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# State of the Art Review

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# How Can SMEs Contribute to Net Zero?: An Evidence Review

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In 2019, the UK Government and the devolved administrations committed to achieving the target of Net Zero[1] by 2050, based on the recommendations of the UK's formal advisory body (Committee on Climate Change, 2020). It is now widely recognised that this will require major reductions in the carbon emissions of the general SME population. There are more than 5.9 million small and medium-sized enterprises in the four nations, which employ 16.8 million people and account for an estimated £2.3 trillion in turnover (approximately 52% of the total for UK private sector businesses) (BEIS, 2020). While the environmental footprints of individual firms may appear relatively insignificant, it is not possible to ignore the aggregate impact of such a large component of our economic landscape[2]. SMEs can also have an important indirect influence on climate mitigation through their influence on other actors, including suppliers, customers, and other organisations (Parag and Janda, 2014).

There has been a step-change in public and private sector involvement in this area in the last few years, signalled by the launch of many new local, regional, and sectoral initiatives. However, it is not clear whether the current policy mix will be sufficient to meet the sheer scale and complexity of the challenge. While this report focuses on Net Zero, much of evidence presented is equally applicable to other important environmental issues, such as waste management and air quality. We begin with a brief review of recent policy developments. This is followed by an overview of the more promising types of tools and

[1] The term Net Zero (or 'carbon neutrality') is used to refer to a state where, in broad terms, the level of $CO_2$ and equivalent emissions released into the atmosphere is balanced by that being removed or securely stored.

[2] There is a serious lack of comprehensive data on greenhouse gas emissions from UK SMEs (see: Table 3 below). The UK government estimates that SMEs use around 42% of energy in the non-domestic building stock (BEIS, 2016).

approaches, with practical examples and indicative sources. We examine explanations for the failure or under-performance of these interventions, which are often analysed in terms of discrete 'barriers' and 'drivers', and indicate why it has become necessary to move beyond this conventional framing. We then map out six key evidence gaps in relation to: data; support; intermediaries; values; COVID-19; and networks, along with two cross-cutting research priorities, which need to be addressed in order to ensure more effective policy design and implementation in this field.

This review addresses environmental improvement in the general SME population. A companion review will focus on the closely related challenge of promoting 'green' start-up ventures and other forms of eco-innovation in sectors that seek to address specific environmental challenges.

## Background

Until the early years of the present century, environmental policies and research activities in the UK were primarily oriented towards larger public and private sector organisations. For example, while smaller firms might be able to apply for support in relation to business energy, most schemes were designed for large corporations (Griffin et al., 2012; Fawcett and Hampton, 2020). It is only in the last 15 years that energy efficiency policies have been developed that are specifically tailored to the needs of SMEs (SEEDA, 2007; MHCLG, 2020). SMEs have also been slower in adopting sustainability management tools, such as Lifecycle Analysis (LCA) and Environmental Management Systems (EMS) (Johnson and Schaltegger, 2016). This is due to a combination of factors, including a lack of relevant knowledge and expertise and that such tools are less well-suited to the structures, cultures and contexts of smaller businesses (Ibid 2016, pp. 493–494; Johnstone, 2020).

Environmental policy in the UK is currently in a process of change, following the country's departure from the European Union (Burns et al., 2019). There has been relatively little explicit reference to the role that SMEs will need to play in meeting the UK's legally binding carbon reduction targets, either in recent UK Government publications, such as the recent *Clean Growth Strategy*, or in formal reviews of its efforts to achieve Net Zero (BEIS, 2017a; NAO, 2020). However, there are tentative signs of an increased policy focus on SMEs. This has been illustrated by a recent UK government consultation on SME energy use (BEIS, 2019), and by its sponsorship of the 'UK Business Climate Hub', which was launched in May 2021 in advance of the international COP26 meeting (SME Climate Hub, 2021). This online resource was developed by the Department for Business, Energy and Industrial Strategy (BEIS), in consultation with a working group comprising social and commercial business representatives from multiple sectors, and spanning the devolved nations. This initiative includes a direct call for SME owners and managers across the UK to sign up to the United Nations 'Race to Zero' commitment:

> 'Even the smallest businesses produce carbon emissions – it could be through your building, your vehicles or your supply chain. We're asking you to commit to cutting those carbon emissions in half by 2030 and to reach 'net zero' by 2050' (SME Climate Hub, 2021).

