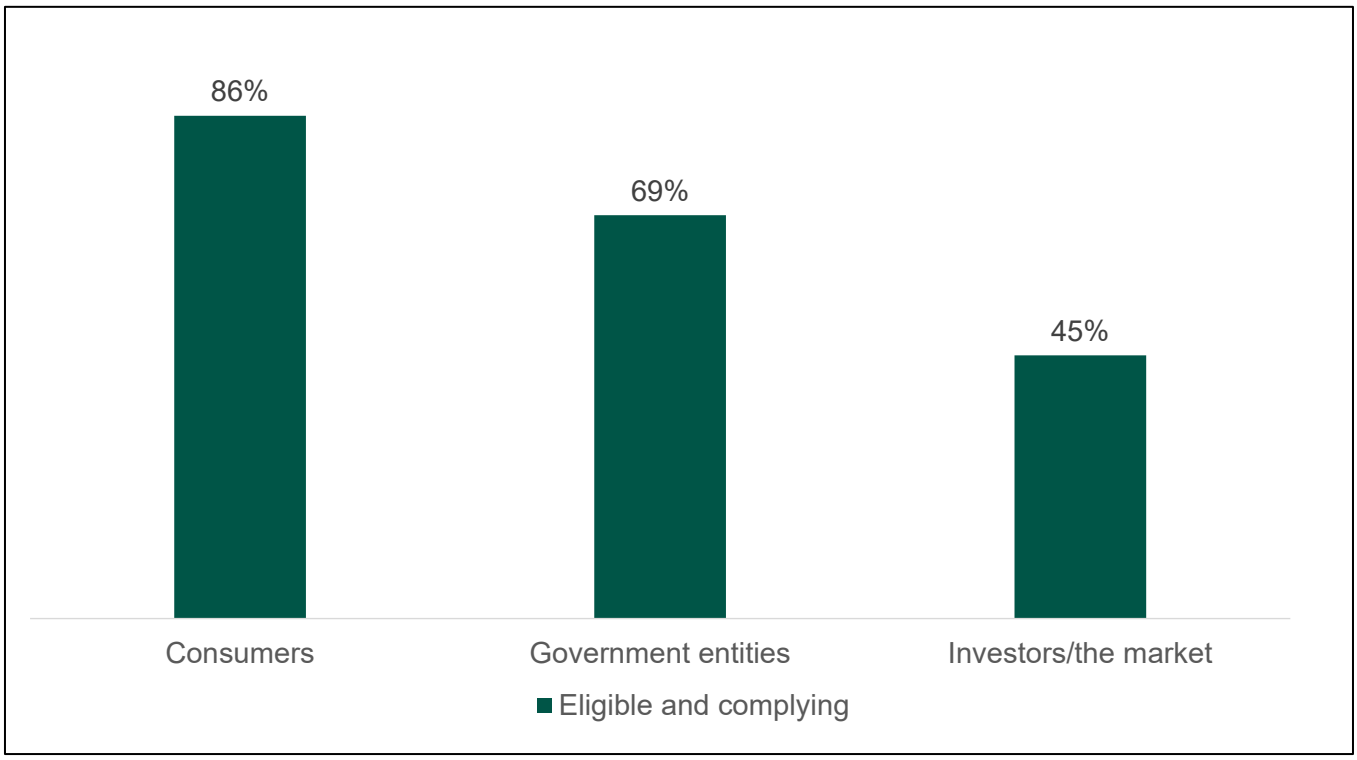
Figure 9: How SECR affected external awareness and pressure regarding energy usage and carbon emissions



Base: All compliers (159)

Organisations compiling SECR reports indicated that external pressure to reduce energy consumption and carbon emissions was primarily exerted by consumers (86%), followed by government entities (69%) and investors or the market (45%). Similarly, businesses not eligible for SECR but who agreed that reporting had increased pressure to address energy use and carbon emissions identified consumers (20 out of 27), the government (10 out of 27) as the most significant sources of pressure, with investors or the market noted as much less prominent influence (1 out of 27).

Figure 10: Which stakeholders were causing the external pressure for compliant businesses



Base: All compliers who agreed that there was external pressure (41)

These findings are broadly consistent with a sense among complying businesses that not reporting on energy use and carbon emissions would be noticed by both the government (70% strongly agreeing or agreeing) and external stakeholders (62% strongly agreeing or agreeing), and that not compiling the data would run the risk of incurring fines (41%) and negative press coverage (23%). Somewhat paradoxically, however, these same businesses, on balance, felt that the government would not notice if the data were inaccurate (29% agreed that the government would notice vs. 38% who disagreed).

Several interviewees from SECR eligible organisations reported that SECR has played a role in improving transparency and external accountability through the disclosure of annual, standardised and comparable data on energy use and GHG emissions. The inclusion of SECR disclosures in Directors' Reports was also thought by some to support the alignment of climate and energy data with mainstream financial disclosures, making it easier for investors and banks to extract relevant information.

"I do think it has played an important role in transparency and in advancing better practices…I know that banks and other stakeholders find it [to be] useful information because they can access it, they know where to access it, and they're accessing it in the same place as they're accessing other [financial] materials already. So, actually it being in the Directors' Report actually made it easier for banks and investors to make use of this because they're already using tools to pull information out these things." (SECR Reporting Service Provider)

However, this was often caveated with the point that interviewees found it difficult to isolate SECR's specific influence, given their organisations' participation in other mandatory and

voluntary reporting frameworks. Several interviewees further noted that other initiatives and standards, such as the Carbon Disclosure Project and EcoVadis, received more direct engagement and recognition from external investors, customers and suppliers.

Impact on investors and their decisions

Interviewed investors described using a range of sources, including TCFD-aligned disclosures, third party ESG data and SECR disclosures, to help inform investment decision-making and stewardship. Investors appeared to use these data sources in concert, with SECR company-reported data being compared with third-party estimates to identify discrepancies for further enquiry. While these various sources of ESG-related information were considered useful, some did note that the presence of multiple reporting frameworks could create confusion and uncertainty for investors, as *"companies disclose emissions in multiple places... sometimes with different numbers."*

Whilst interviewed investors agreed that SECR was rarely a decisive factor impacting firm-level decision making, it was acknowledged that SECR data did inform investor decision-making and engagement processes such as pre-investment screening, performance monitoring and scenario analysis. For instance, an interviewee noted that the requirement for SECR disclosures to provide qualitative information on energy efficiency action undertaken in the previous financial year added real value, particularly for companies that may be coming up with innovative solutions and delivering efficiencies that are not captured in short-term quantitative reporting alone. Some interviewees also highlighted their use of SECR data in long-term performance monitoring and engagement, with the standardisation and accessibility of SECR in annual reports being valued for enabling quick information access to support the identification of gaps. One interviewed investor suggested that the main benefit of SECR disclosure was this increased transparency and comparability of reporting across companies and sectors, which also allowed for more consistent and fair scrutiny of energy use and emissions.

"Where, like SECR, there can be mandatory reporting that standardises metrics for us, the better quality of data we can use… and the easier it is to find quickly." (Investor)

"It continues to be a useful standard or approach… Because there's familiarity to it and because its current scope means you get the information from the companies that you need" (Investor)

"The lack of comparable [ESG] data is raised as a problem… So, we probably should acknowledge when there is something that provides a route to comparable data." (Investor)

However, others noted that the ability to benchmark and compare companies using SECR disclosures was limited by variations in the compilation and calculation of SECR data. Other limitations to the comparability of SECR data were flagged, such as the wide range of energy intensity metrics used by reporting organisations, the lack of requirement for data verification, and the variation in the placement of SECR disclosures in annual reports. The location and accessibility of SECR disclosures was mentioned several times in this context, with interviewees suggesting that it can be time-consuming to extract SECR data from annual

reports and that awareness of their placement in annual reports may be limited for wider stakeholders.

TCFD-aligned disclosures and SBTi were viewed as more decision-useful than SECR by several investor interviewees due to their strategic relevance and their inclusion of forward-looking assessments and targets. Some interviewees viewed SECR as providing only "backward-looking data", which was considered less useful by itself for developing future investment strategies. It was also noted that the usefulness of SECR disclosure was limited by its lack of meaningful integration with wider financial reporting, which could make it hard for investors to assess the financial materiality of the emissions data and make subsequent decisions. In contrast, CSRD and EU taxonomy reporting were seen as providing richer, more decision-useful information, especially through the use of double materiality assessments. However, one investor still remarked that although TCFD reporting with its strategic and forward-looking components is generally preferred by investors, SECR data remains valuable.

Wider and unexpected outcomes

A limited number of interviewees suggested that the specific scope of what energy and emissions are required for reporting under SECR could lead to unintended consequences. Because SECR does not require unquoted companies and LLPs to report full Scope 1 emissions, as onsite fuel use beyond electricity and gas need not be reported, and non-energy emissions are not included (e.g. process emissions, fugitive emissions), one interviewee raised that this may lead to incomplete baselines for organisations beginning their carbon reporting journey. In contrast, quoted organisations are required to provide more extensive emissions information. This partial view risks creating a false impression of total emissions, especially for organisations that lack the expertise or resources to understand the broader emissions landscape. Similarly, an interviewee described their confusion at the selective inclusion of some elements of Scope 3 reporting under SECR, noting that this can confuse clients new to carbon reporting. They also raised the risk that this may inadvertently discourage organisations from voluntarily expanding their reporting, as the inclusion of Scope 3 data in subsequent years may make emissions appear to increase, potentially leading to reputational damage or stakeholder misinterpretation.

Suggested changes to SECR in the context of the wider reporting landscape

A number of interviewees highlighted the need for clearer and more practical SECR guidance, especially around eligibility criteria and site inclusion. For example, one interviewee from an eligible organisation noted that the existing guidance, though largely unchanged since 2019, lacks clarity on thresholds and definitions and so can lead to uncertainty over which sites are to be included for disclosures. The lack of clarity was also highlighted in relation to decisions around whether reporting should be done at the group or entity level - an issue flagged by multiple eligible organisations and reporting service providers. One reporting lead suggested that *"having one single report and document for all activity undertaken would be much more efficient,"* noting that fragmented reporting increases the risk of errors and duplication. Overall, there was strong support for updating SECR guidance to provide clearer definitions, eligibility

thresholds, and reporting boundaries, particularly for complex organisations operating across multiple jurisdictions.

Another consistent theme identified from interviews was the need for SECR to align more closely with other reporting frameworks to reduce duplication and improve clarity. Several interviewees noted that companies often report similar emissions data across multiple platforms, such as CDP, SECR, and corporate sustainability reports, but with slight variations due to timing differences, assurance levels, or scope of inclusion. One investor explained, *"You'll see two different numbers… because they may have gone through additional assurance, or subsidiaries were excluded."* SECR reporting service providers also emphasised the importance of improving standardisation across different frameworks in order to reduce the number of clients reporting similar information in only slightly different ways. Moving forward, one of these interviewees noted the potential importance of updating SECR to align with the forthcoming UK endorsement of the Sustainability Reporting Standards based on the International Sustainability Standards Board (ISSB).

The view that SECR should incorporate forward-looking action plans or reduction targets was also stressed by a number of interviewees. As one investor put it, *"What drives behaviour more is the need to have a target, and a transition plan… instead of simply disclosing emissions with no associated targets."* This sentiment was echoed by reporting consultants who noted that SECR *"just shows trend"* and lacks the proactive, strategic focus found in frameworks like TCFD. Moving towards a more forward-looking framework may, therefore, help SECR support further corporate comparison and accountability, further driving climate action and alignment with the evolving disclosure landscape.

Summary of findings

- Evidence from the quasi-experimental impact analysis suggests that SECR has resulted in estimated energy saving of 4.5% in 2020 (based on an impact estimate which is statistically significant at the 10% level), 6.2% in 2021 (statistically significant at the 5% level) and 4.9% in 2022 (not statistically significant). Data checks suggest that COVID-19 is unlikely to have biased the estimates over the post-SECR period, however inherent within the approach used are a number of assumptions that cannot be tested, so caution needs to be exercised in the interpretation of the findings.
- There is some evidence from the business survey and qualitative interviews that supports this conclusion for some organisations, but only 25% of organisations reported that SECR had directly led to a reduction in energy use, and interviewees suggest that it is difficult to attribute changes in energy use or GHG emissions to SECR.
- All evidence sources developed through this evaluation indicate that there could be a diminishing impact of SECR over time.
- SECR was introduced in a context where organisations had less awareness of energy consumption levels than currently and had a less sophisticated understanding of the importance of this information for strategic decision-making, and SECR appears to have played an important role in normalising environmental disclosure.

- Although the majority of organisations acknowledged that the requirements were generally clear, some expressed that additional guidance detailing SECR reporting procedures across various firm sites and organisational structures would be beneficial.
- The environmental reporting landscape has developed significantly since the introduction of SECR, and evidence suggests that there are complementarities between SECR and other requirements (e.g. through easily re-using data and information) but also challenges (e.g. through duplication of effort).
- Some other requirements introduced since SECR are forward-looking and require organisations to provide commitments for energy and carbon reductions, which some stakeholders suggest are more effective than the retrospective carbon reporting under SECR.
- Stakeholders, including investors, reporting providers, and eligible organisations, recognised that while SECR has played a valuable role in raising awareness and influencing organisational behaviour, there remain opportunities to enhance the effectiveness of the reporting framework through targeted improvements.
- Interviewed investors recognised that SECR disclosures provided increasingly standardised and comparable data that was valued for its accessibility within annual reports. However, SECR data was not viewed as a decisive factor in investment decision-making processes – instead, it was considered to be one input amongst an increasing number of ESG data sources.
- Interviewees observed that while the stability of SECR requirements over time offered advantages, namely in providing clarity to organisations when looking to complete the reports themselves, there remains potential for further alignment with broader environmental reporting frameworks.
- Suggestions for future improvements in SECR include standardised reporting templates and the introduction of forward-looking elements of SECR reporting.

What is the overall cost-effectiveness of the policy?

Evidence on cost-effectiveness of SECR is predominantly derived through the Value for Money evaluation framework, with outputs from the cost-benefit analysis (CBA) and the 5Es assessment.

Cost-benefit analysis

The cost-benefit analysis (CBA) quantifies and monetises all feasible costs and benefits associated with SECR and provides a benefit to cost ratio (BCR) which is a ratio of the benefits to costs, and a net present value (NPV), which shows the value of benefits less costs.[28] The outputs provide quantitative evidence on cost-effectiveness by comparing costs and benefits. Costs include administration costs for participating organisations, and capital, hassle and operational costs associated with the implementation of energy efficiency measures. Benefits include reduced energy use and the resulting impact on carbon emissions and air quality. The outputs provide evidence that SECR is cost-effective over the period 2019 to 2025, with a BCR of 2.72, which shows that for every £1 of social and financial cost associated with the regulations, there are £2.72 of benefits delivered, and an NPV of £5,100m which indicates the SECR has delivered value to society greater than the costs. Sensitivity analysis has been undertaken to test the outputs from changes in key input variables and assumptions. A summary of the outputs from the central scenario of the cost-benefit analysis is provided in Table 7.

