



Zero Emissions Enterprise (ZEE) network

# BEIS Net Zero Review: Consultation Response

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26<sup>th</sup> October 2022

The Zero Emissions Enterprise (ZEE) network is a community of UK-based researchers who are focused on understanding and promoting the role of small- and medium-sized enterprises (SMEs) in the transition to net zero. The network was founded in 2021 and has since attracted more than 60 researchers with diverse specialist experience that approach this topic from a variety of disciplinary backgrounds. One of its roles will be to provide research-based insights and expertise in response to consultations and calls for evidence.

This document has been submitted in response to an independent review of the government's approach to delivering its net zero target, commissioned by the Department for Business, Energy and Industrial Strategy (BEIS):

*The BEIS Secretary of State has commissioned an independent review of the government's approach to delivering its net zero target, designed to ensure we are delivering net zero in a way that is pro-business and pro-growth. The review will consider how our approach to net zero can:*

- *deliver maximum economic growth and investment, driving opportunities for private investment, jobs, innovation, exports, and growth right across the UK*
- *support UK energy security and affordability for consumers and business and the need to rapidly increase and strengthen UK energy production and supply*
- *minimise costs borne by businesses and consumers, particularly in the short-term*

<https://www.gov.uk/government/consultations/review-of-net-zero-call-for-evidence/net-zero-review-call-for-evidence>

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## Introduction

This document contains a response to the BEIS Net Zero Review consultation by members of the Zero Emissions Enterprise (ZEE) network. We offer a number of observations and recommendations, which are based on the specialist knowledge and evidence available to members of this network. Additional information can be provided on any of the responses provided in this document. Please contact Richard Blundel ([richard.blundel@open.ac.uk](mailto:richard.blundel@open.ac.uk)) in the first instance, and we can refer questions to the most appropriate contributor(s).

This response has been segmented according to selected questions listed in the BEIS consultation document. Text reproduced from the consultation is shown in *italics* and quotations from published sources are shown in **blue**; our responses are in standard text.

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## Overarching questions

### **Question 1. How does net zero enable us to meet our economic growth target of 2.5% a year?**

We do not have direct evidence on macro-economic growth targets but firm-level evidence on the benefits from the adoption of net zero from the Enterprise Research Centre (2022) is relevant to this question<sup>1</sup>. The survey asked firms to report their outcomes from adopting any step to reduce environmental impact. Responses from around four-in-ten firms suggested elements that would increase revenue, including 40% of firms who reported that adopting net zero practices helped them to develop new products and services, 36% who stated that it created new profitable opportunities, and 33% who stated that it helped the firm to enter new markets. There is also evidence that net zero practices can have positive impacts on firm revenue<sup>2</sup>.

In addition, recent evidence from the Productivity Insights Network (2020) challenges traditional economic year-on-year growth targets<sup>3</sup>. It argues that the way forward is for a strategic long-term investment in the rapid adoption of low carbon, and eventual net zero economy. Like any business investing in future proofing, there has to be acceptance of a short term impact on national economic growth. However, this will be outweighed by the wider socio-economic and environmental gains of this policy.

Investing in green innovation and supporting its adoption by businesses of all sizes, and particularly under-resourced SMEs, will support a future-proofed, viable, and sustainable UK economy. Additionally, raising the UK's green SME/business management skills will

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<sup>1</sup> Taking small steps: Business priorities, environmental and social responsibility in UK SMEs (2022). <https://www.enterpriseresearch.ac.uk/publications/taking-small-steps-business-priorities-environmental-and-social-responsibility-in-uk-smes/>

<sup>2</sup> Drivers and Performance Outcomes of Net Zero practices: Evidence from UK SMEs (2021). <https://www.enterpriseresearch.ac.uk/publications/drivers-and-performance-outcomes-of-net-zero-practices-evidence-from-uk-smes/>

<sup>3</sup> Redefining SME productivity measurement and assessment for a low carbon economy (2020). <https://productivityinsightsnetwork.co.uk/publications-project-reports/>

encourage leading-edge practices and adoption of efficiencies, which will form the drivers of future economic growth (e.g. key priorities for London's Green Recovery Plan include a Green Enterprise Zone and Green Skills Academy, as part of the GLA's Green New Deal<sup>4</sup>).

There is scope to promote net zero support in SMEs by adopting digital efficiencies, which will make these businesses more efficient financially, raise margins and improve business sustainability (see also response to Question 29)<sup>5</sup>. Alongside this, adoption of good Circular Economy (CE) business model approaches will save on waste (e.g. reducing over-engineering, addressing poor waste reduction management, and improving asset management)<sup>6</sup>, and create new opportunities to develop green skills and jobs, in planning and designing and implementing energy and material efficiencies, particularly in after-market support processes such as repairing, repurposing and recycling.

It is important to target key sectors with global export market potential in green tech service and manufacturing. For example, University Innovation Knowledge Centres (IKCs) are supporting emerging net zero technologies, which can form the basis for future green sector growth across the UK<sup>7</sup>. Whilst the obvious sectors are around renewable energy, battery storage and hydrogen, there is also a strong case for more substantial investment in emerging biotech and remote sensing and monitoring (allied to big data and AI). These technologies can be globally leading, with far-reaching outcomes, but they require substantial investment – far more than is currently allocated by public and private funding partnerships.

Finally, statements by the Task Force on Nature-related Financial Disclosures (2022)<sup>8</sup> and NGFS Central Bankers (2022)<sup>9</sup>, in common with the UK government's Dasgupta review (2021)<sup>10</sup>, argue that growth measures and net zero solutions will need to take into account 'nature-positive' solutions, such as regenerative farming, green supply chains and wider 'scope' reviews of business practices. This broader approach to growth, which includes Biodiversity Net Gain offsetting / insetting and rewilding / pollination, forms part of the United Nations '30 by 30' goal to conserve the natural environment, prevent extreme weather events and enable continuation of business activities. The UK can also pursue opportunities as a global leading service provider to nature positive support industries.

