NICRE
National Innovation Centre
Rural Enterprise

NICRE Submission to the Rural Taskforce on Government Mission Delivery: *Making Britain a Clean Energy Super Power*

Over summer 2025, NICRE were invited to contribute to a national Taskforce led by the Department for Environment, Food and Rural Affairs (DEFRA) considering Government Mission Delivery in a rural context.

The aim was to provide focus on the needs of rural areas in the development of policy under the five missions outlined in the UK Government Plan for Change (growth, clean energy, opportunity, crime and health). As part of our contribution, NICRE worked with partners to provide written evidence to the Taskforce relating to each mission.

This is our submission on the Making Britain a Clean Energy Super Power to Opportunity mission.

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What are the current challenges that rural communities and businesses face in relation to this mission?

Rural economies are vital to addressing this national mission successfully. However, there are also specific constraints facing communities and businesses located in rural areas that are relevant for the mission. These constraints cover rural firms' operational context, business models, supply chains, networks, access to skills, innovation support and finance, and factors that affect households and firms in respect of the strength of enabling technologies and low carbon infrastructures.

A key issue relates to **the fragility of rural electricity infrastructure**. Rural communities are usually at the end of the network, with a higher percentage of overhead cabling, making them more susceptible to power interruptions and usually the last places to benefit from infrastructure upgrades[1]. With increasing demands on electricity, this is now a critical factor limiting growth.

Another major challenge is that **rural grid connection is often difficult**. This impacts off-grid properties and communities where the cost of grid connection is prohibitive and often challenging geographically, but it is also a significant obstacle for those businesses that are generating substantial energy. NICRE has evidence from a geothermal business in the South West that has been told it must wait up to 12 years for a connection to the grid to feed in the energy that it generates. Challenges with digital connectivity also mean that properties who can generate power do not always have the ability to feed into the grid at an individual level.

Challenges around energy supply in rural areas help exacerbate the gap between urban and rural areas in net zero transitions. **For example, many rural communities do not have the available infrastructure or electricity supply to charge multiple EVs**, with even fewer having rapid charging facilities, leaving them reliant on technologies and fuels which will become increasingly expensive, marginal and difficult to support, in future.

Higher-than-average heating costs and fuel poverty are significant in rural areas where housing stock is typically older and more difficult to insulate. Average incomes are often good in rural areas, but because these areas often attract some of the country's highest earners, the average figures mask a substantial number and variety of low and very low-income rural households[2],[3].

Land-based businesses offer important potential to contribute to energy generation from renewable sources and many are keen to diversify their income streams. However, the wider agricultural policy transition and recent global market shocks (e.g. Ukraine war, extreme weather events etc.) have left many reluctant to make significant new investments, particularly now that policy incentives have been reduced, and in the light of the difficulties of access to the grid mentioned above[4].

What can rural communities and businesses offer to support the delivery of this mission?

Rural economies can and should underpin the Clean Energy Mission. Rural areas often have abundant access to natural resources like wind, solar, water and biomass, making them ideal for renewable energy projects. With their rich diversity of natural assets and resilient and adaptive SMEs, **rural places have the potential to be national leaders in innovation** for clean energy, net zero and wider bio-, circular and green economies.

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[1] Eatherley, D. (2022) Rural decarbonisation of heating. A scoping study for NICRE and the Countryside and Community Research Institute, University of Gloucestershire.

[2] Rural Services Network: Leckie, C., Munro, R. and Pragnell, M. (2022) Rural as a region: the hidden challenge for Levelling Up. Assessing the scale of rural disadvantage using the White Paper's analytical framework.

[3] Shucksmith M., Glass J., Chapman P. and Atterton J. (2023) Rural poverty today: experiences of social exclusion in rural Britain. Bristol: Policy Press.

[4] Maye, D., Dwyer, J., Khafagy, A., Micha, N., Malekinezhad, F., Gorton, M. and Phillipson, J. (2024) Farm business performance, marketing and adaptation strategies. National Innovation Centre for Rural Enterprise (NICRE). State of Rural Enterprise Report No 8. nicre-state-of-rural-enterprise-report-no-8-may-2024-farm-business-performance-marketing-and-adaptation-strategies.pdf

While most emissions are attributable to consumption in cities, **many rural areas provide the land and space for power generation, especially in the renewables sector**[5]. Onshore wind farms will mainly be placed in rural areas, solar/PV is increasingly installed by rural land-based businesses; rural areas contribute to biomass/biogas energy generation using biofuels and waste recycling technologies, and offer most opportunities for hydropower generation. No large scale and few smaller scale renewable energy projects are feasible without rural land.

