NICRE
National Innovation Centre
Rural Enterprise

NICRE Submission to the Net Zero Review Call for Evidence

October 2022

Background to NICRE

The National Innovation Centre for Rural Enterprise (NICRE) undertakes research and knowledge exchange to inform policy, foster the innovation and resilience of rural businesses, and unlock the potential of rural economies across the UK. It is funded by Research England and founding University Partners, with in-kind support from many public, business and third sector organisations. NICRE builds on three leading centres of expertise: the Centre for Rural Economy (CRE) and Newcastle University Business School, the Enterprise Research Centre (ERC) at the University of Warwick, and the Countryside and Community Research Institute (CCRI) at Gloucestershire and Royal Agricultural Universities. Strutt & Parker property consultants is its founding national professional business service partner. Further information is available at: https://ncl.ac.uk/nicre

This submission draws on research evidence and insight from NICRE, and allied businesses and innovation partners pertinent to the remit of the call for evidence by the BEIS Net Zero Review team. In the submission we provide an initial response and look forward to further opportunities to contribute additional expertise and evidence as needed. As NICRE continues to build its portfolio of research and innovation projects, we also invite the BEIS net zero review team to signal areas where they would particularly welcome additional evidence or dialogue including potential visits to sites relevant to the review.

Why "rural" matters for net zero

Rural economies have the potential to be a national leader in innovation around net zero and the wider bio and green economy. For this potential to be realised a comprehensive and integrated approach to the net zero transition in rural areas is needed that can help drive the products, skills, technologies and supply chain developments to create and serve markets driven by climate and environmental challenges and to enable their key role in contributing to natural capital and environmental resilience.

The country's multiple land-based industries and the opportunity to refashion agricultural policy post EU exit are significant for net zero ambitions. Opportunities include harnessing the major sustainable materials widely produced and long utilised in rural areas and which underpin many other business sectors, products and services – wood (for packaging, paper, furniture, construction, energy crops etc.), water (for drinking, and as ingredients or coolants in energy-intensive manufacturing, construction, energy production, farming, hospitality and healthcare etc.) and energy (whether from major rurally-located power stations, on- and off-shore wind farms or small and micro scale generation). Rural areas

are not only substantial producers but also host some of the most substantial and integrated supply chains or business ecosystems for these products and services. These sectors are a substantial contributor to developing net zero economies, directly and through carbon offset, and will be important to regenerating rural and wider regional economies. Local Combined Heat and Power infrastructures, for example, could reduce fossil fuel dependence and fuel poverty in rural areas, provide outlets for local combustible waste products, and generate new skills, businesses and jobs.

Harnessing opportunities for investment in natural capital and green innovation is significant for future development in rural areas. Demand from the corporate sector is growing for ecosystem markets, including national carbon markets, regional ecosystem markets, and green finance. With members of the UK Investment Association managing portfolios worth £8.5 trillion in 2020, even comparatively small shifts in corporate investment preferences could redirect substantial amounts. Yet we know that markets can fail to reward those responsible for providing ecosystem services, especially when benefits cannot be financially calculated, accrue downstream, or over a long time horizon. There remains a need to design appropriate policy mechanisms and investment pipelines so that rural communities themselves can benefit from the green economy.

Rural economies are diverse, however, and it is vital to avoid a piecemeal or single sector approach to rural net zero adaptation, low carbon business models, and prospects for growth and innovation. There may be specific opportunities and constraints facing businesses located in rural areas that need to be addressed in moving to net zero – such as their operational context, business models, supply chains, networks, access to skills, innovation support and finance, and the strength of enabling technologies and low carbon infrastructures.