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<sup>4</sup> Preparing for London's Green Recovery (2021). <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/preparing-londons-green-recovery>

<sup>5</sup> Kesidou, E. and Ri, A. (2021) *Twin Green and Digital Transitions: Joint adoption of net zero and digital practices by UK SMEs*. Warwick: Enterprise Research Centre. <https://www.enterpriseresearch.ac.uk/publications/twin-green-and-digital-transitions-joint-adoption-of-net-zero-and-digital-practices-by-uk-smes/>

<sup>6</sup> Carbon Reduction Code for the Built Environment (2021). Cambridge Centre for Smart Infrastructure and Construction. <https://www.smartinfrastructure.eng.cam.ac.uk/carbon-reduction-code>

<sup>7</sup> Exploring the Role of UK Government Policy in Developing the University Entrepreneurial Finance Ecosystem for Cleantech. <https://cusp.ac.uk/themes/finance/paper-ro-uk-ikc/>

<sup>8</sup> Task Force on Nature-related Financial Disclosures (TFND).

<sup>9</sup> Central Banks and Supervisors Network for Greening the Financial System. <https://www.ngfs.net/en/statement-nature-related-financial-risks>

<sup>10</sup> Dasgupta, P. (2021). *The Economics of Biodiversity: The Dasgupta Review*. London: HM Treasury <https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review>

## Question 2. What challenges and obstacles have you identified to decarbonisation?

There is a substantial academic literature on the barriers faced by SMEs to implementing sustainability measures, including energy efficiency<sup>11</sup>. Key barriers include:

- **Raising finance:** There are a variety of financial products available to SMEs, however awareness of these is low. In many parts of the UK, match-funded grants for environmental improvements have been available in recent years. While these have provided crucial support for SMEs to reduce energy bills, some private sector finance providers claim that this public subsidy undermines their offerings.
- **Lack of awareness:** Survey evidence<sup>12</sup> indicates that around half of UK SMEs are well-aware of net zero concepts, but there is scope for improved awareness of net zero, the impacts of climate change, and their implications for business.
- **Lack of strategic alignment:** This includes a perceived lack of customer demand for more sustainable goods and services, providing insufficient pressure on SMEs to pursue sustainability.
- **The ‘split-incentive problem’:** A large proportion of SMEs occupy buildings as tenants, and pay energy bills according to their usage. While tenants are incentivised to reduce energy usage, it is landlords who are responsible for efficiency upgrades to the building fabric. As non-bill payers, they have less incentive to do so, and the energy efficiency of buildings has limited impact on rental values. Short term tenancy agreements can compound this challenge.
- **Lack of specialist / technical skills:** This applies to the technologies associated with energy use and conservation, including electrical and plumbing, where SMEs can struggle to access trusted and expert sources. It also applies to conducting carbon footprints, which can be complex undertakings. The protocols and methodologies for doing so have been developed for large corporates with support from specialist consultants. SMEs often struggle to provide the data needed for emissions inventories, including energy consumption monitoring.

Recent evidence from the Enterprise Research Centre (2022)<sup>13</sup> suggests that, currently, the three main barriers to decarbonisation of UK SMEs are: (1) uncertainty related to the Coronavirus pandemic; (2) cost of meeting regulations and standards, and (3) lack of information on low carbon technologies. The pattern varies depending on the firm size, with smaller firms being slightly more likely to be concerned with the cost and larger firms with

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<sup>11</sup> Blundel, R.K. and Hampton, S. (2021) *SMEs and Net Zero. SOTA Review 51*. Warwick: Enterprise Research Centre. Available at: <https://www.enterpriseresearch.ac.uk/publications/how-can-smes-contribute-to-net-zero-an-evidence-review/>

<sup>12</sup> British Business Bank (2021) Smaller businesses and the transition to net zero. [https://www.british-business-bank.co.uk/wp-content/uploads/2021/10/J0026\\_Net\\_Zero\\_Report\\_AW.pdf](https://www.british-business-bank.co.uk/wp-content/uploads/2021/10/J0026_Net_Zero_Report_AW.pdf)

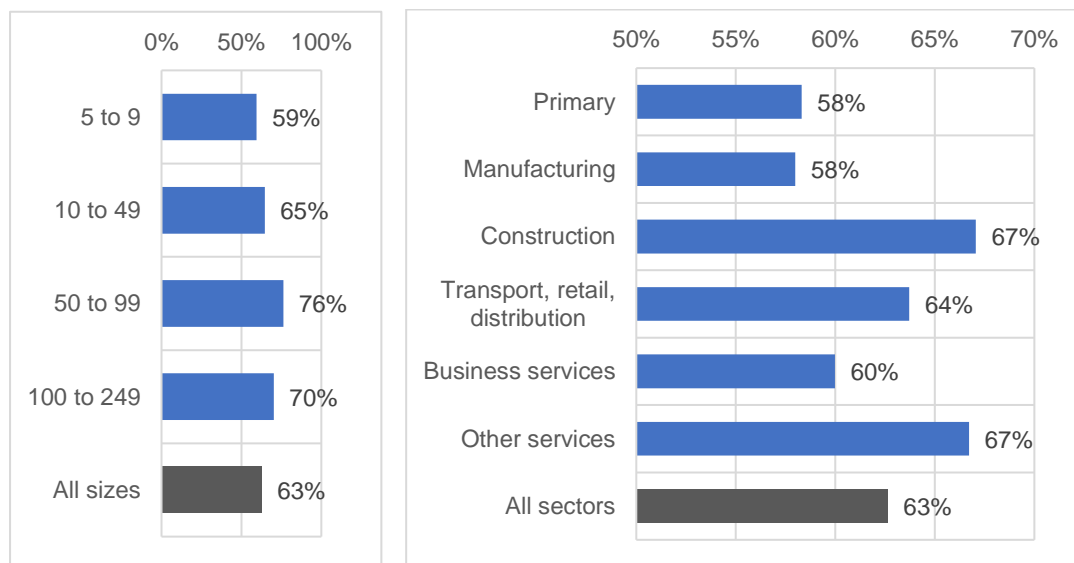
<sup>13</sup> Taking small steps: Business priorities, environmental and social responsibility in UK SMEs (2022). <https://www.enterpriseresearch.ac.uk/publications/taking-small-steps-business-priorities-environmental-and-social-responsibility-in-uk-smes/>