## Evidence

Evidence from academic and grey literature has demonstrated that there is a significant opportunity for carbon emissions savings to be achieved at low cost amongst the SME population. A UK government study found that SMEs could save up to 25% of energy consumption through cost-effective efficiency measures including: upgrading building fabric, replacing lighting, heating and cooling equipment, and other process machinery; and implementing energy management systems. Many of these measures are estimated to recoup their investment through energy savings within just a few years (Fresner et al., 2017). Additionally, the same study estimated that 37% of the savings could be achieved with zero capital investment (DECC, 2014), including turning down thermostats, switching off electronic equipment. Carbon emissions from electricity use can also be reduced by shifting the time of day at which energy-intensive processes are carried out (Powells et al., 2015).

There is a plethora of tools and approaches available to support SMEs to reduce carbon emissions associated with their operations or product value-chain. Table 1 categorises leading examples in terms of their primary focus, either within or beyond the boundaries of the firm.

**Table 1: Tools and approaches for improving SME environmental performance**

| ***Primary focus*** | ***Tools and approaches*** | ***Examples and indicative sources*** |
|---|---|---|
| **Internal / intra-organisational** | Corporate Social Responsibility (CSR) including sustainability reporting. | ISO 26000 (Williamson et al., 2006) |
| | Energy audits | ISO 50002; EN 16247 (BEIS, 2017b; Fleiter et al., 2012; Fresner et al., 2017) |
| | Organisational carbon footprinting | ISO 14064 |
| | Environmental Management Systems (EMS) | ISO 14001 (Johnson and Schaltegger, 2016; Johnstone, 2020) |
| | Lifecycle Analysis (LCA) | ISO 14040; PAS 2050 (Johnson and Schaltegger, 2016; Johnstone, 2020) |
| **External / inter-organisational** | Governmental regulations | Building regulations, Ultra Low Emission Zones (ULEZ) (Lynch-Wood and Williamson, 2014; Graafland and Bovenberg, 2020; Fawcett and Hampton, 2020) |
| | General accreditations | B Corps; Carbon Trust; Carbon Literacy; Carbon Smart, CEMARS (Stubbs, 2017) |
| | Sector specific associations and accreditations | Sustainable Restaurant Association; Eco Schools; Sustainable Hospitality Alliance; Sustainable Apparel Coalition |
| | Voluntary commitments and pledges | UN Race to Zero; SME Climate Hub pledge (CBI, 2021; SME Climate Hub, 2021) |

| | | |
|---|---|---|
| | Supply chain and sustainable sourcing | Marine Stewardship Council, Forest Stewardship Council, Soil Association Organic Standard (Stekelorum et al., 2020) |
| | Financial instruments – grants, loans | European Regional Development Fund; Local Enterprise Partnerships (Britton and Woodman, 2014) |
| | Advice and guidance | Energy Saving Trust, Carbon Trust, Local Enterprise Partnerships (Britton and Woodman, 2014; Hampton, 2018) |
| | Carbon offset schemes – for businesses and consumers | Carbon Neutral Certification (PAS 2060; Rayer, 2020)); Oxford Principles for Offsetting (Warburg et al., 2021) |

Despite the compelling business case for reducing emissions, take-up of mitigation measures by SMEs remains low. There is an extensive and well-established literature addressing the reasons why it is difficult to improve the environmental performance of SMEs. The dominant framing is as 'barriers' and 'drivers' (DECC, 2014), which are often presented as ranked lists. Empirical studies have identified principal barriers due to factors such as: financial constraints (Andrews and Johnson, 2016); lack of specialist knowledge and technical skills (Fresner et al., 2017); resource constraints (Trianni and Cagno, 2012) and short-term tenancies (Janda et al., 2014). Similarly, the principal drivers include: Cost savings (DECC, 2014); comparative advantage (Fleitera et al., 2012; Trianni and Cagno, 2012; Williamson et al., 2006); and intrinsic motivation, based on pro-environmental values (Grimstad et al., 2020). The factors influencing specifically Net Zero practices are less well researched, but a recent survey of UK SMEs in the context of the COVID-19 pandemic found *internal* factors to be the main driver; 'reducing costs' was the most highly ranked, while more than half of respondents saw improving 'image and reputation' as either 'extremely' or 'very' important. Government policies, including grants, subsidies, regulations and taxes, were the main external drivers (Kesidou and Ri, 2021). Table 2 summarises these and other commonly cited factors:

**Table 2: Improving SME performance – the 'barriers' and 'drivers' perspective**

| ***Primary focus*** | ***Common barriers*** | ***Common drivers*** |
|---|---|---|
| **Internal / intra-organisational-level** | • Lack of awareness<br>• Lack of specialist knowledge / technical skills<br>• Limitations in absorptive capacity / organisational learning<br>• Competing priorities / lack of time<br>• Resource constraints<br>• Access to capital<br>• Short term tenancy agreements<br>• Lack of strategic alignment | • Cost savings<br>• Risk mitigation<br>• Pro-environmental values<br>• Reputation and image<br>• Staff morale |
| **External / inter-organisational level** | • Lack of trusted brokers / intermediaries<br>• Information deficit regarding opportunities<br>• Principal-agent / split-incentive problem | • Compliance<br>• Competitive advantage<br>• New market opportunities<br>• Corporate reputation<br>• Public subsidy |

The barriers and drivers approach provides a convenient, structured way of analysing the challenges associated with reducing the environmental impact of SMEs. It has also influenced the design of policy interventions in the UK and internationally. Informed by this research-base, many policies have been designed with the aim of removing specific barriers and / or promoting particular drivers. For example, resource constraints and lack of capital have been addressed through financial incentives such as grants, loans, and the provision of subsidised energy audits and expert advice (MHCLG, 2020).

However, recent studies have critiqued the methodology and conceptualisation that underpin this approach. For instance, a reliance on self-reported surveys of SME owner-managers leads to external barriers being ranked consistently higher than internal factors such as lack of awareness or insufficient motivation (Hampton and Fawcett, 2017). Surveys of this kind also fail to capture the views of frontline workers, which often differ from those of their managers (Smith et al., 2021). More significantly, the 'barriers' and 'drivers' framing only gives a partial account of energy and sustainability related decision-making in SMEs, which is typically less formal than in larger corporations (Banks et al., 2012; DECC, 2016), and more strongly influenced by personal, professional and organisational values (Williams and Schaefer, 2013; Williams and Preston, 2019), and embedded in unique contexts and sets of relationships (Eadson, 2014; Spence, 2016). The assumption that barrier-removal will lead to pro-environmental behaviours amongst SMEs fails to acknowledge either the complexity of organisational decision-making or the heterogeneity of the SME population. Further, recent research evidence suggests that programmes designed to deliver emissions reductions via financial incentives tend to result in short-term and purely transactional forms of engagement (Hampton et al., 2019). This is particularly problematic, given that Net Zero commitments require businesses to embark on a longer-term journey, and to make changes that may offer few, if any, immediate financial returns (SME Climate Hub, 2021).

## Evidence Gaps and Research Agenda

Since 2019, the climate emergency has become substantially more prominent in public discourse, with levels of concern rising even during the COVID-19 pandemic (CAST, 2020). For example, 93% of the members of the UK's consultative Climate Assembly agreed that, 'as lockdown eases, government, employers and/or others should take steps to encourage lifestyles to change to be more compatible with reaching net zero' (Climate Assembly UK, 2020, p. 499)[3]. In response, businesses of all sizes have joined government and local authorities in setting targets for achieving net-zero carbon emissions (SME Climate Hub, 2021).

Increasing ambition from SMEs for pro-environmental action has exposed significant gaps in empirical evidence, which need to be filled in order to design and implement more effective SME-specific policy; and to develop clear, relevant guidance for climate action (Table 3).

[3] The Climate Assembly UK was commissioned by six select committees of the House of Commons to examine the question: 'How should the UK meet its target of net zero greenhouse gas emissions by 2050?' The membership comprised 108 individuals from all walks of life who were selected to be representative of the wider UK population (Climate Assembly UK, 2020).