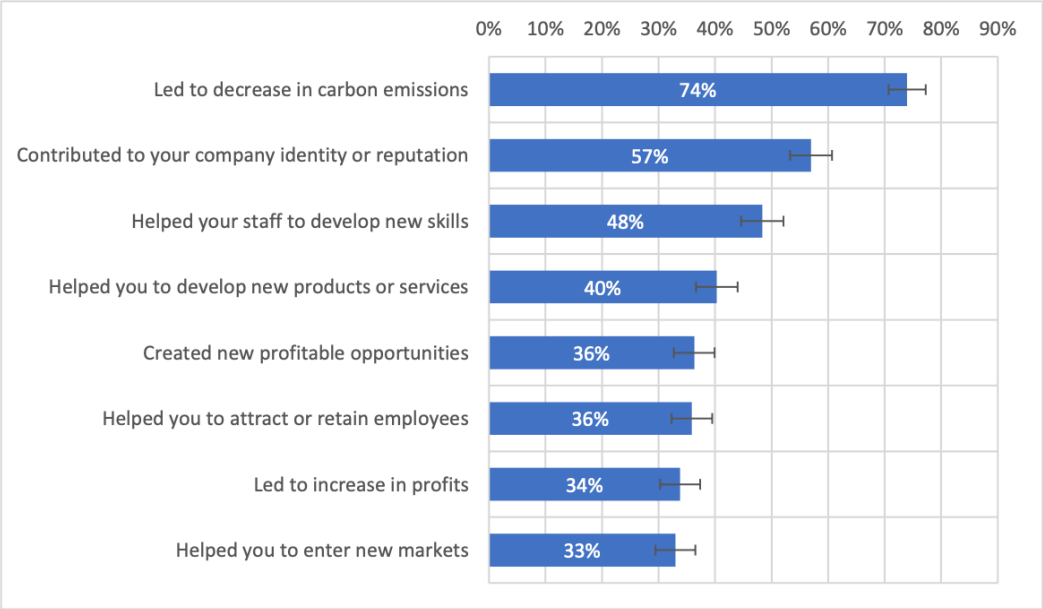
There are also wider agendas at stake for net zero progress in rural areas. These include tackling investment for making rural housing and business premises energy efficient, rural infrastructure for electric vehicles, and a wider skills development agenda to provide knowledge and training for decarbonisation, carbon sensitive land management, rural renewables, and new environmental markets.

Below you find answers to some of the consultation questions published by BEIS on 26 September 2022, with a particular focus on small business and rural enterprise.

Overarching questions

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

A growth rate is made up of the growth of thousands of firms and therefore how firms benefit from adopting net zero is very relevant. We have firm level evidence on the benefits from the adoption of net zero from the ERC's Business Futures Survey 2022 (Ri and Mole, 2022). 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 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 (see Figure 1).



Source: ERC Business Futures 2022
Base: all firms who have undertaken steps to reduce environmental impact (685); black bars indicate 95% confidence intervals.

Figure 1. Outcomes of net zero practices

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

Recent evidence from the ERC Business Futures 2022 suggests that 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 (see Figure 2). This varies depending on the firm size with smaller firms being slightly more likely to be concerned with the cost and larger firms with the information barrier. Medium-sized SMEs are also more likely to cite the lack of relevant skills and the administrative burden.