the informational barrier. This is corroborated by a (2021) survey from the National Innovation Centre for Rural Enterprise<sup>14</sup>.

It is important to underline the importance of the informational barrier preventing firms to achieve net zero, which varies across sectors and regions. On average, businesses in manufacturing and transport, retail and distribution sectors appear to face informational barriers more often than in other sectors, with around 1 in 3 firms facing the lack of information on low carbon technologies. Greater numbers of companies report information as an important barrier in Northern Ireland (40%) and in the North East (44%). This may suggest that sub-national programmes may have a role to play in the transition to net zero.

Similar to the impact of information as a barrier is the knowledge of where to find information. Many firms do not know where to find reliable information on decarbonisation. Although the proportion of firms saying that they know where to find reliable information is encouraging, nearly two-in-every-three firms believe that they know where to find information, however in primary and manufacturing sectors more than two in five firms do not know where to find reliable information on decarbonisation<sup>15</sup>. From the regional perspective, there are also important disparities. Again, the proportion of firms that know where to find information is particularly low in the North East and Northern Ireland (Figure 1). This suggests that information programmes targeting sector and regions may be beneficial.

**Figure 1: Percentage of firms knowing where to find reliable information on environmental solutions: by size and sector**



Source: ERC Business Futures (2022)

The survey also asked the firms to identify the sources of reliable information. The majority of UK SMEs tend to turn to government website and support schemes. This speaks to the importance of improving the quantity and the quality of information available on the platforms to accelerate decarbonisation. The second-best source of information relevant to the firms across all sizes is professional bodies and networks along with the online search and social

<sup>14</sup> Rural SMEs and the net zero agenda (2021). Newcastle: NICRE. <https://nicre.co.uk/media/yvah2pd4/nicre-research-report-no-1-april-2021-rural-smes-and-the-net-zero-agenda.pdf>

<sup>15</sup> See: footnote 13 for source information.

media community, although this last one is driven by micro-businesses. The importance of professional bodies suggests an important conduit for this kind of information.

ZEE network members have also conducted more in-depth research on the following barriers and obstacles that are having a particular impact on the decarbonisation of SMEs:

- **Connect training and support to the daily business of the SME:** The global challenge landscape may seem abstracted from daily business life and overwhelming for the owner-manager who is seeking to preserve the future of their business. It is also unhelpful to focus only on the business opportunities and successful ‘heroic’ business leaders who are leveraging their green credentials for profit. Not all net zero steps will be profitable, and promoting case examples of extreme enthusiasts and champions (sometimes already highly educated in environmental issues and decarbonisation), is not productive. Sector-based approaches, which embed decarbonisation in the product or service around which the business is built, may be most impactful in helping SMEs understand what they might do in concrete terms.
- **Contextualise decarbonisation in the wider global challenges context without losing focus on the SME position:** Decarbonisation cannot be achieved in isolation from other social, economic, or ethical issues. While for an SME building the necessary capacity to tackle decarbonisation is challenge enough, few training programmes or learning opportunities honestly acknowledge that net zero and decarbonisation developments are competing with other pressing issues. Programme designers need to recognise that in smaller firms it is unlikely that any one individual has expertise on the steps that the firm might take, and that guidance will be needed as to how net zero goals might intersect with other challenges, such as diversity in the workplace, food, and energy poverty of employees and in the local community, or other environment-related issues, such as biodiversity or pollution. Some organisations, such as the United Nations Global Compact, do help to capture some of the varied challenges, and might be looked to as partners for the UK’s net zero work.
- **Address lagging performance in particular sectors:** For example, recent research by CEEDR, Middlesex University has examined the transport and logistics sector, one of the UK’s largest polluters in terms of its contribution carbon emissions, plus wider health and social impacts. Even though there is a move towards the greening of the transport sector, this remains minimal compared to other sectors and much is still to be done in terms of raising awareness of how best to achieve net zero efficiencies. The problems are manifold, relating to the costs of green fleet investment and adoption concerns and delivery of a suitable EV infrastructure. A further problem is the increased focus on road haulage instead of rail, and concerns that city deliveries have increased with the pandemic-related delivery boom and high propensity for UK shoppers to drive to supermarkets.
- **Engaging ‘harder to reach’ businesses:** Given both the pressing nature of the net zero transition and the potential for those businesses that do not act on decarbonisation to lose out on business, or fall foul of regulation, there is need to work harder to engage with more vulnerable or marginalised business populations, who have not been well supported in the past. This includes some businesses with minority ethnic owners and other structurally disadvantaged groups, as well as businesses in less formalised sectors which are less plugged-in to formal business networks and support providers.



### **Question 3. What opportunities are there for new/amended measures to stimulate or facilitate the transition to net zero in a way that is pro-growth and/or pro-business?**

The recent (2021) OECD report, 'No net zero without SMEs' pointed out that, 'Well-designed environmental and climate policies can go hand-in-hand with profitability, but the business case for SME greening is often complex. Better insights at a more granular level are needed on the business case for different SME greening actions and the (possible) government action needed to support this.' (p. 6).