**Table 3: Evidence gaps and research implications**

| *Nature of evidence gap* | *Indicative questions* | *Implications for research and evidence-based policy* |
|---|---|---|
| 1. **Data:** Robust, empirical data sets at a national scale, covering energy use and emissions by business size, sector, building and occupancy type, activity, and location. | • What proportion of UK carbon emissions come from SMEs?<br>• Which segments have the highest carbon emissions?<br>• What emissions savings opportunities are relevant for specific segments? | • A need for a programme of government-led data collection.<br>• Integration of quantitative and qualitative research approaches and cross-disciplinary working |
| 2. **Support:** The most effective models for publicly funded sustainable business support. | • Should support services be organised locally, nationally, or by sector?<br>• How can different models (UK and international) be evaluated? | • Implementation of best practice models for support across sectors and geographies.<br>• Robust, adequately funded policy evaluation. |
| 3. **Intermediaries:** Deployment and performance of advisors, consultants, and other agents of change. | • What is the availability of intermediaries with Net Zero expertise?<br>• Which types are best placed to provide information and advice?<br>• How can they operate more effectively at scale? | • Providing enhanced guidance, frameworks, and funding models for scaling up intermediary support. |
| 4. **Values:** The role of personal, professional, and organisational values in greening SMEs. | • How can values-based approaches be integrated into conventional support for SMEs?<br>• How can values-based approaches be scaled-up? | • Delivery of more fundamental, long-lasting pro-environmental change in the SME population. |
| 5. **COVID-19:** Implications of the pandemic and post-pandemic reconstruction for SME sustainability and resilience. | • How can emissions reductions be incorporated into COVID-19 recovery plans? | • Linking COVID-19 recovery with climate action and SME resilience. |
| 6. **Networks:** The potential of green business networks and other relational approaches to effect change. | • How can a relational perspective be used to deliver environmental support and effect change in SMEs? | • Promoting and supporting networks to boost SME capabilities and overcome resource constraints. |

In addition to this list of evidence gaps, the following cross-cutting research priorities need to be addressed to ensure that future policy design and implementation is better informed and more effective in supporting SMEs as they respond to the climate emergency and other important environmental issues:

- **How to improve signposting, coordination and contextualisation of information and services:** There is a proliferation of initiatives, guides, advice, and some support available to SMEs. On one hand, it is essential that such provision is carefully tailored to address the requirements of individual businesses. However, this objective is in tension with that of streamlining delivery through simplified, 'one-stop shop' online platforms and modes of engagement. Cross-disciplinary research is needed to develop creative solutions that are easier to navigate, better-coordinated (both

geographically and sectorally), and more responsive to changing needs as businesses progress on their Net Zero journey.

- **How to ensure equity, justice, and a recognition of diversity in the race to Net Zero**: The UK's SME population is diverse, and businesses face a wide variety of challenges in reducing their environmental impact. It is essential that environmental business support is designed to include businesses of all kinds, recognising that both the level and nature of the challenges will vary widely, and taking into account the characteristics of (and within) particular groups, including businesses owned by ethnic-minorities and women, rural-based SMEs and those affected most by COVID-19. A greater recognition of diversity may also help to promote pro-environmental changes. For example, a recent study has provided evidence that environmental sustainability in SMEs can be boosted by developing gender balanced management teams (Graafland, 2020).

## Conclusion

If the UK is to achieve its Net Zero ambitions over the next decade, the country's 5.9 million SMEs will need to make significant changes to their day-to-day business practices, and in many cases significant investments of time and resources over a relatively short timescale. The technologies and operational practices required to facilitate these changes are mostly mature, available, and well-proven. The principal 'barriers' and 'drivers' mapped out in Table 2 are also well-established in research and policy arenas. However, the sheer scale of the Net Zero challenge demands new approaches that can transcend both the inherent limitations of previous conceptualisations, and an over-reliance on purely economics-based, 'win-win' approaches. We have outlined several closely related research gaps that should be addressed as a short-term priority and indicated how this could provide the basis for stronger evidence-based policy in this area. There has been a much-needed re-balancing of environmental policymaking in recent years, with increased attention being paid to SMEs. However, meeting the country's Net Zero ambitions will also require coordinated leadership on this issue, spanning the public, private and voluntary sectors across the four nations. Since early 2020, COVID-19 has impacted SMEs across the world, with millions ceasing to trade and others cutting costs and pivoting business models. Amidst this disruption, new discourses have emerged, relating to resilience and survival, business purpose and values. The post COVID-19 recovery presents a unique opportunity to capitalise on this epistemic openness by evaluating and adapting organisational norms and practices, and refining the design and delivery of policy interventions.

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