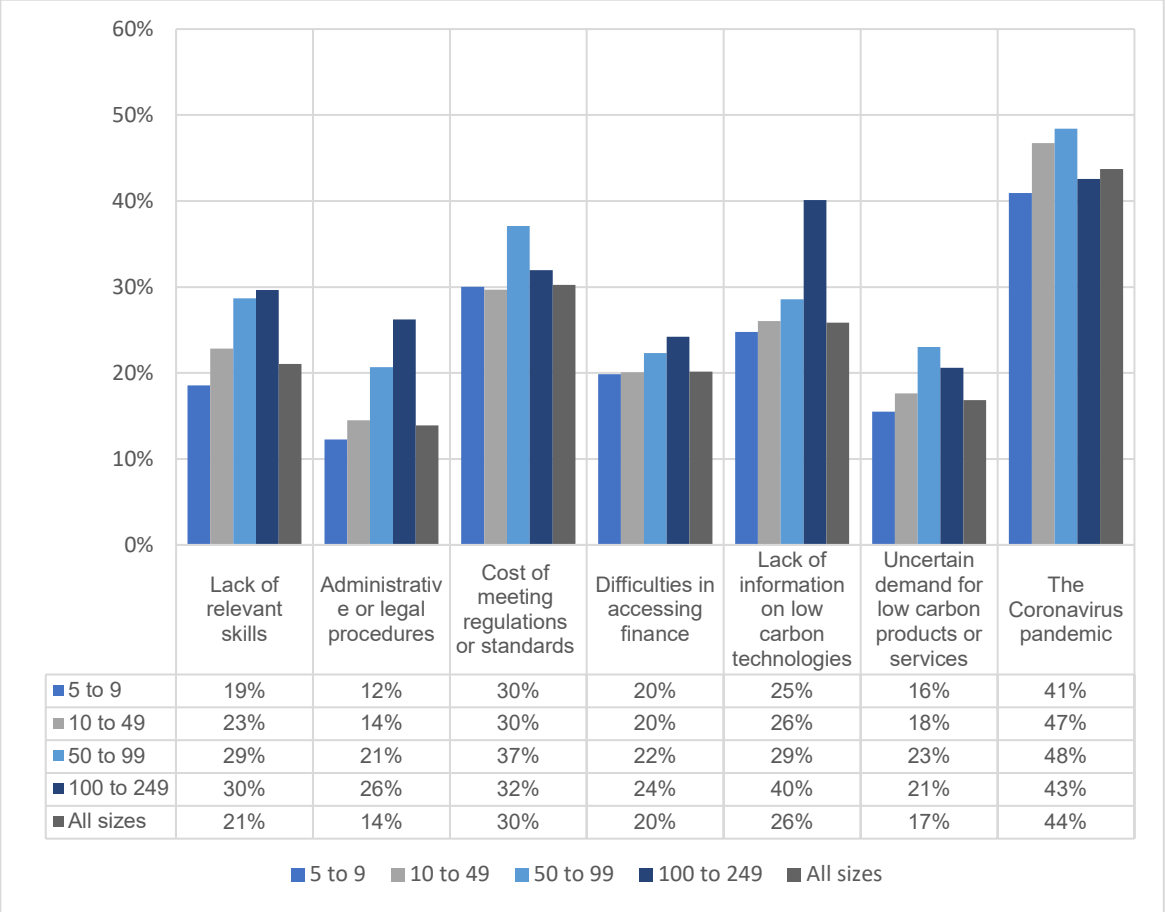


Figure 2. Barriers to decarbonisation by firm size. Source: ERC Business Futures 2022

Further evidence for the barriers to net zero comes from a rural-urban analysis by NICRE (Wishart, Roper and Kesidou, 2021).). It showed similar overall responses, with key factors relating to the pandemic, lack of information, uncertain demand and the cost of regulation (Figure 3). A greater proportion of urban firms said that lack of information about carbon technology and costs inhibited their efforts. Rural firms were more likely to point to administrative regulations as barriers to their efforts to adopt environmental practices than urban firms. Policies and measures to address these specific constraints will need to be designed to reach rural firms.

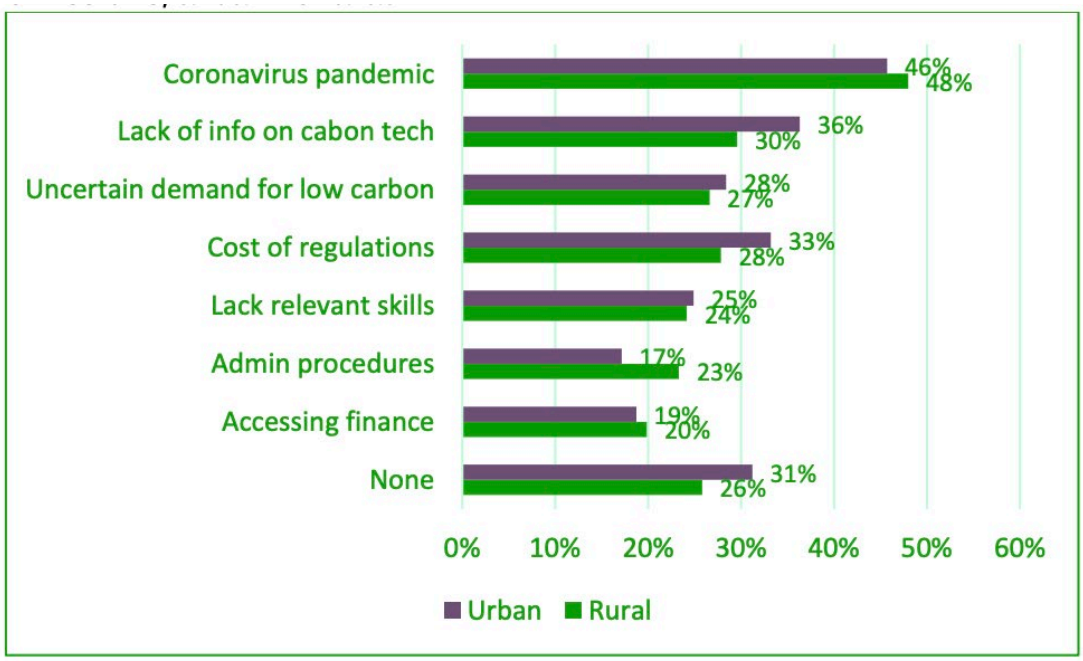


Figure 3. Factors that prevented or constrained firms' efforts to reduce carbon emissions, urban vs rural. Base: 804 firms, 600 rural, 204 urban. Source: Wishart, Roper and Kesidou (2021).