ZEE network members have identified the following new or amended measures to promote the more rapid and cost-effective decarbonisation of SMEs:

- **Efficiency measures:** Several studies by the Enterprise Research Centre (ERC) have pointed to 'quick win' efficiencies that can be gained from small, relatively inexpensive IT/digital installation. These can provide business efficiencies which will save energy and money and improve the bottom-line margins of the business. However, these need to be sponsored through public funding, such as the £5,000 voucher scheme, and require correct guidance and after-market support to ensure correct installation and operations, with appropriate staff training. The support element is critical. A key lesson is that the solution is not simply funding. The funding needs to be targeted at the resource constrained smaller SMEs (many in the long tail of under-productivity which require good advisory services and support to raise digital skills and operations).
- **Green skills initiatives:** As mentioned above (Question 1 response), green skills need to be made more widely available to SMEs, with effective publicity and take up encouraged through financial incentives, such as green training vouchers. Some local Authorities are tackling this through local skills initiatives, but these are under funded by competitive place-based initiatives leading to patchy delivery. Far more needs to be done, particularly given the severe skills shortages businesses are experiencing. This needs to be part of a joined up approach to developing green skills ecosystem across local, regional and national government<sup>16</sup>.
- **B Corps and green ratings:** Ongoing research suggests that B Corps branding and ethos offers a good lead example of how businesses should be encouraged to embrace environmental performance<sup>17</sup>. The suggestion here is that regulation and accreditation, badging and branding would serve as a spur – particularly for SMEs to gain customer credibility and access to public procurement and private large reporting business supply chains. This could be combined with a national UK business energy efficiency and green operation (carbon tracked/BNG) scorecard rating, similar to that for houses and white goods. From a financial perspective this would help external financiers and insurers assess business risk and this is already being assessed (to some extent) in some parts of the UK SME and larger business finance markets (e.g. low cost loans for energy efficiency activities from high street banks).

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<sup>16</sup> CRESR (2022) low carbon energy supply chains, employment and skills in South Yorkshire: Headline findings. Sheffield: CRESR. <https://shura.shu.ac.uk/29613/1/low-carbon-south-yorks-headline-findings.pdf>

<sup>17</sup> SME Financing for Biodiversity: Building Nature Measurement and Impacts into SME Financing ('SME FinBio'). <https://www.mdx.ac.uk/our-research/centres/greenfin-research-hub/sme-financing-for-biodiversity-building-nature-measurement-and-impacts-into-sme-financing-sme-finbio>

- **Promote artisan enterprises as leaders of locally resilient neighbourhoods and beacons for green energy:** This SME manufacturing sector, which is enjoying a resurgence in the UK, applies craft skills to produce innovative and high value-added products. UCL's Energy Institute is researching the path to net zero for small bakery enterprises. After decades of decline in market share, the growing demand for artisan bread and related products has stimulated a resurgence in the sub-sector. Unfortunately, government policy is often perceived negatively by the bakery entrepreneurs in the UCL sample. Providing better sector specific support would be welcomed, for instance on standardising planning regulations: currently applied inconsistently across the UK when small bakeries are seeking planning permission to set up or extend. Grants to help with business expansion and renewable energy take-up have been welcomed and could usefully be applied to more energy efficient equipment. Supporting sub-sectors such as SME craft bakeries should encourage greater use of the existing building stock and infrastructure in localities, accelerating gentrification, contributing to a more intense use of local resources. Providing access to quality products in a local area will probably mean more journeys on foot and bike, fewer by car, so reducing congestion and pollution with knock on benefits for economic growth. Evidence from this study shows that craft-bakery jobs are often open to those without formal qualifications, providing local manufacturing jobs for some at the margin of work (e.g. those with limited English language skills). Bringing marginal workers into the labour market will increase overall labour-market-flexibility and future economic growth potential.