Table 7: Cost-benefit analysis outputs

	Total impacts, 2019 – 2025
Total Costs	£3,000m
Total Benefits	£8,100m
Benefit-Cost Ratio (BCR)	2.72
Net Present Social Value (NPSV)	£5,100m

Energy use in scope

This analysis assumes that most costs and benefits associated with SECR result from the implementation of energy efficiency measures. In line with the 2018 SECR Impact Assessment, the model does not attempt to estimate the costs and benefits associated with other decarbonisation measures – for example, fuel switching.

[28] All outputs >£1,000m have been rounded to the nearest £100m. All outputs =<£1,000m have been rounded to the nearest £10m.

Business on-site energy use (i.e. the use of electricity and gas on site) in scope of SECR is estimated using the DESNZ Energy and Emissions Projections (EEP) for industry, the commercial sector, and agriculture, adjusted for the estimated proportion of energy consumption from businesses in scope of SECR. The average annual on site energy use between 2019 and 2025 is estimated to be 160 TWh. This covers electricity and gas consumption, not other fuels[29], and excludes consumption by the energy sector, such as for electricity generation and transmission, and oil refineries.

Transport energy use is based on assumptions and analysis included in the 2018 SECR Impact Assessment, updated to reflect overall transport energy demand between 2019 and 2025. The average annual transport energy use between 2019 and 2025 is estimated at 90 TWh. This includes road transport, such as company cars, LGVs, HGVs and passenger vehicles, plus rail transport. In line with the 2018 SECR Impact Assessment, shipping and aviation are excluded.

Total estimated in-scope energy use from both on site and transport sources is therefore 250 TWh on average between 2019 and 2025. It is worth noting that, in line with the 2018 SECR Impact Assessment, this analysis only considers UK energy consumption due to data availability. Quoted companies must report global emissions and energy consumption, which therefore underestimates the energy in scope of SECR.

Energy savings

Energy savings are assumed to start in 2020, and the following approach has been used to estimate the energy savings resulting from SECR:

- Business on-site energy:
    - for unquoted companies, we have used the QED impact estimates developed through this evaluation for energy savings in 2020 (-4.5%), 2021 (-6.2%) and 2022 (-4.9%). For energy savings in the years following 2022, we have used the lowest energy saving estimate (-4.5%) from 2023 until 2025.
    - as the QED approach excluded quoted companies, for these companies the energy saving assumption used in the 2018 SECR IA is unchanged (i.e., 2.1% energy consumption impact).
- Transport Energy: due to a lack of updated evidence, for transport energy, the assumption used in the 2018 SECR IA is unchanged (i.e. -2.1% for company cars, -1.05% for larger commercial road vehicles, and 0% for rail).

The estimated average annual energy savings between 2020 and 2025 from SECR is 8 TWh.

[29] Unquoted companies and LLPs need only report electricity and gas consumption (plus transport energy). Although quoted companies must report energy consumption from all fuels, there is no readily available way of estimating how much of these fuels reported in UK statistics are attributable to quoted companies. For simplicity, the only on-site fuel consumption this analysis covers is electricity and gas.

Costs

Table 8: Summary of costs

		Total impacts, 2019 – 2025 (£m)
Costs	Administrative Costs	1,100
	Capital Costs	1,500
	Hassle Costs	290
	Operational Costs	50

- **Administrative costs**

A key objective of SECR was to simplify the energy and reporting landscape. Evidence on the administrative costs associated with the disclosure of SECR has been derived from the business survey, which captures information on the time spent on compiling, reporting, and managing SECR, and any additional external costs directly related to disclosure of SECR (i.e. payment to an external organisation e.g. legal and consultancy fees). The evidence suggests that compliance with SECR is associated with resource and cost burdens, and the total cost to organisations is greater than assumed at the policy development stage. Administrative costs associated with SECR start in 2019, and total administrative costs in year 1 are £270m (including one-off upfront costs) and ongoing costs for subsequent years are £140m.

- **Internal costs**

Internal resource burden from compiling, reporting, and managing SECR has been provided in terms of hours spent on the respective activities from employees within the organisation. ICF has estimated the potential financial costs of this resource using ONS estimates on hourly wages and adjusting for additional non-wage costs (including sickness, maternity and paternity pay, National Insurance contributions and pension contributions). This analysis operates under the assumption that the activities associated with SECR disclosure are predominantly carried out by associate professional occupations (70%), with assistance from administrative and secretarial occupations (20%) accompanied by sign-off from managers, directors or senior officials (10%).

The average (mean) internal resource costs are estimated to be £2,452 annually. This varies between quoted companies (£3,421) and unquoted companies (£2,107), although this difference is not statistically significant at the 5% level. This variation could be due to the differing scope of reporting requirements – quoted companies report on GHG emissions and associated energy use from their global activities, not just UK, and have to report all sources of

emissions, not just from gas, electricity, and transport consumption. The difference could also arise because quoted companies, on average, are likely to be larger and more complex than unquoted companies. For further breakdowns see Annex: Cost data.

- **External costs**

For some businesses, there are additional external costs associated with SECR – i.e payments to an external organisation – and based on the survey respondents, we assume 56% of SECR participants incur external costs.[30] Businesses found it difficult to provide the amounts involved in their external costs. Of those who noted external costs, only around a third (35%) could provide amounts. Of those that did provide costs, businesses reported that average (mean) external costs were around £7,466 for initial upfront costs, with annual average (mean) ongoing costs estimated to be £8,277. However, it should be noted that there was a wide variance of responses recorded, with a standard deviation of £10,620 for initial upfront costs and £14,782 for ongoing costs. Unfortunately, due to low base sizes, it was not possible to identify statistically significant differences relating to size or if they were quoted on a stock exchange. For further breakdowns see Annex: Cost data.

By comparison, external costs for those outside of SECR eligibility (but do voluntarily compile and report energy and emissions data) were higher, with an average of £13,832 upfront costs and £12,275 ongoing annual costs. However, the question for these respondents was different in that it did not ask respondents to exclude activities that would happen in the absence of SECR, unlike the question asked of those in scope of SECR. In addition, only 17% of these businesses were able to provide figures (31 in total).

Combining internal and external costs, the average (mean) ongoing cost to SECR compliers was £7,087.

Costs to government associated with SECR (e.g. policy development, administration, enforcement) are outside the scope of this research, and have therefore not been included in the cost-benefit analysis.

- **Capital, hassle and operational costs**

The approach to estimating capital, hassle, and operational costs takes the average cost of energy efficiency measures likely to be taken up as a result of SECR, weighted by energy savings, and scaled to account for the level of adoption required to achieve the estimated energy savings. Measures and their associated costs and savings are taken from the Marginal Abatement Cost Curves (MACC), which were used to develop Carbon Budget 5 – this is in line with the 2018 SECR Impact Assessment. The average cost of measures likely to be taken up has been adjusted to reflect inflation. A 7-year payback period assumption is included, so as to only include measures that we expect businesses would feasibly implement. This approach is in line with the 2018 SECR Impact Assessment and is in line with standard GHG appraisal

[30] No statistically significant difference was observed between quoted and unquoted companies in the proportion that reported they incurred external costs in the process of complying with SECR. (51% of n=28 quoted companies, 58% of n=121 unquoted companies and LLPs).

guidance. Capital, hassle, and operational costs are assumed to start in 2020, and the average annual total cost of these between 2020 and 2025 is £310m.

Benefits

All benefits are assumed to start in 2020.

Table 9: Summary of benefits

		Total impacts, 2019 – 2025 (£m)
Benefits	Energy saving benefits	4,800
	Carbon benefits	3,200
	Air quality benefits	130

- **Energy savings**

To monetise the energy savings estimated from SECR, we use the Long-Run Variable Cost (LRVC) of energy, which isolates the parts of the retail price of energy that represent actual costs to society that vary according to level of consumption (i.e. we remove any fixed costs which only result in transfers between groups in society). The average annual monetised energy savings between 2020 and 2025 were £800m.

- **Carbon savings and air quality benefits**

Increased energy savings as a result of SECR lead to a reduction in GHG emissions and improvements in air quality. Carbon savings are monetised using the UK Government published carbon values and are estimated to be on average 1.7 MtCO2e annually, and air quality is monetised using damage costs published by Defra. Between 2020 and 2025, the average annual monetised carbon savings were £3,200m and air quality benefits were £130m.

Limitations

The cost-benefit analysis utilises the most up-to-date and robust evidence and indicates the value for money of SECR. However, there are several limitations to this analysis. Evidence on energy savings from this evaluation are only available for business on-site energy use for unquoted companies, which represents 62% of total energy use in scope of SECR for which energy savings are assumed. For the remaining 33% of energy consumption related to transport and 5% of electricity and gas consumption attributable to quoted companies, assumed rates of energy saving have not been updated since the 2018 SECR Impact Assessment. For costs, we have only included reported costs to organisations and have not included the costs to government for policy development, administration, or enforcement. A full outline of the limitations of the cost-benefit analysis and their potential impacts is outlined in Annex: Value for money framework.

Sensitivity analysis

Sensitivity analysis has been performed to explore the sensitivity of expected outcomes to variations in key input variables. A summary of the sensitivity analysis scenarios is presented in Table 10 and described in the following text.

Table 10: Sensitivity analysis summary

Assumption / input	Description	Impact on BCR and NPV
Energy savings	Using the lower bound (10th percentile) estimate from the sDiD QED impact analysis	1.48 £830m
Quoted company and transport savings excluded	Remove energy savings and associated costs and benefits from quoted companies and transport	2.58 £4,400m
Carbon values	Use the low and high carbon values to estimate the impact on monetised carbon savings	2.19 – 3.25 £3,500m - £6,700m
LRVC	Use the low and high LRVC values to estimate the impact on monetised energy savings	2.43 – 3.55 £4,200m - £7,600m
2021 impact only	Remove all energy savings aside from 2021 which had impact estimates significant at the 5% level	1.18 £270m
Administration costs	Assuming that 'finance professionals' are used for the majority of SECR administration time rather than 'associate professionals'	2.63 £5,000m

- **Energy savings**

Energy savings for unquoted companies have been derived through the QED impact estimates developed as part of this evaluation, and quoted company and transport savings are based on estimates from the 2018 SECR Impact Assessment. We have estimated the expected costs

and benefits from SECR using a lower bound estimate of energy savings by using the 10th percentile distribution around the sDiD central estimate. This analysis uses energy savings for 2020 of -1.5%, 2021 (-2.2%), 2022 (-0.8%) and uses the lowest estimate (-0.8%) for subsequent years. Reduced energy savings from SECR leads to a reduction in all benefits (energy savings, carbon emissions, air quality impacts) and a reduction of capital, hassle, and operational costs.

In this scenario, the average annual savings are 2.7 TWh in energy and 0.6 MtCO2e for emissions.

Table 11: 10th percentile energy saving sensitivity

10th percentile energy savings estimate	
BCR	1.48
NPV	£830m

- **Transport and quoted company energy savings excluded**

The QED impact estimates developed for this evaluation apply only to unquoted companies, and we do not have any updated evidence on quoted company or transport energy savings. This sensitivity shows the impact of removing both quoted company energy savings and transport energy savings, while retaining the full admin costs for all businesses. This causes a reduction in overall energy savings from SECR and leads to a reduction in all benefits (energy savings, carbon emissions, air quality impacts) and a reduction in capital, hassle, and operational costs associated with implementing energy saving measures.

Table 12: Quoted companies and transport energy savings removed sensitivity

Quoted companies and transport energy savings removed	
BCR	2.58
NPV	£4,400m

- **Carbon values**

Carbon values are used for valuing the impacts of GHG emissions from the SECR policy and represent a monetary value that society places on a tonne of carbon dioxide equivalent (£/tCO2e). The central BCR and NPV presented in this evaluation use the ‘central’ scenario. This sensitivity scenario tests the impact of using the ‘low’ and ‘high’ carbon value scenarios, which impact only the monetised carbon savings expected from SECR.

Table 13: Carbon values sensitivities

Carbon values	
BCR	2.19 – 3.25
NPV	£3,500m - £6,700m

- **Long-Run Variable Cost (LRVC) of energy**

The LRVC of energy provides a monetised estimate of the energy savings benefits estimated from SECR. It represents the actual costs to society of energy use that vary according to level of consumption. The central BCR and NPV presented in this evaluation use the 'central' scenario for each energy source. This sensitivity tests the impact of using the 'low' and 'high' LRVC estimates, which impacts only monetised energy savings.

Table 14: LRVC sensitivities

LRVC	
BCR	2.43 – 3.55
NPV	£4,200m - £7,600m

- **Energy savings only realised in 2021**

  The QED impact analysis estimates are only significant at the 5% level for 2021 and apply to unquoted companies only. This sensitivity scenario tests the impact on the outcomes of SECR by removing energy savings which are not estimated through the impact analysis at a 5% significance level. We have therefore removed quoted company and transport energy savings, and limited unquoted company energy savings to 2021 only. This causes a reduction in energy savings, which leads to a reduction in all benefits and in capital, hassle, and operational costs.

Table 15: energy savings in 2021 only sensitivity

2021 savings only	
BCR	1.18
NPV	£270m

The sensitivity analysis shows that SECR still provides a positive NPV and a BCR of greater than 1 for all scenarios, indicating that SECR delivers value for money.

5Es

Due to the complex nature of SECR, a 5Es framework was developed to provide additional evidence on VfM for SECR, which integrates the outputs of the cost-benefit analysis. This draws on a range of evidence sources developed during the evaluation, including the business survey, qualitative interviews and secondary data sources such as Mycelium open-access emissions data and FRC review data.

Economy

Based on the available evidence from qualitative interviews and the quantitative business survey, SECR is assessed as 'Good' across metrics related to Economy. The metrics and standards achieved are presented in Table 10.

Table 16: Economy criteria summary

Metric	Output assessed	Standard achieved
1.1a Quality of energy and emissions data: Proportion of survey respondents agreeing that data on total energy use, Scope 1 emissions, Scope 2 emissions and Scope 3 emissions is accurate (%)	Energy use: 86% Scope 1 emissions: 80% Scope 2 emissions: 80% Scope 3 emissions: 37%	Good
1.1b Quality of energy and emissions data: Proportion of survey respondents using various methods and data sources to check the accuracy of energy use and emissions data for SECR reporting (%)	80% with some approach to verification	Good
1.2a Cost of energy and emissions data collection and reporting: Estimated average ongoing annual cost of SECR disclosures from business survey (£) (both internal and external costs)	£7,087	Adequate

1.2b Cost of energy and emissions data collection: Proportion of survey respondents agreeing that data was easily available (%)	Total energy use data: 70% Scope 1 emissions data: 63% Scope 2 emissions data: 64% Scope 3 emissions data: 18% Data to inform energy intensity ratios: 47% Data on energy efficiency actions: 58%	Good

Quality data

Assessing the quality of data used for SECR disclosures helps determine if the inputs for reporting meet accuracy and reliability standards, ensuring SECR is useful for both internal and external stakeholders. Evidence from business survey respondents suggests that energy use and emissions data required under SECR are accurate for the majority of SECR reporting organisations (≥80% for energy use, Scope 1 and Scope 2 emissions). For Scope 3 emissions, which are predominantly not required under SECR, a higher proportion of respondents agreed that data was accurate (37%) than disagreed (33%). For the majority of respondents, there were internal processes in place to check the accuracy of data under SECR, with only 12% who do not have methods to check accuracy, and 8% who don't know. The most commonly used methods by SECR compliant business survey participants included third party verification (30%), the use of information from energy providers to check data accuracy (22%), internal audits (20%) and cross-checks with industry benchmarks (16%). Given the high proportion of respondents reporting accuracy, and the widespread use of methods to check data accuracy, this is assessed as **Good**.