It is important to underline the informational barrier preventing firms from achieving net zero, which varies across sectors and regions. Thus, businesses in manufacturing and transport, retail and distribution sectors appear to face informational barriers on average 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 suggests 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 in primary and manufacturing sectors more than two in five firms do not know where to find reliable information on decarbonisation. Again there is significant regional variation with the lowest awareness of reliable information sources in the North East and Northern Ireland (Figure 4).

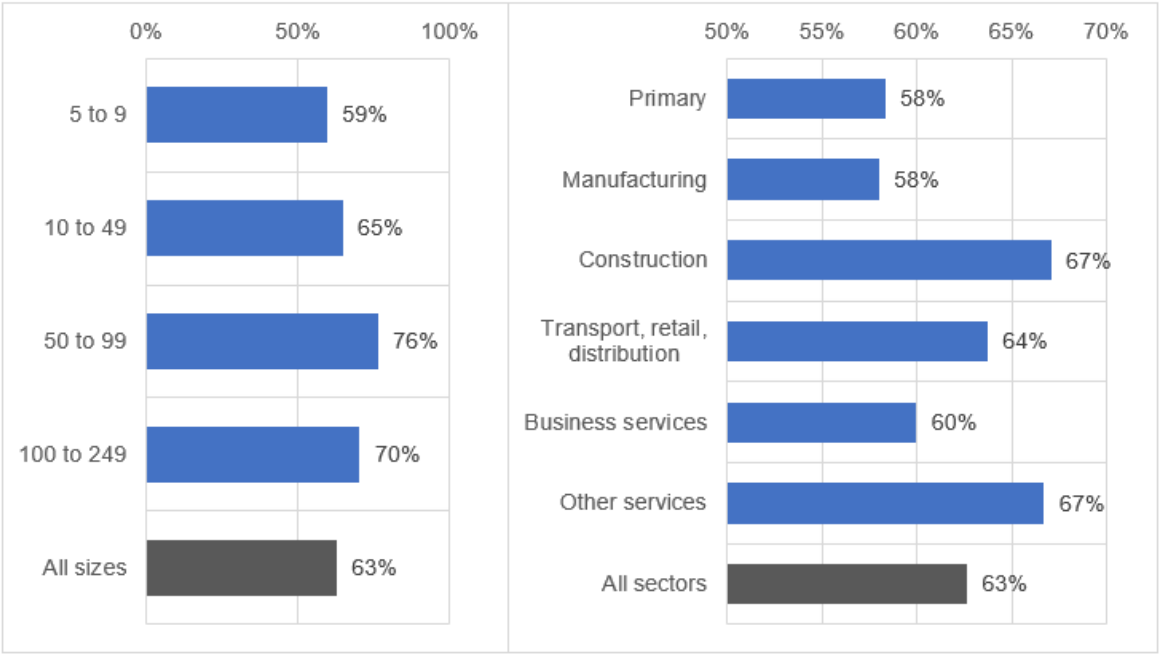


Figure 4. Percentage of firms knowing where to find reliable information on environmental solutions by size and sector. Source: ERC Business Futures 2022.

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 firms across all sizes is professional bodies and networks along with the online search and social media community, although this last one is driven by micro-businesses (Figure 6).

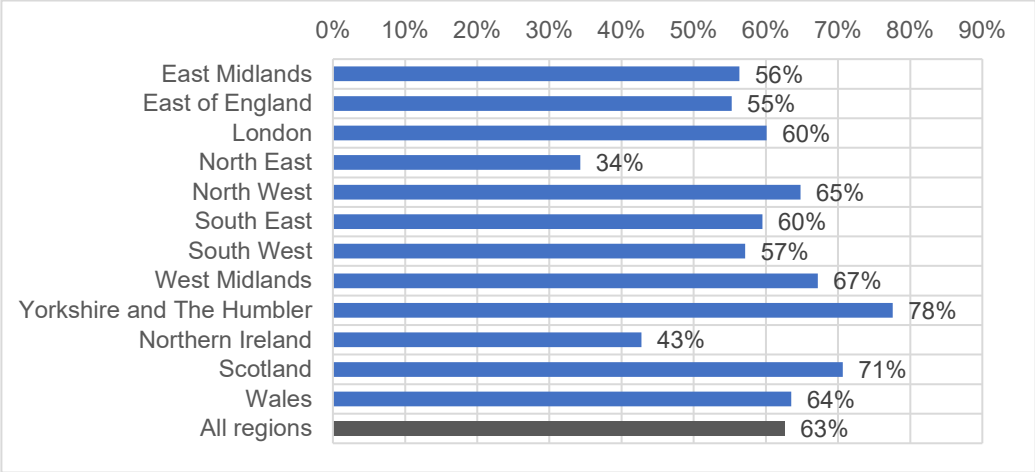


Figure 5. Percentage of firms knowing where to find reliable information on environmental solutions by region. Source: ERC Business Futures 2022.