#### **Question 4. What more could government do to support businesses, consumers and other actors to decarbonise?**

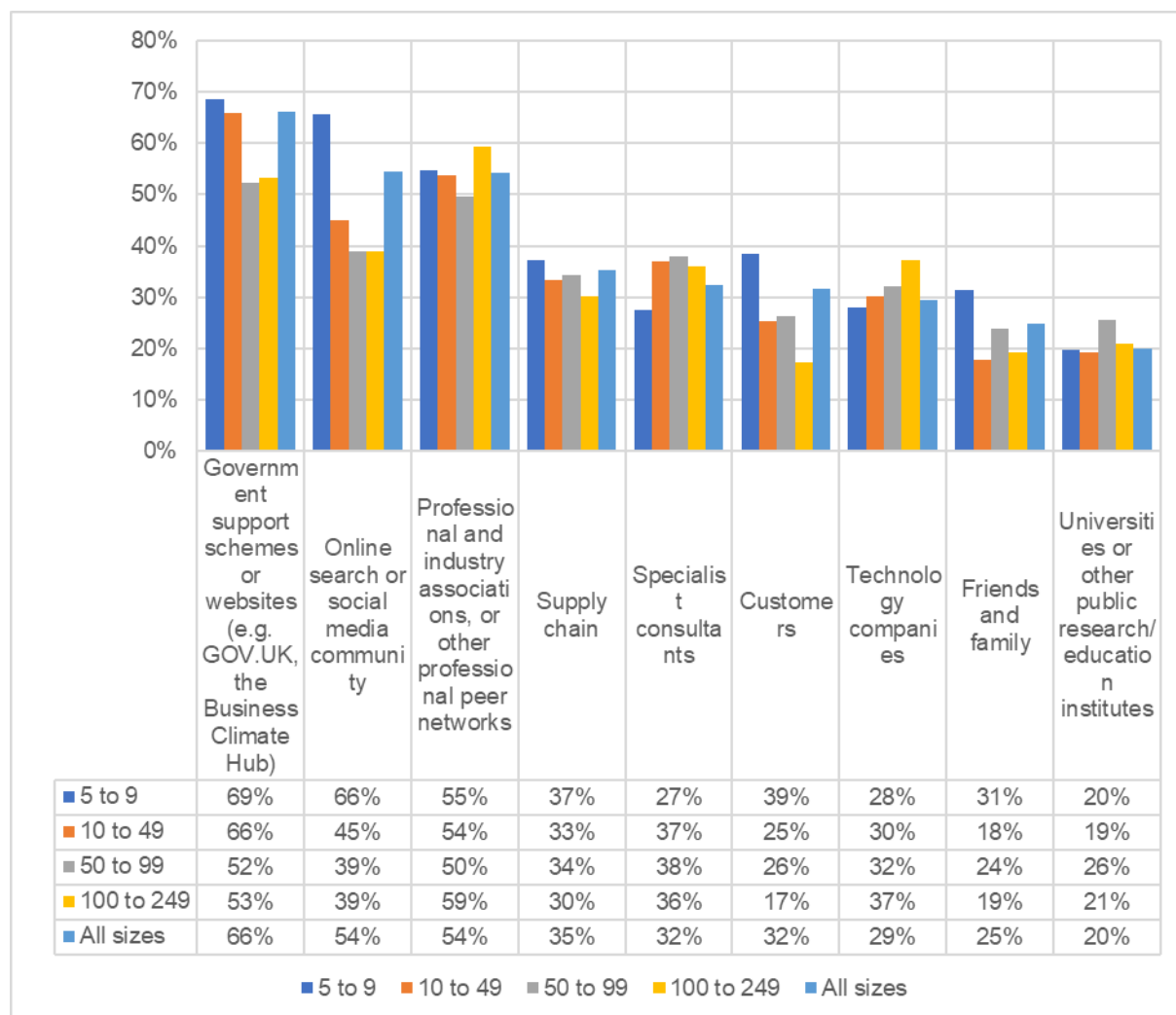
Our response to this question focuses on what government could do to support businesses, and SMEs in particular. Evidence from the Enterprise Research Centre suggests that the key to encouraging businesses to decarbonise is to enhance the credibility of information on ways that SMEs can develop net zero initiatives within their businesses (Figure 2). These findings suggest that information may be diffused more effectively in certain sectors and regions. This has implications for the ways that information is hosted on government websites, and may suggest a greater emphasis on the use of sector specialist organisations.

It is important to note that there are already a lot of excellent initiatives in place, many of which have been initiated by sector-led organisations that have been active in the BEIS SME Net Zero Working Group and by local and regional bodies across the UK.

Each of these actions has the potential to improve business performance and competitiveness, while also reducing aggregate carbon emissions. However, our main recommendation is more overarching in nature. We recommend that the UK government takes active steps, in conjunction with the devolved administrations, cities and regions, towards a much more systematic, long-term approach to the decarbonisation of the country's six million SMEs.



**Figure 2: Percentage of firms relying on sources of information (by firm size)**



Source: ERC Business Futures (2022)

A (2021) CCC report on SMEs, which included contributions from ZEE network members, has highlighted the importance of adopting this kind of approach (p. 2)<sup>18</sup>:

‘Our headline results from both SMEs and policy analysis show that an enhanced and much more joined-up policy and support framework is needed. Support also needs to take better account of the different needs of SMEs in different sectors. Specifically, we recommend to UK Government:

- **A UK government plan for SME decarbonisation to enable more joined-up, cross-departmental policy making to address the common net zero challenges that small businesses face** – particularly upfront financing and time and knowledge constraints.

<sup>18</sup> How can policy better support SMEs on the pathway to net zero? (executive summary). London: Energy Saving Trust / Climate Change Committee. <https://www.theccc.org.uk/publication/how-can-policy-better-support-smes-in-the-pathway-to-net-zero-energy-saving-trust/>

This plan must include better coordination of activity delivered through regional development funding, both between regions and with national net zero policies.

- **A clear regulatory timetable as a central part of the plan.** SMEs respond to coming regulation, with investment planning made in line with the known timeline. Thus, government should establish firm dates for future low carbon standards, set as early as possible (and expressed more strongly than as ‘ambitions’). This will reduce SMEs’ decarbonisation costs and risks.
- **A joined-up support framework.** This should couple ongoing awareness raising with a single contact point for SMEs. The contact point should provide access to financing support, information on regulations, footprinting and audit services, as well as peer learning networks.’

This point was echoed in the (2021) OECD study, which concluded that, ‘[a]n integrated whole of government approach, including across levels of government, to SME and greening policies can help mitigate the potential trade-offs between improving environmental and business performance.’ (p. 7).

There is a well-recognised tension between: (a) wide coverage and ease of access to business support, and (b) ensuring that it is sufficiently tailored to address the requirements of specific (sub-) sectors and geographic locations. There is also a considerable problem caused by unscrupulous and rogue suppliers of low carbon solutions, with evidence suggesting that negative experience can undermine confidence and future uptake of these services by SMEs. These issues could be substantially resolved with a ‘one-stop shop’ approach, which combines a trusted single point of access, such as the gov.uk web portal, with a technology-enabled triaging service that guides SMEs towards the most appropriate sources of information, advice, and service provision. The CCC report (p. 7) indicates how this could build on recent initiatives by BEIS and its partners by developing:

‘A consistent and ongoing **awareness and enabling framework** to overcome SMEs’ time and capacity barriers. An awareness campaign can build on the success of the Race to Zero and related SME Climate Hub initiatives, with **online carbon footprinting** as an initial engagement activity. A similarly branded **one-stop-shop contact point** should provide the bridge from awareness to support. A key element of support should be **subsidised SME decarbonisation advisory audits** which are regulated but sectorally adaptable. The one-stop-shop is principally a triage function: it acts as a single way in (phone/email/internet) for time-poor SMEs and provides front line advice. It then links to support provided by different organisations (on a place-based or sectoral basis), to peer networks, and financing from public or private sources.’