NICRE's State of Rural Enterprise survey identified that **a higher proportion of rural than urban businesses were already making a shift towards green technologies and net zero**[6,7]. Nearly half of rural businesses were engaged and committed to addressing environmental issues and the climate crisis (and 45% of rural firms compared to 37% of urban firms always consider their environmental impact). More rural firms than urban firms emphasise an 'efficiency-first' approach involving investment in energy-saving measures or equipment. They are also more likely to have installed insulation or developed their premises with energy-saving materials. A quarter of rural and urban firms have switched to alternative sources of energy or suppliers. Some of these actions are likely to support the medium to long-term viability and growth of the businesses. One in three rural businesses are planning to take further action to reduce energy use. Specifically, 24% of rural firms (20% for urban) plan to invest in energy-saving measures and equipment. Importantly, 17% (11% urban) plan to switch to alternative sources of energy (such as solar, wind, or ground/air source pumps) and 15% (13% urban) intend to install insulation or develop their premises.

We found barriers too, including the cost of green technologies, uncertainties about demand and firm-level skills, access to information to support businesses, and particular challenges facing micro-businesses[8]. More broadly, emerging opportunities around voluntary carbon markets and green finance schemes can be dominated by larger, better-resourced actors, leaving smaller rural enterprises and communities at a disadvantage[9]. They can lack access to the latest information, skills, advice and tailored support needed to engage meaningfully in new low-carbon opportunities. However, with appropriate investment and support, rural businesses can serve as **hubs for green skills training, widening access to future-facing jobs.**

Rural communities play a critical part in addressing their and the nation's energy challenges. Many forward-thinking **rural economies and communities are accustomed**

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[5] Rietig, K. 2025. Achieving Net-Zero GHG Emissions in the North East of England. Report. Newcastle University, Newcastle upon Tyne. https://www.ncl.ac.uk/gps/staff/profile/katharinerietig.html.

[6] Wishart, M., S. Roper and Kesidou, E. (2021). Rural SMEs and the net zero agenda. Newcastle: NICRE Research Report No 1: April 2021.

[7] Mole, K., Ozusaglam, S. and Phillipson, J. (2023) Rural SMEs and the environment. National Innovation Centre for Rural Enterprise, State of Rural Enterprise Report No 5. nicre-state-of-rural-enterprise-report-no-5-december-2023-rural-smes-and-the-environment.pdf

[8] Nguyen, T., Phillipson, J., Gorton, M., Roper, S., Dwyer, J., Mole, K., Hotopp, U. and Maioli, S. (2023) The cost-of-doing-business crisis: rural impacts and adaptation. National Innovation Centre for Rural Enterprise, State of Rural Enterprise Report No 4. nicre-state-of-rural-enterprise-report-no-4-november-2023-the-cost-of-doing-business-crisis-rural-impacts-and-adaptation.pdf

[9] Nayak, R., Maye, D., Ingram, J., Behrendt, K., Chang, J., and Chaudhary, E. (2025) Evaluating the accessibility and inclusivity of voluntary carbon markets for rural enterprises in the UK NICRE Research Report No 24 nicre-research-report-no-24-february-2025-evaluating-the-accessibility-and-inclusivity-of-voluntary-carbon-markets.pdf

to mobilising for change via self-help and collective action in which NGOs, local policymakers or enablers and SMEs come together to share knowledge and resources[10]. For example, in the North-East there are examples of community energy schemes (e.g. Northumberland Community Energy Ltd[11]) and community-led clean energy/net zero initiatives (e.g. Humshaugh Net Zero solar farm and carbon calculation activities[12]). These approaches are innovative and empowering, but small-scale, and they rely on communities having the required human, intellectual and financial capital to progress them. Where these factors are lacking, community capacity-building may be a prerequisite activity, also facilitated where there is some investment in networking and outreach by the innovators.

Social enterprises have considerable potential to further contribute to economic growth allied to the energy and net zero agenda by empowering and enabling the creative energies of their key stakeholders and the communities in which they are embedded[13]. A key strength is how they combine their environmental/ecological activities with a social purpose based on their close understanding of community needs. This includes employment creation, work integration and volunteering opportunities through local/sustainable food, waste and resource recovery/management, renewable energy, sustainable housing, and transport.

Pursuing greater resilience and reduced energy costs are key priorities in many rural communities, linked to their infrastructure vulnerabilities and low-income households, as mentioned above. Recent severe storms Arwen and Malik demonstrated weaknesses in current infrastructure, and significant increases in energy costs have led some communities to raise funds to install solar and other renewable power, accompanied by energy storage, to enable their community buildings to function as a hub – e.g. in times of emergency when individual households may face power interruptions, or for low income households (particularly older people and those caring for pre-school children) who can save heating their own homes by spending more time in these collective spaces[14].