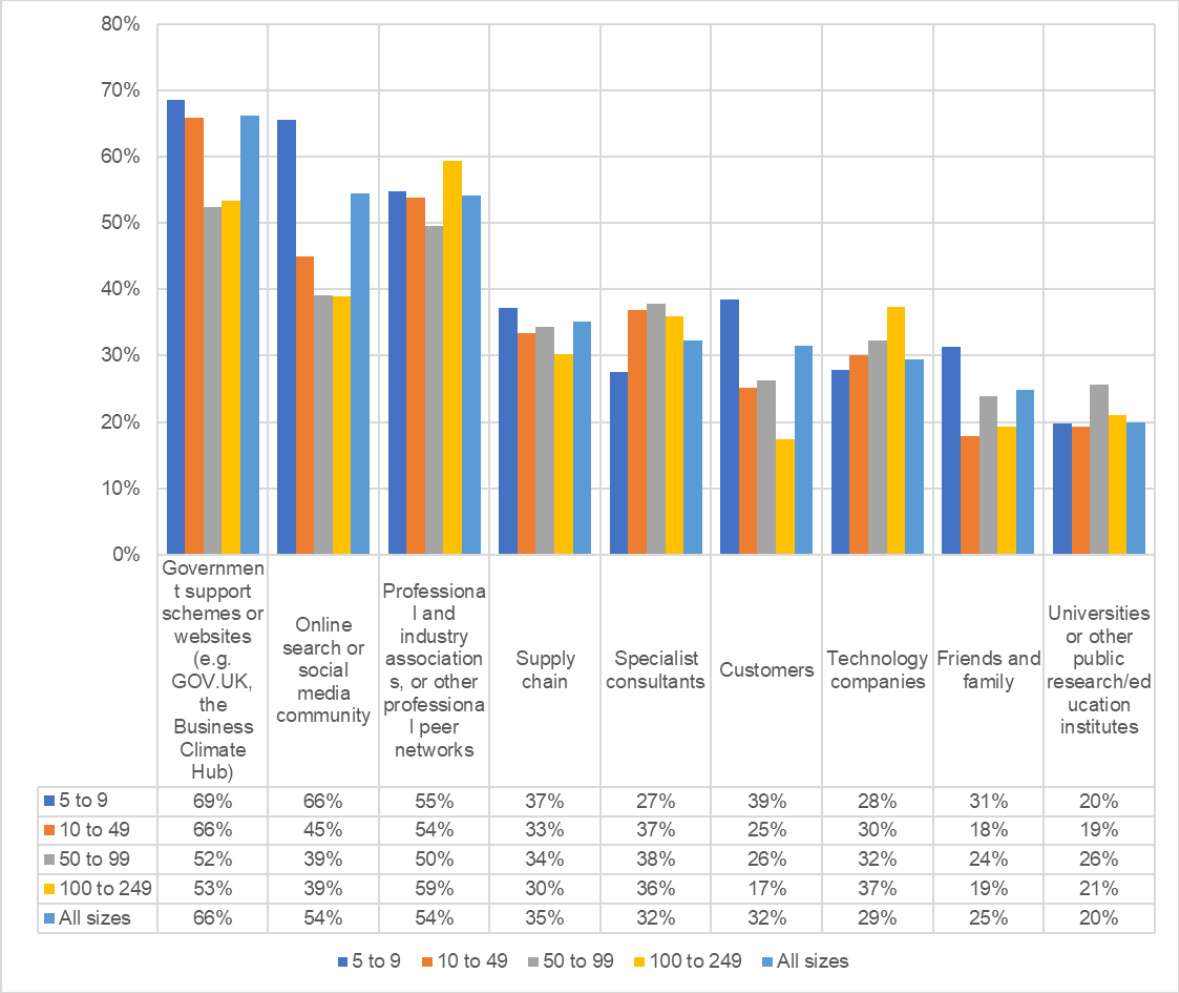


Figure 6. Percentage of firms relying on the following sources of information by firm size. Source: ERC Business Futures 2022