This could be facilitated through a combination of smart technologies and the active engagement of industry bodies, devolved administrations, cities and regions, building on the work of the BEIS SME Net Zero Working Group, the UK SME Climate Hub, and other integrative, cross-sector initiatives that are pursuing similar goals.

### **Question 5. Where and in what areas of policy focus could net zero be achieved in a more economically efficient manner?**

As we have indicated in previous responses, there is ample evidence that measures to promote energy efficiency are capable of reducing the operating costs of SMEs, which has a direct impact on market competitiveness. Transition from carbon intensive activities and greater use of renewable energy sources also provides co-benefits, notably increased energy security at a national level and (potentially) reduced exposure to price fluctuations.

Previous studies have identified consistent and widespread evidence of the ‘energy efficiency gap’, whereby SMEs fail to take-up opportunities for cost-saving measures, even when the business case for action is compelling. A report commissioned by the UK government in 2014 found that a typical SME could save between 18% and 25% of their annual energy costs through cost-effective measures, of which an estimated 30% involve zero capital investment<sup>19</sup>. In response to this ‘market failure’, the installation of energy efficiency measures and renewable energy technologies by SMEs has been driven by public subsidy. In recent years however, this has begun to change, as energy costs and concern for climate change increases amongst SMEs. A variety of banks, SME representative associations and industry bodies have produced guides and toolkits to support SMEs to reduce carbon emissions. In this context, the role for government is changing, and there are opportunities to leverage private sector activity to reduce direct fiscal investment. Government institutions have a critical role to play in supporting and driving action through setting targets, governing, and regulating markets; and providing more direct support to address gaps and accelerate progress where market-led delivery is insufficient.

### **Question 6. How should we balance our priorities to maintaining energy security with our commitments to delivering net zero by 2050?**

The government’s British Energy Security Strategy (2022)<sup>20</sup> puts strong emphasis on supply-side measures. However, a focus on the demand-side has significant potential to improve energy security, alongside cost-effective decarbonisation. First, there is significant scope for **demand reduction**, delivered through efficiency improvements by SMEs and across the non-domestic building stock, using conventional measures such as insulation, clean heating systems, lighting and A-rated appliances and machinery. Second, SMEs can play an important role in **using energy more flexibly**, through smart technologies that can maximise the usage of domestic renewable electricity production, and reduce the demand for fossil fuels. These changes will require much clearer signals and incentives to SMEs to use energy more flexibly. Third, SMEs with suitable premises could contribute to energy security by hosting renewable energy installations or, in some cases, through supplying ‘waste’ heat to low carbon district heat systems.

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<sup>19</sup> DECC (2014). Research to Assess the Barriers and Drivers to Energy Efficiency in Small and Medium Sized Enterprises. Department of Energy & Climate Change, London.

<sup>20</sup> <https://www.gov.uk/government/publications/british-energy-security-strategy>

## Questions for academia and innovators

### Question 29. How can we ensure that we seize the benefits from future innovation and technologies?

There are many opportunities to seize these benefits in ways that promote business opportunities and net zero. For example, a (2021) Enterprise Research Centre report identifies evidence of synergies between the ‘twin’ green and digital transitions through process improvements such as: better of customer relationship management (CRM), environmental reporting and auditing; transitions to renewable energy; launch of low carbon products and services; digitalisation of core business functions; and low carbon production systems<sup>21</sup>. The UK is considered a leading developer of clean technologies, and examples of those attracting significant attention and investment include perovskite-based photovoltaics (TRL 4) and autonomous and connected vehicles (TRL 6), each of which is based on an entrepreneurial ecosystem that includes innovative start-ups, early stage ventures and other small and medium-sized supplier firms.

Members of the ZEE network have highlighted the following considerations as particularly important when seeking to promote eco-innovation in relation to net zero:

- **Eco-innovation in different industry sectors** - In some sectors, such as construction (both new build and retrofitting of existing building stock), many of the core technologies (insulation, lighting, glazing), are relatively mature, and the main opportunities for eco-innovation take the form of new business models and supportive institutional arrangements. In this instance, the further diffusion of eco-innovations often depends on how far ‘middle actors’<sup>22</sup>, such as equipment manufacturers, merchants and installers, are able to reconfigure themselves in order to increase the scale and scope of their service delivery<sup>23</sup>. Technological and socio-technical innovations can also have a transformative effect on particular businesses and industry sectors. For example, intensive R&D activity in the field of alternative protein sources (vegetable, insect and microbial) is creating new entrepreneurial opportunities for start-ups and existing businesses, while also exerting competitive pressures and sparking tensions in conventional livestock farming and associated industries.
- **Eco-innovation in different cities and regions** - Drawing on earlier work on the spatial dimensions of innovation and enterprise, researchers have analysed different places and spaces based on their distinctive characteristics. For example, Oxfordshire comprises a knowledge-based innovation ecosystem, with a thriving low-carbon sector generating more than £1.15bn in revenue<sup>24</sup>. By contrast several coastal and estuarine regions (North West, Humber, and Teesside, North East Scotland) are becoming the focal points for hydrogen, wind and CCS technologies that build on long industrial heritage, and ongoing capabilities in large scale manufacturing, access to natural resources and existing oil and

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<sup>21</sup> Kesidou, E. and Ri, A. (2021) *Twin Green and Digital Transitions: Joint adoption of net zero and digital practices by UK SMEs*. Warwick: Enterprise Research Centre.