Minimised price

Assessing the cost of delivering SECR is important because the regulations place a burden on businesses, which should be minimised as far as possible. As part of the business survey, evidence was collected for organisations who were eligible and complied with SECR on the internal resource costs of compiling and reporting energy and emissions data and managing the process. The average internal resource requirement for these tasks was 94.4 hours, which, using ONS multipliers for staff costs, equates to £2,452. Additional ongoing external costs, for those who incurred external costs (56%), are estimated to be £8,277. The average ongoing annual cost across the population is £7,087.

A high proportion of SECR compliant business survey participants indicated that data on total energy use (70%), Scope 1 emissions (63%), and Scope 2 emissions (64%), were easily available – suggesting that while SECR imposes a measurable burden on businesses, many organisations already have access or can easily access the necessary data, reducing the administrative burden and cost of compliance. This availability of data indicates that for a

significant proportion of businesses, SECR reporting aligns with existing data management practices, potentially improving efficiency and lowering marginal costs over time.

Although there is evidence to suggest a moderate resource burden on organisations, costs are greater than those estimated at the policy development stage, and therefore overall, this is assessed as **Adequate to Good**.

Efficiency

Based on the available evidence from the qualitative interviews, business survey, and Mycelium data, SECR performance varied across efficiency, but is overall rated 'Good' against the Efficiency criteria. The metrics and standards achieved are presented in Table 11.

Table 17: Efficiency criteria summary

Metric	Output assessed	Standard achieved
2.1a Quality of SECR reporting: Proportion of survey respondents using various processes to sign-off energy use and emissions data before SECR reporting (%)	Internal review: 89% Board-level approval: 86% External verification: 60%	Good
2.2a Compliance of eligible organisations with regulations: Proportion of FRC-reviewed SECR reports with 1+ breaches or substantive breaches (%)	SECR reports with 1+ breaches 2021 – 26%; 2022 – 18%; 2023 – 13%; 2024 – 10% SECR reports with substantive breaches 2021 – 4%; 2022 – 0%; 2023 – 0%; 2024 – 0%	Adequate - Poor
2.2b Compliance of eligible organisations with regulations: Proportion of companies thought to be in scope of SECR requirements where Mycelium data is able to detect reporting Scope 1 and 2 emissions (%)	Companies reporting Scope 1 and at least one Scope 2 category: 67%	
2.2c Compliance of eligible organisations: Business survey respondent rate of compliance (%)	14 – 23%	

2.3 Additionality of energy and emissions data reporting: Proportion of survey respondents stating likely level of reporting in absence of SECR regulations (%)	Would have publicly reported all data on a regular basis: 18% Would have publicly reported most of the data on a regular basis: 16% Would have publicly reported limited data and/or infrequently: 41% Would not have publicly reported data: 22%	Good - Excellent

Converting data to reports

Evidence from the business survey indicates that the majority of SECR-eligible organisations have robust internal processes in place to ensure the accuracy and integrity of energy and emissions data prior to reporting. Specifically, 89% of respondents reported conducting internal reviews, 86% secured board-level approval, and 60% utilised external verification methods. Additionally, only 11% of respondents reported having no method to check the accuracy of their SECR data, indicating widespread adoption of quality assurance practices. Due to the widespread use of verification and validation methods for SECR reporting, this is assessed as **Good**.

Compliance

As outlined earlier in the report, although evidence is mixed across the range of sources utilised in this evaluation, on balance non-compliance levels are higher than anticipated in the policy design phase and therefore this is assessed as **Adequate to Poor**.

Additionality

The additionality of SECR reporting was assessed by asking SECR compliant business survey respondents about their likely level of reporting in the absence of the regulations. Only 18% of survey respondents stated they would have publicly reported all relevant data regularly without SECR, while 41% of respondents indicated they would have reported limited data infrequently, and 22% said they would not have reported any data. This suggests that SECR has had an additive role in driving transparency and accountability in energy and emissions reporting, with the majority of organisations increasing their reporting activity as a direct result of the policy, and therefore, this is assessed as **Good to Excellent**.

Effectiveness

Based on the available evidence from the qualitative interviews and business survey, SECR is assessed as ‘Good’ against the Effectiveness criteria. The metrics and standards achieved are presented in Table 12.

Table 18: Effectiveness metrics

Metric	Output assessed	Standard achieved
3.1a Changes to internal and external awareness: proportion of survey respondents agreeing that SECR reporting led to greater awareness of energy use and emissions (%)	Greater internal awareness: 47% Greater external awareness: 37%	Good
3.1b Changes in internal and external awareness: qualitative interview findings on perceptions of SECR impact on internal and external awareness and accountability	Qualitative assessment only	
3.2a Changes to internal and external pressure: proportion of survey respondents agreeing that SECR reporting led to greater pressure (%)	Greater internal pressure: 33% Greater external pressure: 26%	Adequate - Good
3.2b Changes in external and external awareness: qualitative interview findings on perceptions of SECR impact on internal and external pressure	Qualitative assessment only	
3.3a Changes in energy use and GHG emissions: Proportion of survey respondents who thought SECR requirements had led to a reduction in energy use or emissions (%)	Led to a reduction in energy use, beyond other regulatory requirements: 25% Led to a reduction in emissions, beyond other regulatory requirements: 26%	Adequate

3.3b Changes in energy use and GHG emissions: Energy savings attributable to SECR (%)	Attributable energy savings in 2020: 4.5% Attributable energy savings in 2021: 6.2% Attributable energy savings in 2022: 4.9%	Good - Excellent

Awareness

Increasing awareness of energy use is a key driver of the impacts and benefits derived from SECR and is a core component of the policy ToC. Among eligible and compliant organisations, 47% of business survey respondents agreed that SECR had led to greater internal awareness of energy use and carbon emissions, with only 23% disagreeing. This suggests that SECR has been moderately successful in raising the visibility of energy and emissions performance within organisations. Among SECR compliant business survey participants, 37% agreed that SECR led to greater external awareness, while 33% disagreed.

Qualitative interviews suggested that SECR has had an impact on internal and external awareness, with stakeholders noting that SECR raised visibility, particularly through its inclusion in directors' reports, which elevated board-level and investor attention. Reporting service providers and investors highlighted SECR's role in aligning energy data with financial disclosures, enhancing transparency and comparability. However, many interviewees cautioned that SECR's influence is difficult to isolate due to overlapping frameworks like TCFD and SBTi. Some viewed SECR as an initial lever for awareness that has since become more compliance-driven, with limited behavioural impact compared to more strategic, forward-looking initiatives.

As the evidence from the business survey and qualitative interviews suggests success in awareness raising, this is assessed as **Good**.

Pressure

Increased pressure is another key driver in terms of SECR's behavioural influence. Business survey evidence shows that 33% of respondents agree that compiling and reporting SECR data has led to greater internal pressure to reduce energy use and GHG emissions, with a similar proportion (32%) disagreeing. Most of this internal pressure was reported to come from Senior Leaders, indicating that SECR may be contributing to strategic-level engagement with energy and emissions issues. However, only 26% agreed that SECR had resulted in greater external pressure to reduce energy use and emissions, with 43% disagreeing. These findings suggest that while SECR has had some success in raising awareness beyond the organisation, its influence on external stakeholder pressure was more limited. Given the evidence of internal pressure, but with limited external pressure, this is assessed as **Adequate to Good.**

Changes in energy use and GHG emissions

The ultimate intended objective and impact of SECR is to drive reductions in energy use, resulting in lower GHG emissions.

- The synthetic DiD approach undertaken using secondary data in the impact analysis suggested a modelled impact of SECR on average yearly energy savings of 5.2%. SECR was found to have reduced energy use in the first year following its introduction (i.e. in 2020) and in the two subsequent years (2021 and 2022). Given this is greater than the expected savings at the policy development stage, this is assessed as **Excellent**.
- From the business survey, among SECR compliant respondents, only 26% reported that SECR led to a reduction in energy use over and above other regulatory requirements, while 28% reported attributable reductions in emissions, which is assessed as **Adequate**.
- This difference between survey and modelled results is potentially indicative of the multiple and overlapping driving forces motivating energy decisions within organisations, meaning respondents may struggle to isolate the specific impact of SECR from other concurrent initiatives and wider drivers. Given the strength of the evidence provided by the quantitative impact estimates, the overall metric is rated **Good to Excellent.**

Equity

Equity assesses whether SECR imposes a proportionate burden across different types of organisations and whether any particular groups face undue challenges in complying with the regulations. Based on the available evidence from the qualitative interviews and business survey, SECR is assessed as 'Good' against the Equity criteria in Table 9.

Table 19: Equity metrics

Metric	Output assessed	Standard achieved
4.1 Proportionality of costs of compliance: Average total internal costs of SECR disclosure (compiling, reporting and management) (£/annum)	Quoted: £3,421 Unquoted: £2,107	Adequate - Good

4.2 Undue burden on organisations: Proportion of survey respondents stating it was easy to reuse data collected and compiled for various schemes for SECR reporting, or vice versa (%)	UK ETS: 40% CCA: 53% ESOS: 57% EU CSRD: 47% TCFD: 51% Carbon reduction plans for large public contracts: 71% Voluntary reporting schemes (e.g. SBTi): 53%	Adequate – Good
4.2 Undue burden on organisations: Qualitative interview data on perceptions of the burden associated with SECR disclosure and other overlapping reporting requirements	Qualitative assessment only	Good

Proportionality of costs for organisations

Business survey responses from SECR eligible compliers indicate that internal costs do generally increase with organisation (staff) size. This is considered broadly proportionate given the fact that larger companies likely feature larger estates and more complex reporting boundaries. It should be noted that sample sizes were too low to report on the specific costs for different sized businesses, and therefore caution should be taken when extrapolating this finding across the whole population. The business survey also found that quoted company internal costs (£3,421) were greater than that of unquoted companies (£2,107), although this was not statistically significant. This is consistent with the more rigorous regulatory requirements and associated governance expectations associated with publicly listed companies. Given the evidence that costs appear proportionate to business size, this is assessed as **Adequate to Good**.

Reporting burden on organisations

In the business survey, the reuse of SECR data (or vice versa) was considered most easy for Carbon Reduction Plans (71%), whilst ease of use was more modestly reported for ESOS (57%), CCA (53%), TCFD (51%) and voluntary schemes (53%) points to partial interoperability between reporting policies and frameworks. This aligns with the qualitative interview finding that SECR reporting often leverages the same underlying energy and emissions data as other reporting policies, allowing for this data to be used across a number of such policies. Both

reporting service providers and SECR eligible organisations interviewed also acknowledged that collecting Scope 1 and 2 emissions data was generally manageable, and that familiarity and ease of SECR reporting have increased over time. Generally, interviewees from these stakeholder groups described SECR reporting as a straightforward process that was not overly onerous. However, interviewees did note that data collection and reporting can be challenging for organisations with complex structures, multiple sites or leased properties. Given the views expressed in qualitative interviews and the business survey evidence for data reuse between SECR and other schemes, this is assessed as **Good**.

Cost-effectiveness

Cost-effectiveness is assessed as Good to Excellent based on the outputs of the cost-benefit analysis.

Table 20: Cost-effectiveness metric

Metric	Output assessed	Standard achieved
4.1a Benefit-Cost Ratio (BCR)	2.72	Good to Excellent

Assessing the costs and benefits of SECR provides us with a quantitative output to indicate whether the benefits of the intervention outweigh the costs. The BCR estimated for SECR between 2019 and 2025 is 2.72, which indicates that for every £1 of costs incurred as a result of SECR, it delivers £2.72 of benefits for society. Although the costs to government associated with SECR are assumed to be minimal, they are not included within this analysis and would be expected to reduce the BCR very slightly if included. The sensitivity analysis scenario which has the biggest impact is removing all energy savings aside from 2021, which produces a positive BCR (1.18), indicating that SECR still provides value for money. The central estimated BCR is higher than expected of SECR at the policy development stage and SECR still delivers value for money even when applying energy savings only to 2021, and therefore is assessed as **Good to Excellent**.

Summary of findings

- There is strong evidence from both the qualitative and quantitative evidence developed through this evaluation that SECR has delivered value for money.
- The average estimated in-scope energy use is 250 TWh per annum between 2019 and 2025, which is made up of 160 TWh from on-site energy consumption and 90 TWh from transport.
- Based on a combination of energy saving estimates from the QED impact analysis and assumptions from the 2018 SECR Impact Assessment, the estimated average annual energy savings between 2020 and 2025 from SECR is 8 TWh and carbon emissions savings of 1.7 MtCO2e. Using the scenario where energy savings are only realised in 2021, the average energy savings between 2020 and 2025 reduced to 1.8 TWh per annum and average carbon savings are 0.4 MtCO2e.

- The cost-benefit analysis shows that the benefit-cost ratio of SECR between 2019 and 2025 is 2.72, indicating that for every £1 spent on SECR, there are £2.72 in societal benefits realised. In scenarios where cautious applications of the impact evaluation findings are applied to the cost benefit model, i.e. when the lower bound estimate of the sDiD outputs are applied (BCR = 1.48) and when energy savings occur in 2021 only (BCR = 1.18), the policy benefits outweigh the costs.
- Evidence from the 5Es assessment suggests that SECR is performing well across all criteria, providing evidence that the regulations are providing the intended benefits at a reasonable cost.

Annex: Quasi-experimental impact evaluation

Data sources

- **FAME dataset**

The FAME dataset provided financial information (number of employees, balance sheet total assets and turnover) for 239,393 UK companies across nine periods, covering financial returns in the years ending between 2015 and 2023. While a company's return could cover a period shorter or longer than 12 months, a data check confirmed that virtually all the companies in the FAME dataset reported their financials on a 12-month period basis, and their returns covered either the April to March period or the calendar year January to December (information was available regarding the number of months covered by the returns ending in 2019, 2020 and 2021, as well as the start and end dates for these returns).

The FAME dataset also contained information on a company's market price in 2020 (which was used to confirm whether a company was quoted or not) and its legal status at the time of the data extraction (in May 2025), alongside flags denoting whether the company filed a consolidated account for its subsidiaries or not for the returns ending in 2018, 2019, 2020 and 2021. Finally, the dataset included information about the companies' primary UK Standard Industrial Classification (SIC) 2007 code.

Removing the observations with missing values for the key variables reduced the FAME dataset to 238,900 companies. The next step was distinguishing these 238,900 companies between those in scope and those out of scope for SECR in 2020 based on their financials. The SECR reporting requirements are outlined in the 'Scope and Eligibility' section.