Obstacles and opportunities are also sector specific. For example, NICRE's work with its innovation partners Rural Design Centre and Food and Drink North East (FADNE), a regional network of food and drink businesses, is exploring solutions to shorten food supply chains and improve operational efficiency in last mile logistics. The work focuses on tackling performance barriers and environmental impediments with the aim to improve sustainability in transport and logistics and foster low-carbon delivery solutions. A survey of food and drink businesses and online consultation 'Delivering the Goods' https://nicre.co.uk/news/2021/july/ideas-shared-for-sustainable-last-mile-delivery highlights the key challenges for low-carbon transport/ delivery:

- Financial challenges: Sustainable transport and logistics can be costly to set up and maintain. In many cases finance is not available to invest in more sustainable transport.
- Sustainable transport requires infrastructure such as charging points for EVs. This is still too sparse and slow in rural areas.
- Businesses are still uncertain which clean energy technology is best for them. Before committing to one technology they require more certainty about what is available and

will work for them. This result matches with the survey result presented in Figures 2, 3 and 4 above.

- Underutilisation of vehicles in relation to shortage of finance is one burden, particularly for SMEs. Collaboration can present one solution to this, but businesses find it challenging to collaborate, create efficient and optimal solutions to route planning while satisfying customers demands.
- Food and drink need to be delivered in save and healthy conditions. Developing refrigerated solutions for EVs requires advanced and innovative technologies which are still in development.

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?

Our survey of Food and Drink businesses used in question 2 (https://nicre.co.uk/news/2021/july/ideas-shared-for-sustainable-last-mile-delivery) includes sector specific ideas and opportunities on low-carbon transport/ delivery, including:

- Local delivery hubs as a good solution for some businesses
- Real world trials to help gather more data and reassess the significance of the barriers
- More impartial, technology-agnostic advice, which would be welcomed by businesses to identify technologies and management solutions.
- Sharing vehicles and collaborating on deliveries to reduce investment and running costs for businesses.

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

Our research suggests the key to encouraging businesses to decarbonise concerns the credibility of information regarding how to develop net zero initiatives in the business (see Figures 3-5 under Question 2 above). Survey evidence suggest that information could be diffused more effectively in certain sectors and regions. As well as maintaining information hosted on government websites, there is a need for greater emphasis on the use of sector specialist organisations as well as regionally focused advice and support.

Evidence from NICRE (Wishart, Roper and Kesidou, 2021) suggests emphasising the cost reduction benefits of reducing emissions should be a key focus for supporting actions, as well as the availability of grants, which may be available sub-nationally and sub-regionally (Figure 7). This is especially the case for businesses located in rural areas. When contemplating the adoption of environmental practices, rural firms rate three specific external factors as considerably more important than urban firms for influencing their environmental agendas. These were grants, reducing costs and sector or supply chain voluntary agreements.

Factor	Proportion of firms reporting factor as either extremely or very important in influencing efforts to reduce emissions	
	Urban (%)	Rural (%)
Reducing costs	51	57
Improving image	46	47
Grants	31	34
Regulation	26	25
Voluntary agreements	20	22
External funding	18	22
Customer demand	18	17

Adapted from Wishart, Roper and Kesidou (2021)

Figure 7. Factors influencing efforts to reduce emissions. Source: ERC Business Futures 2022

Question 7: What export opportunities does the transition to net zero present for the UK economy or UK businesses?

Whilst the business survey conducted by ERC does not refer directly to the contribution to exporting, the firm level data suggests that one-in-three firms have entered new markets and the generation of profitable opportunities (36%) as a result of undertaking net zero actions. Whilst these may be domestic, this does suggest a sharpening of competition through market entry increasing competitiveness. Moreover, the experience of NICRE's innovation partner Food and Drink North East, highlights opportunities associated with the transition to net zero for development of export options for businesses where UK innovative technologies can be applied in other countries.

Questions for Businesses

NICRE is connected to an extensive network of rural businesses, and here we draw upon their experience and insight concerning the benefits and barriers to net zero transition. We would be happy to help connect BEIS officials to the direct experience of rural businesses as a further input into the net zero review.

Question 8: What growth benefits/opportunities have you had, or do you envisage having, from the net zero transition?

Businesses connected to NICRE point to many benefits and opportunities. These are often part and parcel of responding to the expectations of their customer base for sustainable and low carbon products and services. NICRE's innovation partner Food and Drink North East also highlighted considerable employment and skills opportunities associated with the transition to net zero. Businesses also acknowledged that the full scope of opportunities and impacts of net zero may not yet be impacting the business, but that these could be seen "on the horizon".

Question 9: What barriers do you face in decarbonising your business and its operations?