<sup>22</sup> Parag, Y. and Janda, K.B. (2014). More than filler: Middle actors and socio-technical change in the energy system from the ‘middle-out’. *Energy Research & Social Science*, 3: 102–112.

<sup>23</sup> Killip, G., Owen, A. and Topouzi, M. (2020). Exploring the practices and roles of UK construction manufacturers and merchants in relation to housing energy retrofit. *Journal of Cleaner Production*, 251: p.119205.

<sup>24</sup> Patrick, J., Killip, G., Brand, C., Augustine, A., Eyre, N. (2014). Oxfordshire’s Low Carbon Economy.

gas infrastructure<sup>25</sup>. In these regions there is potential for R&D and skills export, particularly in relation to immature technologies relating to industrial decarbonisation. Supporting eco-innovation in these regions is also important to addressing long-term spatial imbalances in the UK economy. There are also equally important, but less obvious examples of geographic specialisation, such as London's role as a global centre for handling legal and financial arrangements for renewable energy projects. Eco-innovation and roll-out of decarbonisation technologies also create opportunities for employing different business models which can better harness the proceeds of economic gains for communities: for instance, through development of social enterprise models for buildings retrofit as has been trialled in Greater Manchester, and ongoing potential for community and social enterprise models for renewable energy generation.

- **Policy design and evaluation** - Government policy already plays a critical role in providing the incentives, market conditions and rules and regulations needed to accelerate eco-innovation. Having set a target of achieving net zero by 2050, the scope and remit for policy intervention is set to expand in coming years. The National Audit Office (2020) has identified several key areas in which government has a role in delivering sufficient private sector investment to achieve the net zero targets, many of which have particular relevance to SME decarbonisation. These include: sharing risks on projects and investments that the market cannot bear alone; ensuring regulation requires monopoly infrastructure providers to invest in reinforcements that support the low-carbon transition, such as electricity networks expanding their capacity; providing funding that supports research and innovation; and using levers such as legal obligations and influencing techniques to change business practices<sup>26</sup>.

### **Question 30. Is there a policy idea that will help us reach net zero you think we should consider as part of the review?**

Members of the ZEE network have identified the following policy ideas as contributions to achieving rapid, large scale, cost-effective delivery of government's SME decarbonisation goals:

- **Energy efficiency standards for commercial equipment used by SMEs:** In 2021 53% of commercial ovens purchased in the USA met Energy Star standards of energy efficiency<sup>27</sup>, saving on average 2,300 kWh per annum compared with standard equipment<sup>28</sup>. There is no equivalent rating for commercial ovens (or most other commercial equipment) in the UK (or EU). Research being carried out with UK small and medium sized bakery enterprises has found that they have very little access to independent trusted information about the performance of ovens and other energy

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<sup>25</sup> <https://www.netzeroteesside.co.uk/news/the-humber-and-teesside-join-forces-to-form-the-east-coast-cluster-and-decarbonise-almost-half-of-uk-industrial-cluster-emissions>

<sup>26</sup> NAO (2020). *Achieving net zero* (Report by the Comptroller and Auditor General No. HC 1035). National Audit Office, London.

<sup>27</sup> Energy Star (2022). 2021 Unit Shipment Data Summary Report, Environmental Protection Agency. [https://www.energystar.gov/sites/default/files/asset/document/2021%20Unit%20Shipment%20Data%20Summary%20Report\\_0.pdf](https://www.energystar.gov/sites/default/files/asset/document/2021%20Unit%20Shipment%20Data%20Summary%20Report_0.pdf)

<sup>28</sup> Energy Star (2022). EnergyStar Commercial Ovens. Environmental Protection Agency. <https://www.energystar.gov/sites/default/files/FINAL%20CFS%20Sell%20Sheet%20-%20Ovens%205.2.22.pdf>

intensive equipment. In fact, some businesses are probably operating under the mistaken impression that their equipment is relatively energy efficient. Providing energy efficiency rating information is necessary to facilitate take-up of more energy efficient equipment, however, it will probably not be sufficient to achieve significant market penetration. The roll-out will need support from vendors and business advisers. Further government interventions may also be required including: minimum increasing standards over time and cash/tax rebates (the Energy Star scheme is often associated with financial incentives to purchase rated equipment).

- **Match funding:** Provide match-funding to selected sector and industry bodies to develop a programme of net zero SME support. Using this co-funding model, industry and government can each shape the scope and delivery of the support, tailored to the needs of specific sectors, such as agriculture, horticulture, food service, and hospitality. Evidence from the last two years indicates that industry bodies are increasingly providing net-zero support and guidance, but this is not always tailored to SMEs, and often goes no further than the publication of a report. Whereas the European Regional Development Fund previously provided a range of support on a geographical basis, there is a need for multiple equivalents, but for sectors. Support could include expert energy audits, net zero strategy advice, match-funded grants, workshops, and online training and learning toolkits. Alongside sector support, future place-based support might be best targeted at harder to reach businesses and sectors (see: Question 2 response).
- **Exploit synergies between net zero and ‘nature positive’ investment.** The Task Force for Nature-related Disclosure (TFND), and other leading financiers have made a strong case for shifting business investment into net zero and nature positive activities, and for recognising synergies between them (see: Question 1 response). The government should develop a cohesive and coherent single long-term strategy to integrate these complementary policy goals. These considerations should therefore underpin all aspects of public financing operations (i.e. risk assessments, investment management, public-private co-financing, monitoring and auditing processes). This can be facilitated by removing silos and promoting (inter-)organisational learning amongst the actors involved in SME financing and support, including BEIS, British Business Bank, Defra and Innovation UK, to learn from past mistakes and promote greater cohesion across these policy domains<sup>29</sup>.
- **Promote social enterprise, community business and social innovation:** in addition to technological innovation, the all-encompassing nature of the net zero challenge requires innovative business models, change to institutions/regulations, and to social practices and consumer behaviours. Social innovation is needed to enable creative collaborations between multiple actors across the private, civil society and public sectors to catalyse alternative ways of mobilising resources for constructive ends. Given high levels of regional inequality<sup>30</sup>, a socially just and sustainable transition also needs to be compatible with government strategy for ‘levelling up’ and to ensure that places and communities across the UK are not further disadvantaged. Growing and extending new organisational spaces for collaboration and stakeholder inclusion and engagement are therefore crucial