As this evaluation focused on those companies that became subject to SECR from the 1st of April 2019 (the date that the policy was introduced), a data requirement was imposed that the first post-SECR return for FAME companies ended in 2020 (this meant that, for almost all the companies in the dataset, financials were assessed over the period April 2019 to March 2020 or January 2020 to December 2020). A company in the FAME dataset was defined as in scope for SECR in 2020 (based on its financials) if the two-year rule was met over the time span encompassing both the post-SECR period (year ending in 2020) and pre-SECR period (years ending in 2019, 2018 and 2017). All those companies that followed any of the three time patterns illustrated in Table 14 were defined as in scope for SECR in 2020 based on the two-year rule.

Table 21: Two-year rule to define a company as either in or out of scope for SECR in 2020 based on its financials

Annual return ending in 2017	Annual return ending in 2018	Annual return ending in 2019	Annual return ending in 2020
		Large	Large
	Large	Large	Non-Large
Large	Large	Non-Large	Large

Note: a company is defined as large in a given year if it meets at least two of the following three criteria holds: balance sheet greater than £18 million; turnover greater than £36 million; number of employees higher than 250.

Of the 238,900 companies in our FAME dataset, 10,919 were defined as in scope (based on the two-year rule) and 227,981 as out of scope.

- **ND-NEED dataset**

The ND-NEED dataset included 900,356 observations, where each observation represents a different building in England or Wales. Each building is identified by a unique identifier, called Unique Property Reference Number (UPRN), and contains energy meters for which energy consumption could be calculated. This information covered annual energy consumption for all years between 2012 and 2023 and included gas and electricity usage.[31] Unfortunately, transport-related energy consumption, which is in scope for SECR, is not included in ND-NEED. Other information available for analysis included the building's total area (in square metres), the unique IDBR company identifier, and an indicator denoting the enterprise group of the enterprise to which the building belonged to (group number).

The ND-NEED dataset available for analysis contained 380,514 building-level observations for which an IDBR enterprise identifier was available (an IDBR enterprise identifier is missing for 57.7% of the ND-NEED records, and therefore these records could not be used). These 380,514 buildings belonged to 304,140 enterprises (294,232 (77.3%) of the 380,514 buildings represented single-building enterprises). Energy consumption associated with meters located in multiple buildings with the same IDBR identifier (i.e. buildings belonging to the same enterprise) was aggregated to achieve a measure of energy consumption (in MWh) at the enterprise level.

[31] The definition of a year varies over time and also depends on the energy source. For example, for the purpose of reporting gas consumption, since 2018 a year ran from mid-May in one year to mid-May in the next year, while the periods considered prior to 2018 vary). For more details see https://assets.publishing.service.gov.uk/media/66b4902da3c2a28abb50dea7/ND-NEED-2024-methodology.pdf.

- **Linking the enterprises in ND-NEED to companies in FAME**

The 2,123,483 records included in the lookup file denoted unique FAME company identifiers. Of these, 2,076,919 FAME identifiers were unequivocally associated with 2,076,919 unique IDBR identifiers (the other 46,564 FAME identifiers were associated with multiple IDBR identifiers and were therefore discarded). This means that the lookup file provided a means of linking up to 2,076,919 units of analysis included in both ND-NEED and FAME. Each of these units is defined as both an IDBR enterprise and a FAME company. Therefore, the terms 'company' and 'enterprise' will be used interchangeably.

The lookup file was used to link the 238,900 companies in our FAME dataset with the 304,140 enterprises from the ND-NEED dataset for which aggregated energy consumption data was achieved. The data linking exercise resulted in 33,832 companies being linked (57.2% of them (28,690 companies) were single-building enterprises).

Sample selection

To achieve the sample used for impact analysis, the following data processing steps were undertaken:

- The exclusion of enterprises for which consolidated financial accounts were reported in FAME (i.e. companies were retained only if they reported on their own financials rather than the financials of other companies in their group) for the returns ending in 2018, 2019, 2020 and 2021. An advantage of this approach is that it avoids double-counting financials and/or energy consumption introduced by parent-subsidiary relationships. (Note that, although consolidated companies were removed, their unconsolidated subsidiaries that themselves meet SECR criteria were still included in the dataset).
- The retention of only companies with annual returns based on 12-month periods for the returns ending in 2018, 2019, 2020 and 2021 (for which the number of months covered by the reports was available). This was necessary to ensure comparability across FAME records and align companies' financials to energy consumption (which in ND-NEED is reported on an annual basis).
- The exclusion from analysis of companies which filed returns ending in 2020 but with a start date prior to 1st April 2019 to ensure that the 2020 return captured their first post-SECR period.

Propensity Score Matching (PSM)

PSM was considered to explore the possibility of constructing a comparison group of companies that were out of scope for SECR but were otherwise similar to companies in scope for SECR in terms of some characteristics (observed prior to SECR being introduced) which qualify as 'impact confounders' (i.e., company-level features which are prognostic of the energy outcome and also affect the likelihood of being in scope for SECR). The idea underlying PSM is that if a 'matched' comparison group (including companies out of scope for SECR but similar enough to companies in scope) can be found, impact can then be estimated

as the simple difference between the average energy consumption observed after the introduction of SECR among companies in scope for SECR and the corresponding outcome observed among (matched) comparators, where the latter outcome represents the counterfactual (i.e. the outcome companies in scope for SECR would have experienced had SECR not been introduced). However, for PSM to be a credible impact estimation strategy, one has to prove that companies in scope for SECR and the comparison companies are sufficiently similar across all the confounders (a condition called 'covariate' balancing).

The first step in implementing PSM is estimating the propensity score, i.e. the probability of a company being in scope for SECR conditional on observable confounders. This was achieved by running a probit regression model in which the dependent variable denoted whether a company was defined as in scope for SECR in 2020 (i.e. eligible based on both the two-year rule and an annual energy consumption higher than 40 Megawatts per hour in 2020), and the confounders included the following company characteristics (measured pre-treatment):

- Total assets (from the return ending in 2018)
- Number of employees (from the return ending in 2018)
- Turnover (from the return ending in 2018)
- Enterprise total floor area (derived by aggregating the total floor areas of all the buildings of the same company)
- Total enterprise energy consumption (in MWh) in 2018
- Energy intensity (energy consumption per employee) in 2018
- Energy Savings Opportunity Scheme (ESOS) eligibility (a binary indicator denoting whether a company was eligible for ESOS or not in 2018)

The results from the probit regression in which the 50 low-energy users have been recoded as in scope for SECR are shown in Figure 5. The sample sizes used were lower than those shown in Table 3 because companies which had key confounders with missing values were removed prior to running the probit model.

Table 15 shows that two of the three variables determining SECR eligibility, namely, total assets and turnover, are found to be positively associated with the probability of being in scope for SECR (their coefficients are both statistically significant at the 1% level), which is an expected result. The number of employees is found to be negatively associated with SECR (although the estimate is statistically significant only at the 10% level), which seems counterintuitive. This result is most likely due to the interplay between the three variables used to determine eligibility for SECR and the ESOS binary indicator (found to be significant at the 1% level), which reflects eligibility based on the same three indicators but based on a different rule.

It should be noted that when a probit model is run using total assets, turnover, and number of employees as the only covariates, convergence is not achieved. Hence, other variables are required to estimate the propensity score. The ESOS dummy alone in the model is sufficient to make the model converge, and adding the three remaining variables does not change the conclusion of the PSM analysis: the predictive power of the alternative models (using the

Akaike criterion) is virtually the same, and the same conclusions are achieved on covariate balancing.

Table 22: Probit model to estimate the likelihood of a company being in scope for SECR

Variables (2018)	Coefficient	Standard Errors	z values	p > |z|	Lower bound 95% Confidence interval	Upper bound 95% Confidence interval
Employees	-0.00	0.00	-1.66	0.01	-0.00	0.00
Assets	0.01	0.00	9.09	0.00	0.00	0.00
Turnover	0.05	0.00	25.11	0.00	0.05	0.06
Enterprise energy use	0.00	0.00	1.06	0.29	-0.00	0.00
Enterprise total floor area	0.00	0.00	0.04	0.96	-0.00	0.00
Energy per employee	-0.00	0.00	-0.77	0.44	-0.00	0.00
ESOS eligibility	1.68	0.08	20.13	0.00	1.52	1.85
Constant	-2.96	0.08	-37.33	0.00	-3.11	-2.80

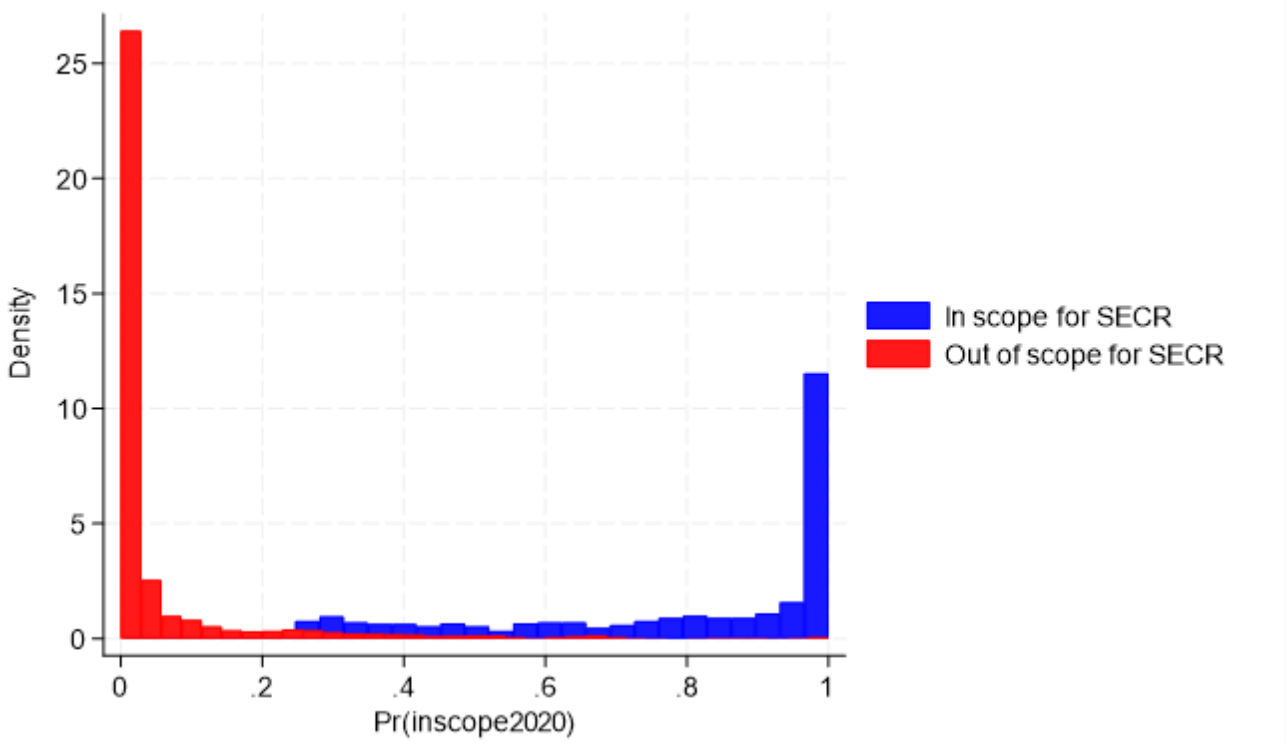
The sample includes 894 companies in scope for SECR (844 high-energy users and 50 low-energy users) and 3,850 companies out of scope (3,367 high-energy users and 483 low-energy users).

The second step involved in PSM is identifying the most suitable algorithm to match companies in the set in scope for SECR with companies in the out of scope set. This is achieved by visually inspecting the distribution of the propensity score.

The distribution of the propensity score estimated using the probit model is shown, separately for in and out of scope companies, in Figure 11 Distribution of the propensity score for

companies in and out of scope for SECR. Caliendo and Kopeinig (2005)[32] suggest that a Local Linear Regression (LLR) matching algorithm is more suited in situations where comparison group observations are distributed asymmetrically around the treated observation (e.g., at boundary points).[33] LLR matching uses a non-parametric matching estimator that uses weighted averages of all individuals in the control group to construct the counterfactual outcome.

Figure 11: Distribution of the propensity score for companies in and out of scope for SECR



The final step of the PSM analysis consists of checking whether the implementation of the LLR matching algorithm resulted in successful matches.

Table 16 shows that, overall, LLR matching was able to substantially reduce selection bias as the in and out of scope samples are more similar to each other, as denoted by a much lower bias, after matching (M stands for matched samples) compared to before (U stands for unmatched samples) for all but two of the variables considered (energy use and energy intensity). However, the bias observed for the matched samples (i.e. after LLR matching is implemented) is still too high based on accepted statistical norms (bias greater than 5% is too high for a match to be considered as satisfactory). This suggests that matching has not been successful in reducing the differences between in and out of scope companies.

[32] Caliendo, M. & Kopeinig, S. (2005). Some practical guidance for the implementation of propensity score matching. IZA discussion paper, 1558.
[33] See Some Practical Guidance for the Implementation of Propensity Score Matching.

Table 23: Covariate balancing tests

Variable (2018)	Unmatched (U)/ Matched (M)	Mean (Treated)	Mean (Control)	% Bias	% reduct-ion of bias	t-test (t)	t-test p > |t|	V(T)/ V(C)
Employees	U	420.3	117.2	75.4	-	25.7	0.00	4.0*
	M	420.3	303.8	29.0	61.6	5.7	0.00	2.2*
Assets	U	206.4	10.3	7.2	-	3.1	0.00	27160*
	M	206.4	88.2	4.3	39.7	0.9	0.36	348.6*
Turnover	U	99.4	11.5	16.7	-	7.3	0.00	4594.1*
	M	99.4	64.4	6.7	60.2	1.4	0.16	202.5*
Enterprise energy use	U	3613.5	1203.7	24.0	-	8.1	0.00	3.67*
	M	3613.5	1177.7	24.2	-1.1	5.6	0.00	14.0*
Enterprise total floor area	U	6074.6	2082.4	42.3	-	15.7	0.00	7.3*
	M	6074.6	3045.2	32.1	24.1	6.9	0.00	12.9*
Energy per employee	U	16.7	21.6	-3.3	-	-0.7	0.46	0.2*
	M	16.7	9.7	4.7	-41.4	2.5	0.01	6.7*
ESOS eligibility	U	0.74	0.07	189.1	-	61.2	0.00	-

	M	0.74	0.43	89.0	53.0	14.4	0.00	-

*if variance ratio outside [0.88;1.14] for U and [0.88;1.14] for M

The conclusion of the PSM analysis is that, due to extreme differences between companies in and out of scope for SECR in terms of the characteristics considered, PSM is not able to identify a convincing comparison group and therefore cannot be considered as a credible method to estimate the SECR impact.