Businesses connected to NICRE state the following barriers:

- Costs and lack of finance for up-front investment.
- Costs and time needed to find and access relevant support and advice, for example around alternative energy supply and generation.
- Lack of infrastructure such as EV charging.
- Lack of clarity on solutions for business and customers (a need for clearer messaging from Government about the role individual businesses and households can play, thereby enabling businesses to develop new market solutions for customers)
- Lack of business-appropriate advice on technologies and management solutions is a severe constraint on business and household action.

Several of these barriers are picked up in the following response from a leading, rurally located, supplier of renewable technologies:

"*As a supplier of renewable technologies, we do not feel that the impact of the net zero strategy has been positively felt to date, when it should have been. We have spent many years focussed on educating businesses on the net zero switch so when the Government caught up to this, we anticipated that there would be an influx of enquiries, or at least a greater traction towards the cause. However, we have instead been negatively impacted by the removal of the RHI tariff, which had been helping to sustain our business for many years.*

Forced to diversify into new industries and identify alternative eco-solutions, and despite the hike in energy prices that these eco-solutions would mitigate, we are still finding uptake very low. Also, with rising costs on renewable products and parts post pandemic, it is extremely difficult to persuade potential customers to take the leap of faith required to invest in what is seen as an alternative, rather than 'traditional' technology, when 'traditional' technologies remain cheaper. We work at the commercial end of the scale so we appreciate that the capex in our systems is high so it will always be a harder sell, but we had hoped that the Government would provide a greater drive towards industry switching to alternative fuel sources, providing us with a captive audience.

The introduction of the IETF fund through BEIS appeared to be a help, but clients we have supported through application have found the process extremely complicated, even with our technical support. We also find that very few potential clients we talk to (mostly in eligible SIC codes for the fund) know nothing about it.

Business and industry contribute to far more carbon emissions than domestic, yet it does not get the same prominence or support. Saving carbon comes at a financial cost, and nowhere is this being addressed for businesses in a consistent way at the necessary pace. The investment for making the switch requires a clear pathway with simple funding support or a mandated system that stops non-efficient systems being installed. With energy prices soaring, there has never been a better time to switch to renewables but it requires investment, it requires it quickly, and it requires far more publicity and education from the Government".

Question 14: What more could be done to support your business and/or sector to decarbonise?

Insight from our innovation partners and individual businesses connected to NICRE suggests a need for:

- clearer and more consistent messaging about the timescale for achieving net zero and the steps that will be taken to achieve this, in order to create certainty and enable businesses to plan;
- greater clarity and promotion of the imperative, opportunities and benefits for businesses (and consumers/households);
- a strengthened policy focus on, and funding to support the uptake and use of available technologies and solutions, and to access specialist support and advice;
- clearer financial incentives, support for collaboration mechanisms, and improved business advice and information in response to clear business interest in understanding how to integrate new technologies and approaches into their business operations; and
- grants / loans to make high cost changes and specialist support and advise.

Questions for local government, communities and other organisations delivering net zero locally

NICRE is connected to an extensive network of rural communities, including places heavily engaged in innovative approaches towards a holistic net zero transition. Here we draw upon the experience and insight from our community innovation partners concerning the net zero transition. We would be happy to help connect BEIS officials to the direct experience of rural communities engaged in the transition to net zero as a further input into the Net Zero review.

Question 24: What are the biggest barriers you face in decarbonising / enabling your communities and areas to decarbonise?

According to Community Action Northumberland, lack of expertise and capacity presents the biggest barrier to communities and those aiming to support them to decarbonise. Clear messaging from government on the need for personal action is the starting point. Then, independent local sources of advice and support are crucial to allow households and communities to understand the best options to pursue. These could be relatively easily funded through existing trusted sources of local support. The availability of feasibility funding is also critical to allow local energy generation projects to get off the ground.

Question 25: What has worked well? Please share examples of any successful place-based net zero projects.

We would be happy to connect and support visits of BEIS officials to the experience of two innovative net zero projects:

Solar Powered Village Halls **(see** https://nicre.co.uk/projects/supporting-village-halls/**)**
NICRE is working with Community Action Northumberland and the Rural Design Centre to support village halls and other community buildings in rural Northumberland to transition to net zero by installing solar panels with associated battery storage. This will help mitigate carbon emissions, save on energy bills and enable them to be more energy

resilient. We are currently using Rural Community Energy Funds to research the potential installation of solar panels to a range of community-owned buildings in rural Northumberland along with associated battery storage. This will enable carbon reduction for each building and greatly reduced energy costs. It will also enable greater resilience in the event of future power disruption, such as that suffered in the aftermath of Storms Arwen and Malik in the North East of England. We have completed assessment of 19 community buildings and will undertake the same feasibility on an additional 20 buildings by February 2023. A Community Energy Co-op will be established to raise the required capital funds and manage the installations at all buildings. This will ensure maximum reach of the project across as many buildings as possible, act as a catalyst for local resident action through demonstrating what works and enable economies of scale in terms of costs and investment to be achieved. It will also give confidence to the buildings and communities concerned with respect to the future management and upgrading of installed systems.