Through rural networking, 'early adopter' communities have led knowledge exchange, raising awareness, inspiring action, developing blueprints, and engaging in educational campaigns around clean energy and net zero transition. **Rural energy/net zero installations, encompassing both retrofitting and new initiatives can become 'exemplars' for their communities**. For instance, they are being used for educating local school pupils about the feasibility and benefits of net zero transition, and private households and SMEs often adopt these innovations as a result of seeing them in practice.

Those who adopt green technologies are also upskilling their volunteers and management teams in the process. Often, they choose to use local contractors for installation and ongoing support, retaining economic benefit and developing green skills and good quality jobs within the area. In order to support this virtuous cycle of local

[10] https://nicre.co.uk/innovation-portal/rural-community-energy/
[11] https://nicre.co.uk/case-studies/northumberland-community-energy-limited/
[12] Hums https://nicre.co.uk/case-studies/humshaugh-community-solar-ltd/
[13] Vickers, I., Owen, R., Lyon, F., Wang, S. and Rabbevåg, S. (2022) Rural Social Enterprise: contributions, challenges and support needs. NICRE Research Report No 12. nicre-research-report-no-12-november-2022-rural-social-enterprise-contributions-challenges-and-support-needs.pdf.
[14] https://www.ca-north.org.uk/supporting-individuals/warm-hubs

development and green growth, **appropriate training should be made more accessible to rural firms**, e.g. through targeted outreach by local FE colleges which would require increased flexibility in government skills programmes[15].

NICRE's work in rural locations across the country has identified a significant momentum and level of shared interest in clean energy innovations and enhanced energy efficiency, with local government enthusiastic to embrace this agenda. Examples highlight **the importance of policies that enable rural places, situations and people to find the mix of options that work most cost-effectively and securely for them**[16]. Similarly, new Regulations designed to accelerate the green energy transition should be considered through a rural lens, especially in relation to assumptions underlying preferred technologies.

Our evidence and work with rural enterprise underscores the need to give rural communities greater 'voice' and opportunity to participate and actively shape the clean energy and net zero transition. Building on the CCC recommendations[17,18], NICRE has developed the 'Rural Climathon' method as a place-based, solution-orientated, deliberative approach to action for transition[19,20]. This approach engages interested stakeholders (businesses, citizens and policymakers) to build climate ideas and plans for their community. For example, our Energy Climathon in the Forest of Dean created project ideas including retrofitting buildings, community energy and heat networks, and energy generation to supply the National Grid. The findings from the climathons suggest that working at district level within counties with significant rural areas can be a particularly effective scale for bringing relevant knowledge and experience together, and that deliberative approaches of this nature should be factored into future support initiatives.

How can government ensure that the missions work for and reflect the needs and opportunities inherent to rural communities and businesses?

A comprehensive and integrated Clean Energy and Net Zero Plan adapted for rural areas could help accelerate the products, skills, technologies and supply chain developments needed to create and serve markets around clean energy and net zero transitions. There is a need for improved awareness of the importance and crucial role of

[15] Foster, C., Kirk, S. and Kyle, P. (2024) Attracting and retaining workers in the Derbyshire Peak District. Policy Briefing nicre-policy-briefing-attracting-and-retaining-workers-in-the-derbyshire-peak-district.pdf

[16] Simmonds, P., Maye., D., Ingram, J., Gardner, A. and Raseta, S. (2025) Deliberative approaches to the climate crisis: Adapting Climathons for rural communities. Area, in press. https://rgs-ibg.onlinelibrary.wiley.com/doi/pdf/10.1111/area.12994

[17] Climate Change Committee. (2022). Progress in reducing emissions: 2022 Report to Parliament. https://www.theccc.org.uk/publication/2022-progress-report-to-parliament/#key-messages

[18] Climate Change Committee (2025). The Seventh Carbon Budget. CCC, February 2025.

[19] https://nicre.co.uk/innovation-portal/rural-climathons/. We adapted the method originally created by Climate-KIC initially through work in Cumbria and Cornwall (via a British Academy grant) and NICRE-funded work in Gloucestershire and Northumberland.

[20] Maye, D., Simmonds, P., Gardner, A., Ingram, J. and Raseta, S. (2022) Co-designing Sustainable Food Futures: Using Climathons to Build Shared Agri-Food Visions for Net Zero. Final Report to British Academy, Countryside and Community Research Institute, University of Gloucestershire. June 2022.

rural communities and businesses in delivering the mission of making Britain a clean energy superpower. Rural areas offer the renewable energy generation capacities through adapting their land use (e.g., for wind farms, solar/PV, biomass/biogas, hydropower storage) and providing the installation and maintenance workforce. It will be necessary to avoid a piecemeal or single sector approach and to look across the diversity of rural economies, to consider how businesses, sectors and places will adapt to net zero and low carbon business models and where there are prospects for growth and innovation. There are several agendas to be addressed, as mentioned above, such as tackling investment in making rural housing stock energy efficient, in rural infrastructure for electric vehicles, and skills development.