Difference-in-differences (DiD)

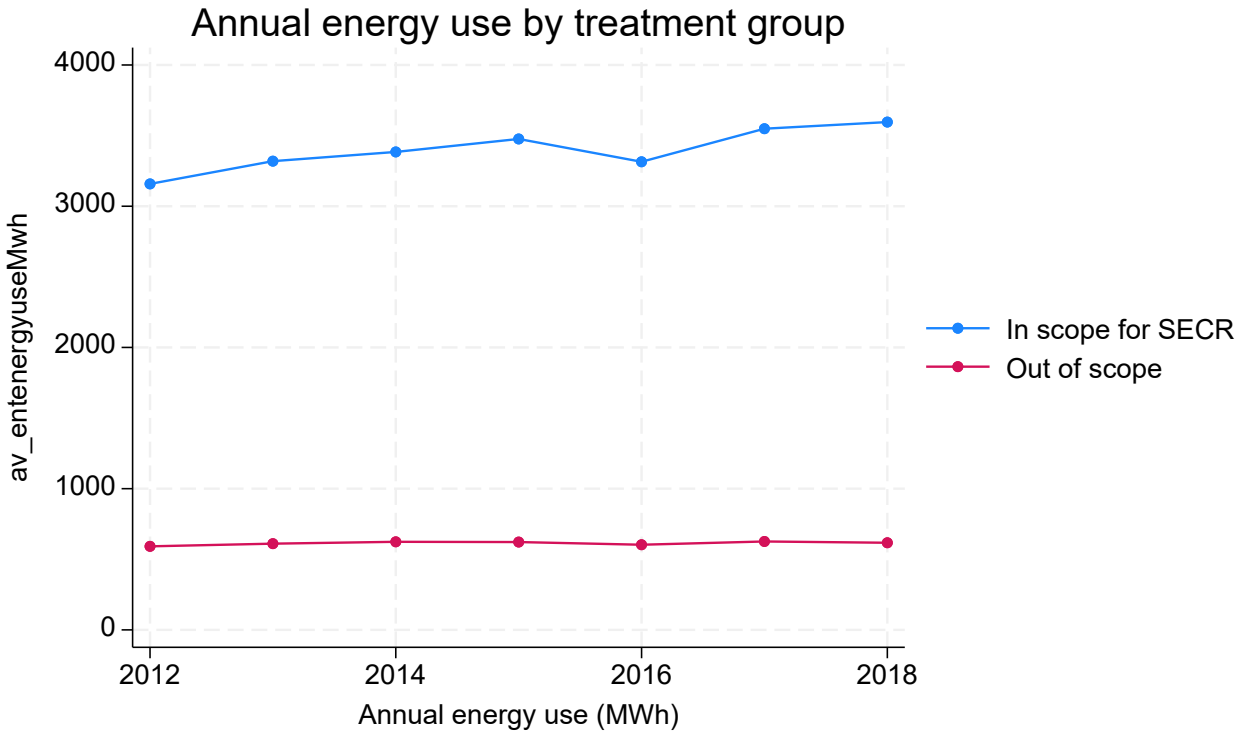
DiD estimates impact by comparing the average change in energy consumption in the period before and after the SECR introduction for companies in scope for SECR and the corresponding change for companies that are out of scope. DiD was considered as an appropriate strategy to estimate the SECR impact because (unlike PSM, which can only control for selection on observable confounders) it can mitigate estimation bias generated by some unobservable confounders, namely, unobserved time fixed effects and company-level heterogeneity (the effect of these confounders cancels out through double differencing outcomes). However, the credibility of the DiD approach crucially rests on the parallel trend assumption, which postulates that the outcomes of companies in and out of scope for SECR would develop in a parallel fashion in the absence of SECR. While this assumption is not testable, one can explore whether it is plausible by looking at historical outcome trends for companies in and out of scope for SECR. If these trends are found to be parallel in the period prior to introducing SECR, it is reasonable to assume that they would have continued to be parallel had SECR not been introduced. The advantage of using a DiD design is that it does not matter whether companies in scope for SECR are much larger than companies out of scope (which was a problem for PSM), so long as one can demonstrate that energy consumption would have evolved in a similar fashion for the two groups in the absence of SECR.

Plausibility of the parallel trend

The DiD was implemented both in its simplest form, that is, double differencing outcomes without controlling for covariates, and then adjusting for covariates. However, the method used did not change the main conclusions, hence the decision to report the findings based on the unconditional DiD estimates (without covariate adjustment) here. To assess whether this design was justified, the plausibility of the parallel trend assumption was first explored visually, by inspecting historical trends in energy consumption for companies in and out of scope for SECR.

As Figure 12 shows, the outcome gap between these two groups has increased over time, suggesting that it would have been unlikely developed in a parallel way also after the introduction of the SECR.

Figure 12: Historical outcome trends for companies in and out of scope for SECR



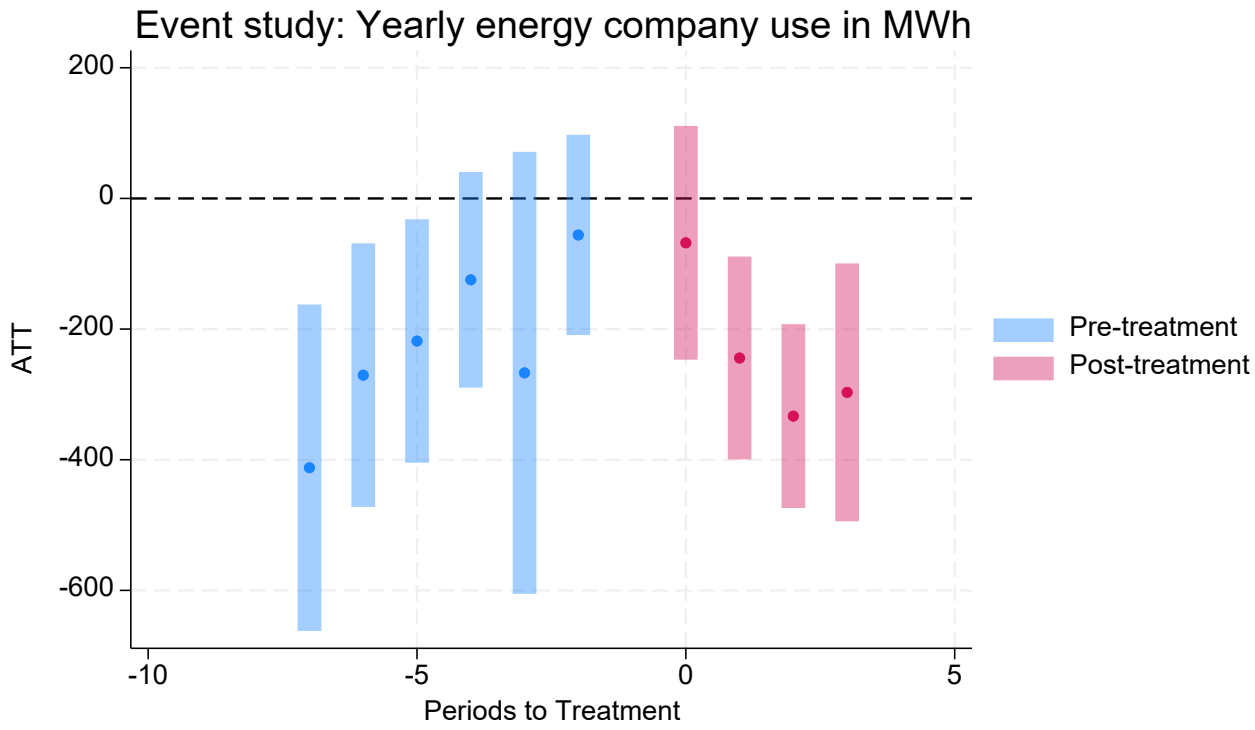
This finding was confirmed after running an event study to explore the evolution of the SECR impact over time. In Figure 13, the red dots represent the impact estimates in the post-SECR introduction period and the blue dots the impacts in the pre-SECR period (the latter are only fictional impacts as the policy has not happened yet, and are used to explore the existence of a parallel trend prior to the SECR's introduction). All these estimates use 2018 as the reference point.

For example, the red point associated with Period to treatment 1 is the estimate of the immediate SECR impact. This is calculated as the difference between the average change in energy consumption for companies in scope for SECR between 2020 (the post-treatment period) and 2018 (the pre-treatment period) and the average change in energy consumption over the same period (2020-2018) for companies out of scope for SECR. By the same token, the red point associated with Period to treatment 2 is the estimate of the SECR impact one year after, and is calculated as the difference between the average change in energy consumption for companies in scope for SECR in the period between 2021 and 2018 and the average change in energy consumption for companies out of scope for SECR between 2021 and 2018. The red point associated with Period to treatment 3 is the estimate of the SECR impact two years after and is based on the 2022-2018 outcome difference between companies in and out of scope for SECR.

The red point associated with Period to treatment 0 is the difference between the average change in energy consumption for companies in scope for SECR between 2019 and 2018 and the corresponding change for companies out of scope for SECR. However, given the fact that the first post-SECR period is 2020 (rather than 2019), this estimate should be disregarded.

The blue point associated with Period to treatment -2 is the (fictional) estimate of the SECR impact 'two years before'. This is calculated as the difference between the average change in energy consumption for companies in scope for SECR between 2018 (a fictional post-treatment period) and 2017 (a fictional pre-treatment period) and the average change in energy consumption over the same period (2018-2017) for companies out of scope for SECR. The blue point associated with Period to treatment -3 is the (fictional) estimate of the SECR impact 'three years before' and is calculated as the difference between the changes in energy consumption over the 2018-2016 period for companies in and out of scope for SECR. And so on.

Figure 13: Event study - DiD estimates in the pre- and post-SECR introduction period



Findings obtained using the csdid Stata command, which uses the Callaway and Sant'Anna's (2021)[34] DiD estimator.

The graph suggests the following:

- Overall, it seems that companies in and out of scope for SECR experienced a non-parallel outcome trend in the period before SECR was introduced (the blue points suggest a growing linear trend).
- The energy consumption trends in the periods between 2018 and 2014 (Period to treatment -5), 2018 and 2013 (Period to treatment -6) and 2018 and 2012 (Period to treatment -7) are found to be non-parallel. (Statistically significant (fictional) impacts are

[34] Callaway, B. & Sant'Anna, P. (2021). Difference-in-differences with multiple time periods. Journal of Econometrics, 225(2), 200 – 230.

denoted by blue dots associated with blue bars which are positioned below 0 in the y-axis.)

- However, outcome trends observed in the periods closer to the introduction of the SECR (2028-2017, 2018-2016 and 2018-15) evolved in a parallel fashion. The fact that the blue bars cross the 0 in the y-axis means that the (fictional) impacts are not found to be statistically significant.
- Based on the above findings, the conclusions about the plausibility of the parallel trend are debatable: some people may state that the initial pre-trend stabilised as the SECR introduction approached, and this provides reassurance that the assumption behind the DiD is satisfied. Others may conclude that, overall, the pre-SECR trend is not parallel as there is a clear growing trend, and the dip observed at Period to treatment -3 is only an accident, and the point estimate observed at Period to treatment -2 proves that the old trend was resumed immediately after.
- While the main purpose of the event study was exploring the parallel trend assumption, the graph also shows the existence of a positive impact from SECR: the red dots and associated bars for Periods to treatment 1, 2 and 3 indicate that companies in scope for SECR experienced a reduction in their energy consumption. (Statistically significant impacts are denoted by red dots associated with red bars which are positioned below 0 in the y-axis.)

If the plausibility of the parallel trend assumption is accepted, it can be concluded that DiD estimates indicate a reduction in energy consumption for companies in scope for SECR by 244.3 MWh in 2020, 333.2 MWh in 2021, and 296.9 MWh in 2022 (with impact sizes and associated statistics shown in Table 17). Alternatively, if the existence of a pre-existing increasing outcome gap is considered, these figures may underestimate the real impact.

Table 24: DiD estimates of the impact of the SECR (based on the event study)

	Estimate	Standard Errors	z values	p values	Lower bound 95% Confidence Interval	Upper bound 95% Confidence Interval
Pre-SECR average	-224.8	78.3	-2.87	0.004	-378.3	-71.2
Post-SECR average	-235.6	71.5	-3.30	0.001	-375.6	-95.5
2013	-412.2	127.5	-3.23	0.001	-662.1	-162.4

2014	-270.6	102.9	-2.63	0.009	-472.3	-68.8
2015	-218.3	95.1	-2.30	0.022	-404.7	-31.9
2016	-124.6	84.2	-1.48	0.139	-289.6	40.1
2017	-267.0	172.6	-1.55	0.122	-605.3	71.3
2018	-55.9	78.2	-0.72	0.474	-209.2	97.3
2019	-67.9	91.3	-0.74	0.457	-246.8	111.0
2020	-244.3	79.2	-3.08	0.002	-399.6	-89.0
2021	-333.2	71.8	-4.64	0.000	-473.9	-192.5
2022	-296.9	100.7	-2.95	0.003	-494.3	-99.5

In addition to PSM and DiD, the possibility of estimating the SECR impact by implementing a Regression Discontinuity (RD) design was explored. This would have compared the outcomes of the companies above the de-minimis energy use threshold with the outcomes of companies below the threshold. However, as can be seen in Table 14, the number of companies below the energy threshold and in scope for SECR based on the two-year rule turned out to be very small. Additionally, data checks performed by DESNZ indicate that, although these 50 companies were previously classified as low-energy users, they are likely to be high-energy users. This is not surprising because the enterprise-level energy use measure used for analysis is downward-biased by construction for two main reasons. First, ND-NEED does not capture transport-related energy consumption[35], which is mandatory to be included in SECR disclosures. Second, many buildings in ND-NEED do not have an enterprise/company identifier and therefore cannot be included in the calculation of total amount of energy used by a company. Therefore, it was concluded that using an RD for impact estimation was not a reliable approach.

In the impact analyses which used PSM and DiD, the companies which were identified as low-energy users were recorded as high-energy users (under the simplifying assumption that they have all been miscoded and should be considered as high-energy users; in reality, a few of

[35] Also for on-site energy, ND-NEED also does not cover fuel consumption beyond metered electricity and gas. However, because this analysis ends up focusing on unquoted companies, this is not a significant issue as unquoted companies only need to report, at a minimum, gas and electricity, plus transport.

them will not be high-energy users). As a robustness check, the analysis was performed after excluding all the low-energy users from the analysis sample.