Humshaugh Net Zero **(see** https://nicre.co.uk/projects/ **and** humshaughnetzero.org)
Humshaugh Net Zero was formed in 2020 by a group of individuals living in Humshaugh parish in the North Tyne Valley who were all concerned about climate change and how they could reach net zero, both individually and collectively as a parish. They set up a Community Interest Company whose aim was to achieve net zero emissions by 2030. As a group they set about undertaking a baseline survey of all households and businesses within Humshaugh, in order to identify the scale of the challenge and also the areas of priority. To do this they undertook local research and worked with Newcastle university to develop a parish level carbon calculator and in turn developed an action plan. The year 1 action plan included a range of projects including: Planting of woodland to increase sequestration of carbon; Evaluation of carbon emissions around heating of homes, especially the pre 1919 homes in the parish – challenges of retrofitting insulation and being off the gas grid; Evaluating potential for a small solar farm in the parish to generate low cost electricity; Recycling project; and Engaging local young people with the journey to Net Zero. Projects are ongoing and HNZ have been successful in securing two grants from the Rural Community Energy Fund to progress the solar farm as well as being supported by NICRE to develop the housing insulation project

Question 27: How can the design of net zero policies, programmes, and funding schemes be improved to make it easier to deliver in your area?
The view of our innovation partner Community Action Northumberland is that funding should not be too prescriptive. Many communities are already under-taking work to support residents in the transition to net zero and to support the decarbonisation of community organisations and businesses. This should be supported by funding programmes and speedier planning process. Funding should be available to all communities and not subject to minimum bid thresholds which creates a bias away from rural communities.

Question 28: Are there any other implications of net zero or specific decarbonisation projects for your area that the Review should consider?
In Northumberland there are specific challenges facing the circa 350 household who are not only off the gas grid but off the electricity grid too. The energy generation costs of these households is disproportionately high and they are frequently not considered when

policies and programmes are devised. A way needs to be found to get more of these households connected to the national grid.

Questions for academia and innovators

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

Rural enterprises appear to focus more strongly on integrating environmental priorities into their business models than urban firms and this suggests considerable potential exists for supporting their net zero transition and innovations. NICRE analysis indicates that 45% of rural firms said that they always consider the environmental implications of business decisions compared with only 37% of urban firms. 86% of rural firms said that they thought environmental impact should be part of the bottom line, compared with 79% of urban firms. Rural firms were also more likely to have an in-house Environmental Management System than their urban counterparts (36% vs 30%), and rural firms were more likely to have taken steps to reduce environmental impact, such as monitoring air pollution, investigating low carbon products and services and investing in environment-related R&D (Wishart, Roper and Kesidou, 2021).

A comprehensive and integrated approach is needed to the net zero transition in rural areas and to realise its full potential. Specific attention will be needed to ensure the effective and visible reach and tailoring of innovation strategies and ecosystems in order to respond to the innovation barriers and opportunities facing rural businesses and communities and in turn, to harness and support innovation occurring within rural areas. Investment in collaborative place-based projects to generate, trial and mature practical innovations would also be helpful to foster, scale up and share more competitive, green and low-carbon enterprise solutions, particularly in the context of new or adapted technologies, networks and novel business models.

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

The evidence we have presented throughout this consultation response has repeatedly demonstrated that effective and targeted business advice can help businesses in rural areas to find their own solutions, become more resilient and grow. This is also the case when it comes to net zero. For small businesses a lack of information on low carbon technologies and accessing support and advice is a key challenge. The evidence points to a need for improved advisory services to businesses and households at a local / regional level, and for clearer and more accessible routes to reliable sources of information that can accelerate decarbonisation.

Acknowledgments

This consultation response was prepared by NICRE's policy adviser Ulrike Hotopp, with contributions from Andy Dean, Bryonny Goodwin-Hawkins, Amelia Magistrali, Kevin Mole, Steven Morrison Cairns, Jeremy Phillipson, Anastasia Ri, Melanie Thompson-Glen and Barbara Tocco.

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