A key opportunity and need is to **enable local production and distribution (local networks) of energy** in remoter rural locations. This could reduce demand on the grid, increase local power/heat generation and directly support local economic growth. For example, a key challenge is that smaller / rural scale heat networks are not part of the DESNZ heat network zoning regulations which are aimed at large commercial networks in urban areas of dense housing. Policy change is needed to support small scale heat networks, addressing the funding and viability barriers these projects are facing and to ensure a just transition which enables rural communities to benefit from a decarbonised grid[21].

Support is needed for collective approaches which make **investment more attractive by combining small initiatives**. Revenue funds could also be channelled from infrastructure investments (e.g. proposed community benefit funds from national power infrastructure upgrades) to support local support agencies and community based organisations to enable ongoing support for local/community energy production. Renewable energy projects can be required to utilise some of their profits to support local communities in a range of ways, for example providing an ongoing income that can be used to not only improve their energy related needs but also to provide much needed community services in rural places.

Investment, advice and support should be delivered concurrently at all levels, including infrastructure upgrades, alongside household and community place-based approaches to share knowledge and raise awareness across households, through to individual household advice. Experience in delivering community and household energy advice highlights the need for locally trusted and independent advice sources to reach into rural areas through community networks[22]. For example, many communities require guidance on effective combinations of technologies suitable for their specific contexts, optimal siting of technologies, appropriate business models and ownership/governance structures, interpretation of modelling results, and household and landowner engagement[23].

Aligning to programmes of support within the Industrial Strategy and Growth Mission, specific **attention is needed for rural cluster development around Clean Energy and Environmental Technologies**[24]. Existing innovation clusters provide a foundation for

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[21] Personal communication with Simon Richards, Forest of Dean District Council.

[22] https://energyadvicenorthumberland.org.uk/

[23] Personal communication with Simon Richards, Forest of Dean District Council.

[24] NICRE (2024) NICRE submission to Green Paper 'Invest 2035: The UK's Modern Industrial Strategy'. November. nicre-submission-to-green-paper-invest-2035-the-uk-s-modern-industrial-strategy.pdf

scaling clean energy initiatives. For established firms in clusters within the energy sector, support for their growth and scaling should include access to capital, mentorship, and access to larger markets to facilitate expansion. Firms in developing clean technology and energy generation clusters may require a different approach with the creation of entrepreneurial ecosystems, including establishing resources like incubators, accelerators, networking and co-working spaces to support start-ups.

Overall, there is particular value **in enabling a *more diverse range* of clean, green energy options in rural places.** Much policy discussion emphasizes a central role for electricity as the main future provider for multiple uses including heating, lighting, power for industrial processes, civic and commercial services and household needs, and transportation. The high density of residential and commercial spaces in urban settings means that among the available options, providing energy as electricity via a central grid, where that electricity is generated using a mix of sources (solar, wind, tides, biofuels and wastes) feeding the grid, appears efficient and flexible. By contrast, electricity as the sole provider of clean energy may be less cost-effective and resilient in a rural setting. Briefly, this is because:

- The low density and comparatively old building stock that characterises rural property does not easily convert to use heat pump technology in an efficient way.
- Existing electrical infrastructure in rural areas is not always robust and the risk of weather or other unpredictable interruptions to supply is a concern to people with vulnerabilities.
- In light of their past experiences rural communities and businesses are often wary of relying heavily upon a central source for providing all their energy needs. Spreading their energy provision across a range of local options offers a more resilient model.
- Rural areas possess opportunities to generate energy from natural resources closer to where people live and work, including wind, solar, hydro and micro-hydro technologies, also using agricultural waste byproducts, sustainable woodland, wetland and other landscape management by-products, transformed to release energy through burning, fermentation and/or anaerobic digestion.

Beyond the technical challenges of clean energy provision, **approaches to delivering the clean energy mission in rural areas should be socially inclusive and just**. Key principles include recognition that:

- Rural areas face specific decarbonisation challenges such as higher car dependency, poor grid connections, areas with a high proportion of livestock farming emissions etc.
- Rural places will in many cases be where new clean energy generation and/or fuel stocks are developed and physically located, providing for local and national benefits but also potential conflicts. The design of new facilities and approaches should be carried out in ways that are fair and just. Crucially, rural communities and businesses themselves should benefit from investments in clean energy production in rural areas.
- There is a latent desire and capacity for local action in communities and a widespread desire among local communities to be heard, to feel empowered and to have a stake in what the clean energy future looks like.
- For rural areas especially, and to achieve the national mission overall, the energy transition links systemically and synergistically with other local priorities for transition in agri-food, land use, new minerals exploitation, and transport and public

infrastructure and thus requires a more decentralised, place-based approach to clean energy mission delivery, and involving deliberative approaches to support community participation.

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