Table 25: DiD covariate-adjusted estimates of the impact of the SECR (based on the event study)

	Estimate	Standard Errors	z values	p values	Lower bound 95% Confidence Interval	Upper bound 95% Confidence Interval
Pre-SECR average	-907.3	649.6	-1.4	0.162	-2180.4	365.8
Post-SECR average	-410.5	290.5	-1.41	0.158	-979.9	158.8
2016	-1093.2	812.5	-1.35	0.178	-2685.6	499.2
2017	-843.6	601.7	-1.4	0.161	-2022.9	335.6
2018	-785	638.8	-1.23	0.219	-2036.9	467
2019	-351	231.5	-1.52	0.13	-804.7	102.9
2020	-581.5	405.0	-1.44	0.151	-1375.4	212.3
2021	-671.4	381.6	-1.76	0.078	-1419.3	76.4
2022	-38.3	342.3	-0.11	0.911	-709.2	632.6

Synthetic Difference-in-Differences (sDiD)

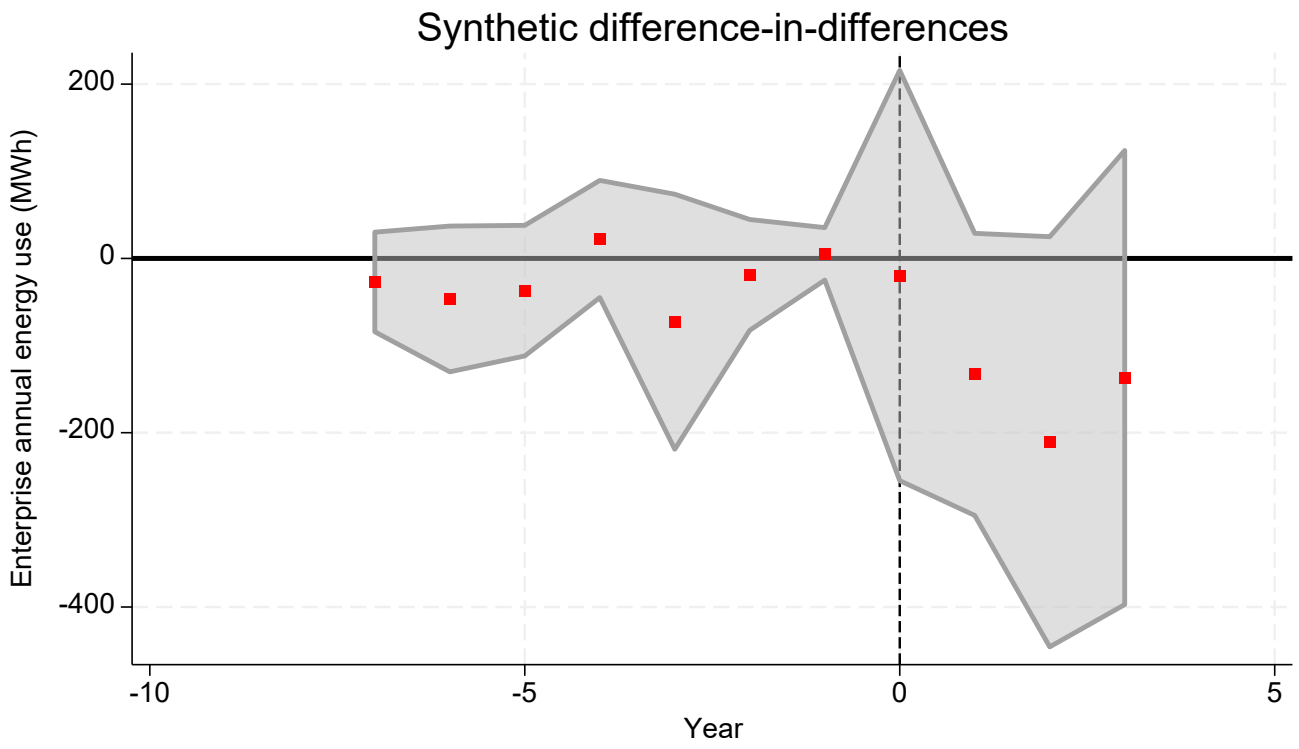
The findings from the implementation of the sDiD estimator (without controlling for covariates) are illustrated in Figure 14. They suggest the following:

- A parallel trend is clearly visible in the pre-SECR introduction period, ranging from Year -1 to Year -7. This is not surprising as this trend has been enforced by the sDiD estimator through the application of company and time weights. Essentially, it means that the energy consumption of companies in scope for SECR and companies out of

scope (used to create a synthetic comparison group) developed in parallel over the entire pre-SECR period.

- Energy consumption reduced in the period after the introduction of SECR. In the immediate post-SECR period, the average energy consumption of a company in scope for SECR reduced by 133.1 MWh. The impact one year after was larger. Two years after the impact reduced in size and was of a similar magnitude to the impact observed in 2020. While none of these three impact estimates are statistically significant (at the 5% level), there is a strong indication of a beneficial effect of SECR for the companies in scope for the policy. This effect is at its maximum one year after the policy and reduces afterwards (see Table 18 sDiD estimates of the impact of the SECRfor detailed findings).

Figure 14: Impact of the SECR (event study sDiD)



Sample size: 13,591 units (899 in scope for SECR and 12,692 out of scope)

Table 26: sDiD estimates of the impact of the SECR

	Estimate	Standard Errors	Lower bound 95% Confidence Interval	Upper bound 95% Confidence Interval
Average treatment effect on the treated	-125.0	96.3	-313.8	63.8
Effect_1 (2019)	-19.7	113.9	-242.9	203.6
Effect_2 (2020)	-133.1	84.1	-297.9	31.8
Effect_3 (2021)	-210.4	118.7	-443.1	22.3
Effect_4 (2021)	-136.7	130.4	-392.3	118.9
Placebo_1 (2018)	5.2	16.0	-26.1	36.5
Placebo_2 (2017)	-18.9	28.9	-75.4	37.7
Placebo_3 (2016)	-72.7	74.9	-219.4	74.0
Placebo_4 (2015)	22.3	34.1	-44.5	89.1
Placebo_5 (2014)	-37.0	38.7	-112.8	38.8

Placebo_6 (2013)	-46.5	41.9	-128.6	35.6
Placebo_7 (2012)	-27.0	31.2	-88.2	34.2

Sample size: 13,591 units (899 in scope for SECR and 12,692 out of scope); bootstrapped SEs (500 replications). (Replicating the sDiD analysis after removing all the companies classified as low-energy users made no difference to the conclusions reported above).

Table 27: Energy savings attributable to the SECR (covariate-unadjusted sDiD estimates)

Covariate-unadjusted sDiD estimates	Average observed energy consumption for companies in scope for SECR	Counterfactual outcome	Estimated impact (in MWh)	Estimated energy saving (%)	Number of companies in scope for SECR
2020	3,283.5	3,416.6	-133.1	3.9	899
2021	3,208.9	3,419.3	-210.4	6.2	899
2022	3,229.7	3,366.4	-136.7	4.1	899

Table 28: (repeating table 6) Original energy savings attributable to the SECR (Covariate-adjusted estimates)

Covariate-adjusted sDiD estimates	Average observed energy consumption for companies in scope for SECR (in MWh)	Counterfactual outcome (in MWh)	Estimated impact (in MWh)	Estimated energy saving (%)	Number of companies in scope for SECR
2020	3,471.7	3,634.5	-162.8	4.5	818

2021	3,384.8	3,609.7	-224.9	6.2	818
2022	3,410.0	3,586.1	-176.1	4.9	818

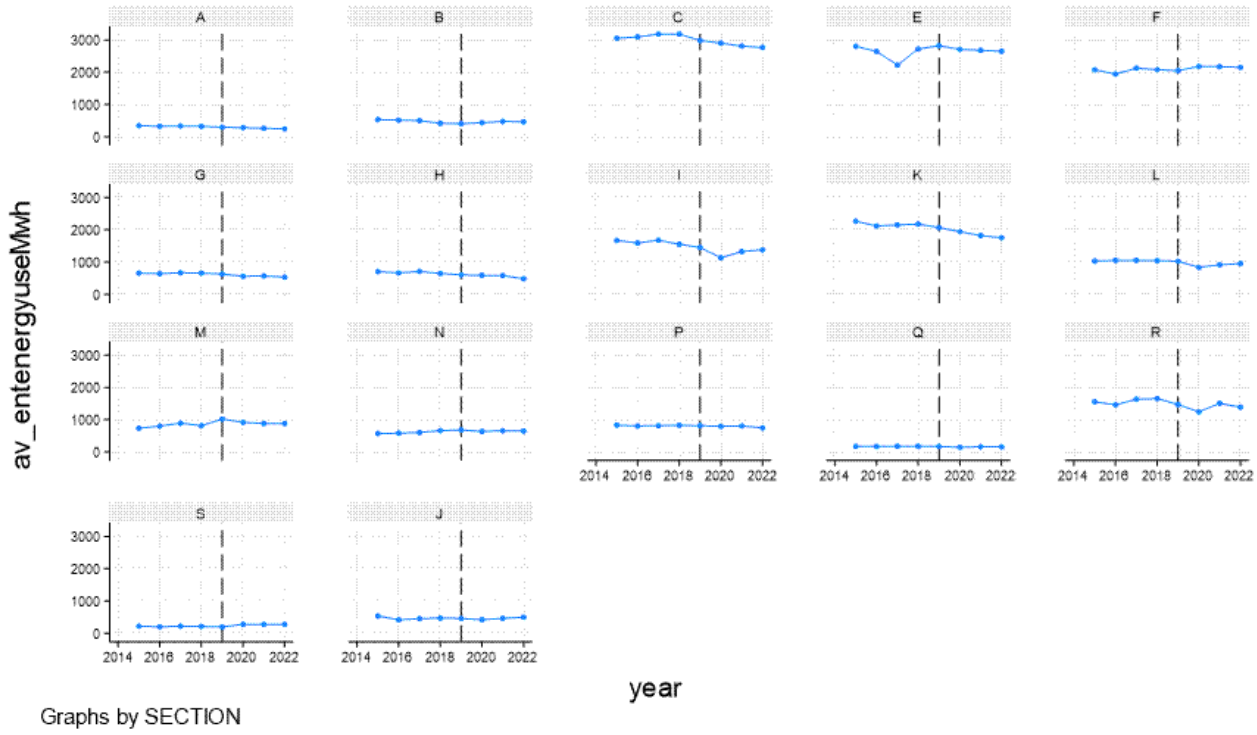
Accounting for the potential bias in the impact estimates introduced by Covid-19 effects

It is possible that the COVID-19 pandemic (which happened at around the same time as the introduction of the SECR policy in 2019) is partly responsible for the observed impact on energy consumption estimated through the synthetic Difference-in-Differences (sDiD) approach. That is, part of the energy use reduction estimated via sDiD (in reality, this problem arises regardless of the estimation method used) may be attributable to COVID-19 rather than SECR. To provide more reliable impact estimates of SECR (i.e. estimates which net out the impact of COVID on energy use), we explored for which companies the effects of COVID-19 on energy use are most likely to have been experienced, and then re-estimate the SECR impact using sDiD after removing these companies from the analysis sample.

To explore which companies were affected (or most affected) by COVID-19, we visualised the energy consumption of companies out of scope for SECR distinguishing them by size and sector, to assess whether companies of different size or in different sectors experienced changes in their trend after the point COVID-19 happened (to explore the existence of COVID-19 effects) and whether the trends are similar for companies of different sizes or in different sectors (to assess the homogeneity/heterogeneity of COVID-19 effects across the company's characteristics of size and sector). The rationale for using companies out of scope is that companies subject to SECR are potentially influenced by both SECR and COVID-19, whereas companies outside the scope are likely to have been affected only by COVID-19.

All the companies out of scope for SECR were grouped according to the UK Standard Industrial Classification (SIC) 2007 system. We used the highest-level SIC classification (Sections A to U), which divides economic activities into 21 broad sectors, as this level of aggregation strikes a balance between granularity and interpretability. Companies out of scope for SECR operated in 17 (of the 21) Sections. The average annual energy consumption (in MWh) for each SIC Section between 2014 and 2022 is shown in Figure 15.

Figure 15: Time trends in energy consumption, by sector (SIC Section)



The following sectors show trends in energy consumption that change after 2018 suggesting their energy use may have been affected by COVID-19:

C - Manufacturing

E - Water supply; sewerage, waste management

I - Accommodation and food service activities

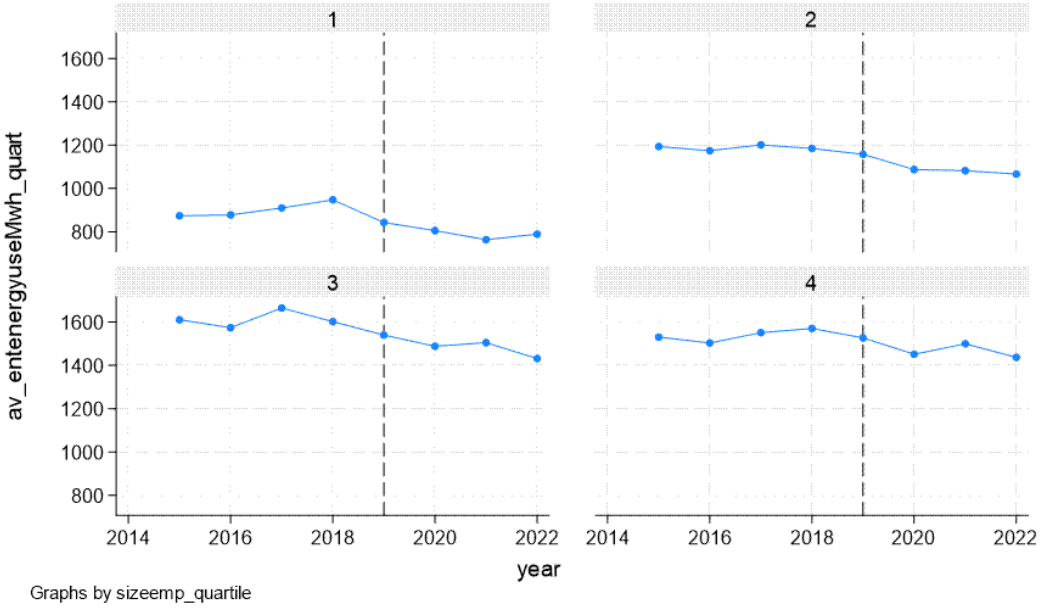
K - Financial and insurance activities

R - Arts, entertainment and recreation

For these sectors, the observed reduction in their energy use (either in levels or growth rates) observed after 2018 is likely to have been caused by operational disruptions or demand shocks. For all the other sectors, the outcome trend did not change after the start of the COVID-19 pandemic (in 2019 or after). Their relatively stable energy consumption over time suggest that they did not experience COVID-related shocks.

Firms that were out of scope for SECR were also grouped into quartiles defined by their size (based on the number of employees). As shown in Figure 15, the trend in energy use between 2014 and 2022 is consistent across quartiles: overall, all the quartiles but the first show a similar (linear) pattern over time, suggesting that a decline in energy consumption after 2018 (due to COVID-19) was not a phenomenon affecting medium-to-large companies. This suggests that the impact of COVID-19 on energy consumption would have been similar for larger companies (those in scope for SECR) had they not been eligible for SECR.

Figure 16: Time trends in average energy consumption, by company size quartile



Therefore, we concluded that company size does not seem to pose a major threat to the parallel trend assumption and therefore to the sDiD estimates. However, COVID affected some sectors more than others.

The fact that COVID-19 affected the energy consumption of some sectors more than others (which is what our data checks suggest) is not a problem if the companies out of scope for SECR experienced the same magnitude of sector-specific COVID effects as companies in scope for SECR because the DiD approach accounts for these common macro shocks. However, we adopted a more conservative approach and avoided making an assumption that the COVID effect in these sectors was consistent across companies of different sizes. We re-estimated the sDiD model after removing all the companies operating in the sectors whose energy consumption was potentially affected by COVID (Sections C, E, I, K and R). As shown in Figure 15, the impact estimates are smaller than those based on companies in all the sectors. This suggests that the original estimates partially captured COVID-related reductions in energy use. The adjusted model shows a statistically significant impact of SECR, and the smaller impact estimates (energy savings) provide more realistic measures of the SECR impact after the confounding effect of COVID-19 is removed.