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<sup>29</sup> Lessons from government venture capital funds to enable the transition to a low-carbon economy: The UK case (2021). <http://cusp.ac.uk/themes/p/paper-ro-lowcarbon-venture-capital/>

<sup>30</sup> <https://www.sheffield.ac.uk/news/nr/uk-higher-regional-inequality-large-wealthy-country-1.862262>



to the forms of enterprise and innovation needed to respond to net zero in ways that help to address - or at least not work against - other pressing social and economic challenges. Recent survey evidence<sup>31</sup> finds that:

- The vast majority of social enterprises are factoring in net zero and the environmental impact of their supply chains when developing their business.
- One in five social enterprises (20%) *directly* address the climate emergency as part of their core social/environmental missions.
- 84% believe the social and environmental friendliness of products is as, or more, important than cost, compared to 75% in 2019.

A recent study for DCMS provides further insight and lessons into the advantages of community and stakeholder engagement for inclusive innovation by drawing on the experiences of mutual social enterprises.<sup>32</sup> Mutual social enterprises, though currently a neglected policy agenda, have been championed across party political lines over several decades. They often serve vulnerable and disadvantaged groups and operate in sectors which are crucial to a better, fairer, and more sustainable society and economy, including health/wellbeing, employment/skills, housing, arts/culture, education and youth services. The organisations are creating spaces for inclusive innovation and democratic deliberation that are less commonly found in the public sector. Lessons from their experiences have considerable potential to inform how community-based services in diverse urban and rural contexts across the UK can be revitalised and become more responsive to address the net zero challenge.

- **Making a greater impact on SMEs through policies aimed at larger firms:** SMEs are independent organisations, but often operate as subcontractors to larger businesses, which creates dependency relationships<sup>33</sup>. It is, therefore, important to understand these dependencies and consider how SMEs will be impacted by policies aimed at larger firms, and subsequent decisions with regard to delivering net zero. This needs to be done with sensitivity, as direct requirements of certain standards from subcontractors might disadvantage smaller firms and disturb balance of competition on the market. Changes to products and processes might also be easier to apply depending on the size of the firm and its outputs.

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<sup>31</sup> SEUK (2021) *No Going Back: State of Social Enterprise Survey 2021*. Social Enterprise UK: <https://www.socialenterprise.org.uk/state-of-social-enterprise-reports/no-going-back-state-of-social-enterprise-survey-2021/> See also: <https://www.powertochange.org.uk/research/community-business-climate-action-programme-scoping-study/>

<sup>32</sup> Vickers, I., Lyon, F., Sepulveda, L., Brennan, G. (2022) *Public Service Mutuals: Transforming how services are delivered through social enterprise and democratic governance*, Department for Digital, Culture, Media & Sport: <https://www.gov.uk/government/publications/public-service-mutuals-longitudinal-case-study> See also: [Public Service Mutuals: State of the Sector 2019 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/public-service-mutuals-state-of-the-sector-2019)

<sup>33</sup> See, for example: Child, J., Karmowska, J., & Shenkar, O. (2022). The role of context in SME internationalization: A review. *Journal of World Business*, 57(1), 101267.



## Recent reports and reviews

The following reports and reviews address core issues regarding SMEs and net zero policymaking. Additional contributions from members of the ZEE network on specific issues raised in the consultation responses are detailed in the footnotes:

- Blundel, R.K. and Hampton, S. (2021) *Eco-innovation and green start-ups: An evidence review*. Warwick: Enterprise Research Centre. Available at: <https://www.enterpriseresearch.ac.uk/publications/eco-innovation-and-green-start-ups-an-evidence-review/>
- Blundel, R.K. and Hampton, S. (2021) *SMEs and Net Zero. SOTA Review 51*. Warwick: Enterprise Research Centre. Available at: <https://www.enterpriseresearch.ac.uk/publications/how-can-smes-contribute-to-net-zero-an-evidence-review/>
- Kesidou, E. and Ri, A. (2021) *Twin Green and Digital Transitions: Joint adoption of net zero and digital practices by UK SMEs*. Warwick: Enterprise Research Centre. Available at: <https://www.enterpriseresearch.ac.uk/publications/twin-green-and-digital-transitions-joint-adoption-of-net-zero-and-digital-practices-by-uk-smes/>
- OECD (2021) *No Net Zero without SMEs: Exploring the key issues for greening SMEs and green entrepreneurship*. OECD SME and Entrepreneurship Papers No. 30. Available at: <https://dx.doi.org/10.1787/bab63915-en>
- Weatherall, D., Wilkinson-Dix, J. Bill, E., Wilkinson, T., Blundel, R., Hampton, S., and Horne, S. (2022). *How can policy better support SMEs in the pathway to Net Zero?: A report to the Climate Change Committee*. London: Energy Saving Trust. Available at: <https://www.theccc.org.uk/publication/how-can-policy-better-support-smes-in-the-pathway-to-net-zero-energy-saving-trust/>

We note that ZEE network members have also contributed to other responses to this consultation, including the following document, which has been submitted on behalf of the UKRI ‘Delivering Net Zero’ project:

- Barrett, J., Pidgeon, N., and Colechin, M. (2022) *Delivering net zero: Evidence for the Net Zero Review*.