Figure 17: Re-estimating the SECR impact after netting out the effect of Covid-19

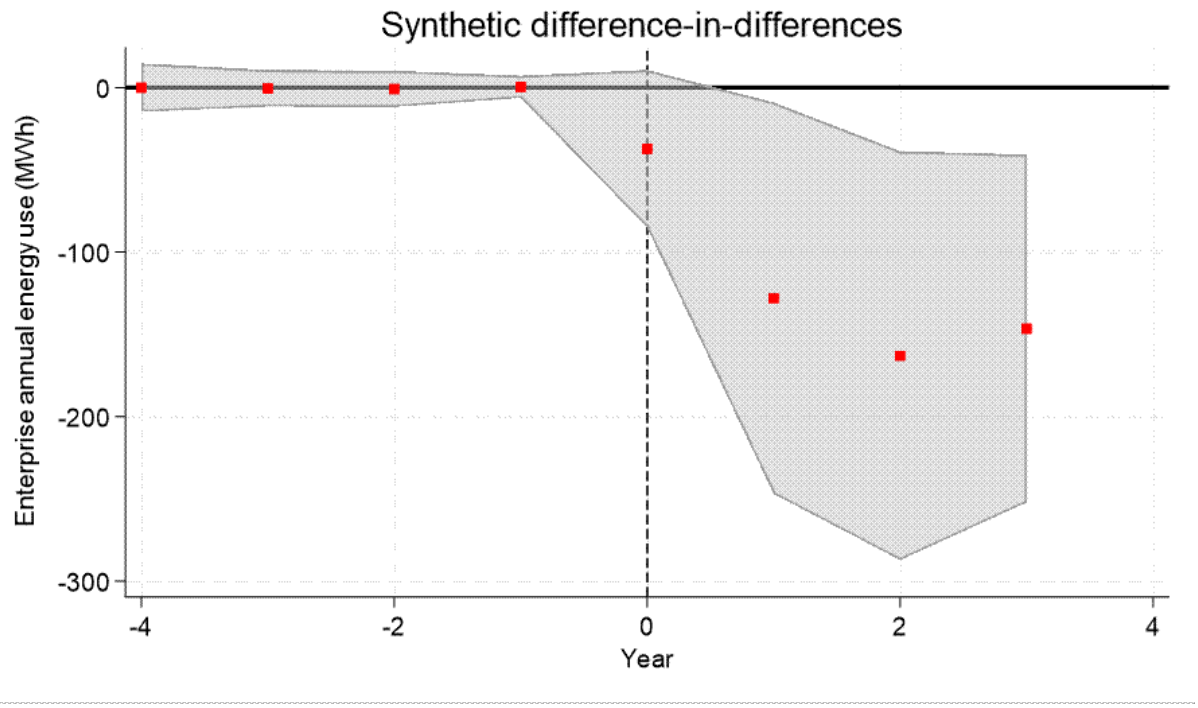


Table 29: Covariate-adjusted sDiD estimates of the impact of SECR (after removing sectors likely to be affected by Covid-19)

	Estimate	Standard Errors	Lower bound 95% Confidence Interval	Upper bound 95% Confidence Interval
ATT	-118.7	43.3	-203.5	-33.9
Effect_1 (2019)	-37.2	24.5	-85.2	10.7
Effect_2 (2020)	-128.1	60.7	-247.1	-9.0
Effect_3 (2021)	-163.0	63.4	-287.3	-38.7
Effect_4 (2022)	-146.5	53.9	-252.2	-40.8

Placebo_1 (2018)	0.4	3.4	-6.3	7.1
Placebo_2 (2017)	-0.8	5.6	-11.8	10.2
Placebo_3 (2016)	-0.4	5.7	-11.6	10.7
Placebo_4 (2015)	0.0	7.5	-14.7	14.7

Sample size: 563

Table 30: Energy savings attributable to SECR (after removing sectors likely to be affected by Covid-19)

	Average observed energy consumption for companies in scope for SECR (in MWh)	Counterfactual outcome (in MWh)	Estimated impact (in MWh)	Estimated energy saving (%)	Number of companies in scope for SECR
2020	1,299.4	1,427.5	-128.1	9.0	563
2021	1,265.9	1,428.9	-163.0	11.4	563
2022	1,272.0	1,418.5	-146.5	10.3	563

Annex: Value for money framework

Cost-benefit analysis

Monetised impacts and evidence base

All prices in this analysis have been converted into 2025 prices (where not already the case) using the 2025 GDP deflator (HM Treasury 2025). As the cost-benefit analysis looks at past impacts (2019 – 2025), a social time preference rate ('discount rate') has not been applied to social present values (as instructed by section 5.4 of the Green Book, HM Treasury 2022). Costs are estimated as a Present Value and include:

- *Administrative burden to participants:* this includes the internal costs for organisations in familiarisation with the requirements (potentially one-off) and compliance with the regulations (ongoing). This includes costs of staff time for the process of understanding the requirements, collecting all relevant information and data, analysing and preparing in the format required, and the review and sign-off process for the Directors' Report. The time estimates in hours were collected via the business survey and are multiplied by a total labour cost of £25.98 per hour based on ONS average (mean) earnings figures scaled up to account for non-pay labour costs, and using an assumption of 70% of the time requiring associate professionals, 20% of the time administrative staff, and 10% of the time from senior executives. Multiplied by the mean number of hours reported for complying with SECR (94.4) gives an average internal cost of £2,452. Additional external costs for those who incurred external costs (56%) are estimated to be £8,277. The average ongoing annual cost across the population is £7,087.
- The total monetised admin burden to participants was calculated by multiplying the average cost by the number of entities in scope of SECR (19,900). The population figure used includes those who are eligible for a subsidiary exemption, on the basis that these companies were included in the survey and contributed data on costs incurred. However, the population figure excludes those who are eligible for a low energy exemption on the basis that they do not need to disclose energy and carbon and are unlikely to incur any significant cost due to much simpler energy arrangements.
- *Increased capital, hassle, and operational costs:* in line with the assumptions used for the 2018 SECR IA, and standard GHG appraisal practice, the expected capital, hassle, and operational costs were calculated by taking the average costs of energy efficiency measures likely to be taken up as a result of the policy, weighted by energy savings, and scaling these to account for the level of adoption required to achieve the estimated energy savings. All costs from the IA have been adjusted to reflect current prices by using GDP deflators. Measures and associated costs are taken from Marginal Abatement Cost Curves (MACC) developed for Carbon Budget 5 (CB5).
- Benefits are estimated as a Present Value and are monetised, and include:

- *Value of energy savings to society:* a key benefit of SECR is energy savings. Analysis undertaken through the impact evaluation of SECR suggests that unquoted entities in scope have realised annual energy savings of 4.5% in 2020, 6.2% in 2021 and 4.9% in 2022. For quoted companies, as this evaluation was not able to quantitatively assess the impact of SECR on quoted companies' energy consumption, the assumption from the SECR IA of a 2.1% energy saving is used. This is also informed by the fact that past studies found an impact of mandatory greenhouse gas reporting on UK quoted companies' carbon emissions.[36] The Long-Run Variable Cost (LRVC) of energy from the Green Book supplementary guidance (tables 9 to 13) was used to estimate the monetary value to society resulting from the energy savings.
- *Social value of carbon saved:* Higher energy savings result in reductions in GHG emissions. GHG savings are monetised using the carbon values series published in the Green Book supplementary guidance (table 3). Unless stated otherwise, the carbon value used is from the 'central' scenario.
- *Value of air quality changes:* Higher energy savings result in improvements in air quality. Air quality improvements are monetised using air quality damage costs published by the UK Government.

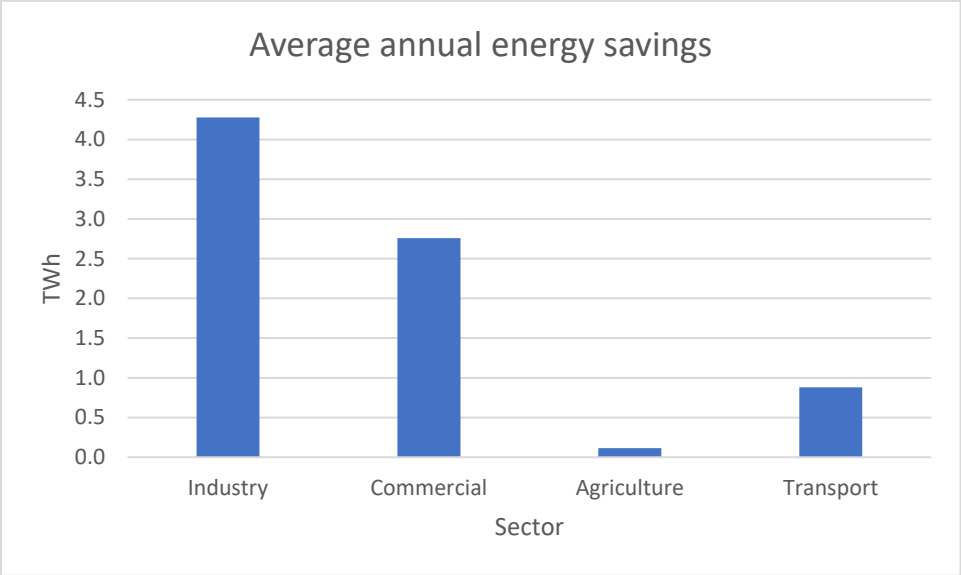
Costs and benefits by organisational characteristics

Energy saving benefits are estimated for business on-site energy use (i.e. the use of electricity and gas on site for industry, the commercial sector, and agriculture) and for transport energy use (i.e. the use of company cars, LGVs, HGVs and passenger vehicles, plus rail transport). Figure 15 shows a breakdown of energy savings by sector, with industry providing the greatest level of energy savings at an average of 4.3 TWh per annum, followed by commercial (2.8 TWh), transport (0.9 TWh), and agriculture (0.1 TWh).

The breakdown of benefits by sector follows a similar pattern for GHG emissions savings. Average annual emissions savings are greatest for industry (0.91 MtCO2e), followed by commercial (0.61 MtCO2e), transport (0.21 MtCO2e), and agriculture (0.03 MtCO2e). Monetised air quality benefits are greatest for the transport sector (£7.5m), followed by industry (£6.6m), commercial (£4.2m), and agriculture (£0.2m).

[36] Downar et al 2021.

Figure 18: Energy savings by sector



Limitations of the cost-benefit analysis and their potential impact on the results

Table 31: Cost-benefit analysis limitations

Component of CBA	Description	Possible / known direction of bias
Energy in scope of SECR	The CBA does not include the following, which are required to be reported under SECR: - Quoted company consumption of fuels other than gas and electricity - Quoted energy consumption outside of the UK - Energy sector consumption - Aviation and shipping	Underestimates energy in scope, and therefore may underestimate energy and carbon savings, and capital, hassle and operational costs. If included, this would be expected to increase the BCR.

Rate of energy savings	The ND-NEED data links to IDBR enterprises, which are larger than individual companies. If one company in the enterprise is in scope of SECR, then the data linking approach in the QED assumes the whole enterprise is in scope. As not all companies in such enterprises will actually be in scope of SECR, their energy meters will incorrectly be included in the 'treatment' group. This therefore 'dilutes' the treatment group with untreated units, likely introducing downward bias (i.e. savings are estimated as smaller than they are).	Overestimates electricity and gas in scope, but underestimates energy savings rate.
Change to carbon emissions	Aside from the factors mentioned above, at least some non-energy efficiency decarbonisation measures (e.g. switching to green electricity tariffs) induced by SECR are unlikely to be captured in the QED approach of analysing changes to overall metered energy consumption. As a small proportion of businesses in the survey reported that SECR had led to carbon savings in their organisation but not energy savings, this suggests the CBA omits benefits from some carbon savings.	Known underestimation of emissions savings. If included, this would be expected to increase the BCR.
Admin costs	As the survey did not collect administrative costs from low energy users, they are assumed to incur no admin costs. In truth, low energy users are likely to incur a low level of admin burden in assessing and reporting they meet the de minimis criteria.	Known slight underestimation. If included, this would be expected to increase the BCR.
Government cost	There are government costs associated with the development and implementation of policy, provision of guidance and compliance checks, and enforcement action associated with SECR. They are expected to be negligible in the context of the overall costs of SECR.	Slight underestimation of full costs. If included, this would be expected to decrease the BCR.

5Es

After the development of SECR-specific definitions and questions for the 5Es criteria, a set of standards to determine '*what would success look like'* was then developed. These standards are the defined levels of performance that apply to each criterion and specify what the evidence would look like at different performance levels. The performance standards were iteratively developed through close collaboration with DESNZ stakeholders to ensure they are specific and meaningful to SECR. A generic rubric was also used to guide the calibration of performance standards and has been included below:

- Excellent: Meeting or exceeding all reasonable expectations / targets
- Good: Generally meeting all reasonable targets
- Adequate: Not meeting expectations / targets, but fulfilling minimum requirements
- Poor: Not fulfilling minimum requirements

These criteria and performance standards were then used to create a rubric for each of the five E's. Rubrics are typically structured as matrices made up of criteria and standards and are a useful tool for making the evaluative reasoning process transparent and understandable, whilst also providing a clear framework for organising evidence so it is efficient to analyse. Where possible, evidence is compared to expectations or targets developed during the policy development stage and documented in relevant policy documents (e.g. business cases, impact assessments etc.) – this approach allows us to compare expectations with outturn data. However, this assessment acknowledges that there are limitations with comparing to policy development stage expectations, including developments in the wider landscape outside of the control of SECR itself.

Annex: Quantitative business survey Methodology

IFF Research conducted a quantitative business survey to gather evidence on how businesses experience SECR, the findings of which contributed to both impact and VfM research questions. To maximise responses, a Computer Assisted Telephone Interview (CATI) approach was used.

The survey targeted organisations that were believed to be in scope of SECR (based on available data regarding their size) or just outside of the SECR eligibility requirements (used as a comparison group). Initial targets were to achieve 420 eligible organisations and 280 ineligible. The sample for the survey was purchased through a commercial provider (Market Location). Organisations were targeted through sampling data, in which Market Location, the sample provider, provided recorded turnover, staff size, balance sheet, and if they were on a stock exchange or not. Through this data, the aim was to target organisations believed to be in scope and then confirming this through the survey.

Table 32: Original targets of business survey

Group no.	Group description	Survey target
Group 1	Organisations that are in scope of SECR and compliant (treatment group)	420
Group 2	Organisations that are in scope of SECR and non-compliant	
Group 3	Organisations that are out of scope of SECR (comparison group)	280

However, due to challenges in fieldwork, including low response rates and inaccurate sample data, these targets were revised to 200 eligible and 300 ineligible organisations. The lack of accurate sampling data meant that it became difficult to target businesses within the sample that would help achieve quotas, as it would only become clear whether they were eligible or not after speaking with them through the eligibility section of the questionnaire.

Additionally, while most of the sample was able to be contacted (70%), this unfortunately led to respondents generally not wanting to take part. Some additional challenges included screen outs for organisations that could not provide the needed information, as well as the difficulty of organisations providing information that would make them ineligible for SECR reporting despite

the sample information suggesting they would be eligible. Once the ineligible quota had been achieved, this impacted fieldwork. The full breakdown of call outcomes is listed below.

Table 33: Call outcomes of business survey

Call outcome	Count	Percentage
Worked sample	7640	70%
Unobtainable	1864	19%
Completed interviews	508	5%
Refusals	517	5%
Screen outs	158	1%
Over quota	60	1%
Other	102	1%

The survey lasted around 20 minutes and was routed so that there were specific questions for three groups of respondents: (1) seemingly eligible for SECR and complying; (2) seemingly eligible for SECR and non-complying; (3) ineligible for SECR. Before the survey was launched, 10 cognitive interviews were carried out across different sectors and sizes to ensure that the questionnaire was clear to respondents and that questions were interpreted as intended. Following this, a pilot was undertaken to ensure the survey was working as intended and to identify any areas where data collected would be weaker and need triangulating from other sources. After both of these stages, amendments were made to the survey based on discussions with DESNZ to maximise response rates and quality of data – this largely required shortening the survey and simplifying a number of the questions.

During the analysis stage, weights were added to respondent answers to help ensure that the findings reflected the whole population of relevant organisations. DESNZ was able to provide a full list of known entities that appear in scope of SECR[37], against which the SECR compliers could be compared. Weights were calculated using a size classification (1-250 staff; 251-500 staff; 500+ staff) combined with a sector classification (primary or secondary industry; services or knowledge based). The weights identified are listed below.

[37] The methodology for determining which entities are in scope of SECR is outlined in the technical Annex: Fame data analysis.

Table 34: Sample breakdown compared to population breakdown

	Primary or secondary		Services or knowledge based	
	Population	Sample (compliers only)	Population	Sample (compliers only
500+ staff	6.52%	21.54%	29.63%	23.59%
251-500 staff	6.15%	12.31%	19.91%	17.44%
1-250 staff	10.58%	13.33%	27.20%	11.79%

Table 35: Weights applied based on split

	Primary or secondary	Services or knowledge based
500+ staff	0.30	1.26
251-500 staff	0.50	1.14
1-250 staff	0.79	2.31

Non-SECR companies were not weighted due to the lack of a sufficient database to weight against. This does mean that data from the business survey for those that were not compliant with SECR should not be considered representative of the wider population. To help mitigate against this bias, reporting on this data has been limited and where possible triangulated with other findings.

Annex: Qualitative Interview Methodology

Table 36: Sampling matrix for business survey participants

Required *	Reported	Impacted Stated **	Count
Yes	Yes	Yes	Approx. 3
Yes	Yes	No	Approx. 3
No	Yes	Yes	Approx. 2
No	Yes	No	Approx. 2
Yes	No	N/A	X
No	No	Yes	X
No	No	No	X

* This was identified primarily through analysing responses to the business survey question: ‘As far as you’re aware, is your business required to comply with SECR requirements?’. This was also verified against business survey responses for organisation employee numbers, annual turnover, balance sheet, and quoted status to ensure eligibility/non-eligibility.

** This was classified through the identification of positive business survey responses to questions on reported impact of SECR disclosure on internal awareness, internal pressure, external awareness and external pressure.

Annex: Fame data analysis

The FAME (Financial Analysis Made Easy) database, owned by Moody's, has comprehensive financial data on businesses in the UK and Ireland. The evaluation used FAME data to identify companies and LLPs in scope of SECR.

The impact evaluation used FAME data to identify companies in scope of SECR upon the introduction of the regulations in 2019 (as outlined in Annex: Quasi-experimental impact evaluation). Other uses in the evaluation – weighting survey responses, matching to Mycelium data, use in the cost-benefit analysis – focused on companies and LLPs that in their most recent account (as of July 2025) were in scope of SECR. The methodology to identify whether a company or LLP was in scope of SECR is outlined below.

At a high level, the FAME database was queried to extract a list of companies and LLPs that may meet SECR criteria. This was then filtered and refined through steps undertaken in the statistical package R to implement the Companies Act 'two year' rule and identify eligibility for a subsidiary exemption (i.e. reporting via a parent).

In more detail:

The FAME database was queried on 28th July 2025 to identify companies that may meet SECR criteria using the following filters:

- Legal entity registered in mainland UK (excluding Crown Dependencies)
- Entity is active (i.e. not dormant)
- Entity is quoted[38], or entity is an unquoted[39] company or LLP and meets two of the three size criteria (employees[40] > 250, turnover >£36m, total assets >£18m) in at least one of their two most recent accounts.

The database also provided information about these companies' parent. The FAME field of 'controlling shareholders (CSH)' was used, which provides information of owners with greater than 50% ownership of the company.

To establish whether unquoted companies and LLPs met the required size threshold according to the Companies Act's 'two year' rule, the analysis looked over the entities' most recent four accounts[41]. The following rules were applied:

[38] Using the FAME categories of 'public quoted', 'public quoted investment trust', 'public quoted NEX exchange'
[39] Using the FAME categories of 'private limited', 'limited liability partnership', 'public not quoted', 'unlimited', 'guarantee'. This inadvertently excluded Public AIM companies, which means we understate the SECR population by around 200 (about 1%).
[40] FAME gives an option to include companies whose data for headcount or turnover are 'estimated' as opposed to known. The approach used here is to only include those with 'known' data for the most recent two accounts.
[41] Extending the references period to the previous six accounts made only a negligible difference (less than 1%), so for simplicity the analysis used four previous accounts.

- If the entity met any two of three size criteria (employees, turnover, total assets) in its first year of filing accounts (i.e. a newly incorporated company), it was deemed in scope so long as since that first account there had not been two consecutive accounting periods where it had not met at least two of the three criteria. The logic is demonstrated in the examples below.

Table 37: eligibility criteria for new companies

	Previous account (-3)	Previous account (-2)	Previous account (-1)	Most recent account	In scope
Company A	-	-	-	First account: meets 2 of 3 criteria	Yes
Company B	-	First account: Meets 2 of 3 criteria	Meets 1 of 3 criteria	Meets 2 of 3 criteria	Yes
New Company C	-	First account: Meets 2 of 3 criteria	Meets 1 of 3 criteria	Meets 1 of 3 criteria	No

- For pre-existing companies (i.e. they had not had their first ever account in the four previous four years) to be deemed in scope they had to have met any two of three size thresholds for two consecutive accounts, and since that time not failed to meet at least two of three criteria for two or more consecutive accounts. The table below sets out examples of how this logic is applied.

Table 38: eligibility criteria for pre-existing companies

	Previous account (-3)	Previous account (-2)	Previous account (-1)	Most recent account	In scope
Company A	Meets 1 of 3 criteria	Meets 1 of 3 criteria	Meets 2 of 3 criteria	Meets 2 of 3 criteria	Yes
Company B	Meets 1 of 3 criteria	Meets 2 of 3 criteria	Meets 2 of 3 criteria	Meets 1 of 3 criteria	Yes
Company C	Meets 1 of 3 criteria	Meets 1 of 3 criteria	Meets 1 of 3 criteria	Meets 2 of 3 criteria	No

Company D	Meets 2 of 3 criteria	Meets 2 of 3 criteria	Meets 1 of 3 criteria	Meets 2 of 3 criteria	Yes
Company E	Meets 1 of 3 criteria	Meets 2 of 3 criteria	Meets 1 of 3 criteria	Meets 2 of 3 criteria	No

Finally, for the resulting set of companies and LLPs deemed in scope of SECR, eligibility for a subsidiary exemption from reporting (i.e. a parent company reports on the subsidiary's behalf) was determined by whether the entity in question had at least one controlling shareholder at any level of the corporate hierarchy that both a.) appeared in the list of entities in scope of SECR (outlined in the step above), and b.) filed consolidated accounts in the most recent accounting period (according to FAME's reporting of account consolidation status). This approach should naturally capture parent companies that are obligated to report SECR disclosures on behalf of subsidiaries in their group accounts on the basis that:

- the initial querying of FAME extracted entities that are active and incorporated in the UK, thereby avoiding attributing reporting status to an overseas company (e.g. Jersey-registered)
- if a parent company has at least one majority-owned subsidiary that meets SECR thresholds then the parent company will necessarily also meet the SECR thresholds if it files consolidated accounts. (Consolidated accounts provide the sum of financial metrics and employees for the whole corporate group, including the subsidiary in question.)

The results of the above steps are that 21,169[42] entities were deemed in scope of the regulations. Of these, 6,092 were deemed eligible for a subsidiary exemption, leaving 15,077 that were deemed to need to provide a SECR disclosure or otherwise explicitly state an exemption (low energy use, impractical to provide, or prejudicial to the company) in their annual report.

[42] Rounded value of 21,200 used elsewhere in the report.

Annex: Mycelium data

How Mycelium produced their database of emissions data

For the data shared with DESNZ for the purposes of this evaluation, Mycelium (www.mycelium.global) identified companies and LLPs in 2024 that met the relevant size thresholds for SECR (i.e. headcount, turnover and/or balance sheet) through a business data provider. To note, this did not explicitly include all quoted companies, though most quoted companies did in fact meet the relevant size thresholds.

Based on this list of companies, Mycelium employed a range of automated techniques to identify relevant annual reports from Companies House. A small proportion of these annual reports were in XBRL format and the remainder were in the format of an image-based PDF which is difficult for machines to read. Mycelium used Large Language Models to try to identify carbon emissions and any exemptions stated in the annual reports' SECR disclosures. Mycelium's methods have been iterated to achieve the highest accuracy possible, but given challenges in reading image-based PDFs and the diverse and unstructured way that emissions are reported within the annual reports, there are some known data inaccuracies.

Use Mycelium data in this evaluation

This evaluation started with the companies and LLPs that met eligibility for SECR based on their most recent accounts (quoted, or unquoted and two of three size criteria over a particular length of time), as outlined in Annex: Fame data analysis. Of the 21,200 companies and LLPs that met these criteria, 19,800 were able to be matched to the dataset produced by Mycelium using Company Registration Number. These matched companies were then filtered to remove those that, based on corporate hierarchy and UK parents' consolidation statuses, were eligible for a subsidiary exemption. In addition, the analysis removed any companies where the Mycelium scraping had detected a low energy exemption in their SECR disclosure. This then left 12,800 companies and LLPs in the dataset to be analysed. The analysis then identified how many companies in the dataset had non-missing values for scope 1 emissions and at least one scope 2 emission category (location-based and/or market based).

Annex: Cost data

Table 39: Mean internal staff hours (with upper and lower bounds of 95% confidence interval)

	Compiling (hours)	Reporting (hours)	Management (hours)	Total (hours)
Quoted	89 (26-152)	32 (10-53)	34 (7-60)	132 (39-225)
Unquoted	38 (28-48)	27 (16-39)	19 (12-25)	81 (61-102)
0-299	37 (23-52)	17 (6-27)	28 (6-50)	53 (28-78)
300-599	32 (21-44)	19 (11-26)	17 (8-26)	72 (48-96)
600-999	61 (17-105)	38 (2-74)	25 (0-50)	100 (16-184)
1000+	92 (24-161)	58 (21-96)	22 (14-30)	189 (86-292)
Subsidiary covered in UK parent group report	29 (17-41)	15 (9-21)	10 (4-16)	52 (31-74)
Report SECR in own accounts	55 (34-76)	32 (19-45)	24 (15-33)	105 (70-118)
Overall	51 (33-68)	28 (18-39)	22 (14-30)	94 (66-123)

Table 40: Modelled cost of internal staff time complying with SECR (with upper and lower bounds of 95% confidence interval)

	Compiling (£)	Reporting (£)	Management (£)	Total (£)
Quoted	2304 (665-3943)	826 (270-1382)	870 (182-1559)	3421 (1008-5834)
Unquoted	992 (735-1249)	707 (405-1008)	488 (317-660)	2107 (1577-2637)
0-299	966 (595-1338)	431 (161-701)	722 (156-1288)	1369 (714-2024)
300-599	836 (533-1140)	483 (296-670)	439 (197-681)	1875 (1249-2502)
600-999	1590 (442-2738)	979 (42-1917)	636 (0-1286)	2595 (418-4772)
1000+	2400 (626-4174)	1509 (538-2481)	579 (369-790)	4904 (2237-7572)
Subsidiary covered in UK parent group report	748 (429-1068)	377 (221-533)	252 (101-403)	1359 (800-1917)
Report SECR in own accounts	1434 (888-1977)	831 (504-1159)	631 (395-868)	2735 (1816-3052)
Overall	1314 (860-1769)	738 (473-1003)	571 (371-771)	2452 (1709-3195)

Table 41: Proportion that incur external costs

Breakdown	Percentage
Quoted	51
Unquoted	58
0-299	53
300-599	59
600-999	49
1000+	62
Subsidiary covered in UK parent group report	58
Report SECR in own accounts	63
Overall	56

Table 42: Mean external cost for those that incur external costs (with upper and lower bounds of 95% confidence interval, all rounded to the nearest £100)

Breakdown	One-off (£)	Ongoing(£)
Quoted	9800 (0 - 21100)	10300 (4000 - 16500)
Unquoted	7000 (4400 - 9700)	7800 (3300 - 12400)
0-299	4700 (2300 - 7200)	6300 (2500 - 10000)
300-599	9400 (3300 - 15600)	5500 (3000 - 7900)
600-999	**	**
1000+	7900 (3300 - 12500)	11800 (0 - 26300)
Subsidiary covered in UK parent group report	6500 (2500 - 10500)	7100 (2800 - 11500)
Report SECR in own accounts	7700 (4300 - 11100)	8400 (3800 - 13100)
Overall	7500 (4600 - 10300)	8300 (4300 - 12200)

** Base size of 5 or smaller

Table 43: Overall mean modelled ongoing costs - external and internal (with upper and lower bounds of 95% confidence interval)

Breakdown	One-off (£)	Ongoing (£)
Quoted	8400 (3400 - 14200)	8700 (5500 - 11800)
Unquoted	6200 (4700 - 7700)	6600 (4000 - 9300)
0-299	3900 (2600 - 5200)	4700 (2700 - 6700)
300-599	7400 (3800 - 11100)	5100 (3600 - 6500)
600-999	**	**
1000+	9800 (7000 - 12600)	12200 (4900 - 21200)
Subsidiary covered in UK parent group report	5100 (2800 - 7400)	5500 (3000 - 8000)
Report SECR in own accounts	7600 (5500 - 9700)	8100 (5100 - 11000)
Overall	6600 (5000 - 8200)	7100 (4900 - 9300)

** Base size of 5 or smaller.

Note: the lower bound shown in the table above sums the lower 95% confidence bound for external costs (weighted to what proportion incur external costs) and the lower 95% confidence bound for internal costs. The same applies to the upper bound shown.