



Innovate  
UK

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transforming energy

# Power of Places

A vision for local energy in the UK

Created for Innovate UK by Regen – October 2024



# Acknowledgements

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Innovate UK's Net Zero Living programme is supporting 52 local authorities across the UK on the non-technical barriers to delivering local net zero.

Regen has joined the programme to provide support for local authorities in navigating and responding to policy and regulations that impact their ability to deliver their net zero ambitions. Innovate UK does not endorse any of the views or policy proposals set out in this report.

## **About Regen**

Regen provides independent, evidence-led insight and advice in support of our mission to transform the UK's energy system for a net zero future. We focus on analysing the systemic challenges of decarbonising power, heat and transport. We know that a transformation of this scale will require engaging the whole of society in a just transition.



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# 1—Going local

**As the UK accelerates its net zero energy transition, there is growing recognition that local people and places will have a crucial role to play.**

The energy transition will not look the same in Shetland as in Southampton or Aberdeen as in Aberystwyth. Places have unique characteristics and experiences, and people have different needs and ambitions for their energy future.

UK Government has set an ambition to deliver 8GW of locally-owned renewables under the Local Power Plan, while local areas are increasingly leading in delivering their own low-carbon energy generation, heat and transport projects. These locally and community-led initiatives directly benefit households, communities, and the national energy system and economy in ways that go beyond place-agnostic approaches alone.

More tailored approaches to energy that benefit people, engage communities and reflect local circumstances can also build wide support for the UK's net zero ambitions.<sup>3,4</sup>

People generally favour having a more local dimension to their energy, too. Whether ownership, reaping the value of local generation tariffs, or engaging with trusted organisations to deliver energy efficiency upgrades or home heat decarbonisation, support for 'local' is high across the country.<sup>5</sup>



## £825bn

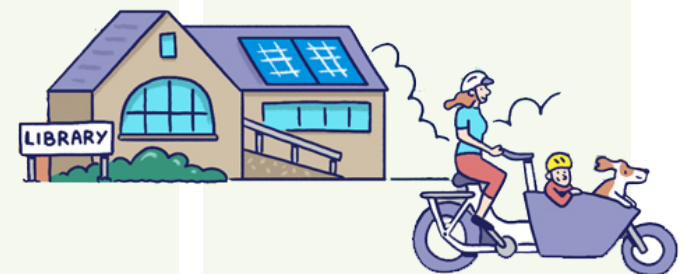
### Additional benefits

Research from PwC estimates that a more local approach to addressing the UK's climate goals could create £825bn additional benefits in jobs and services, improved health and wider local economic development.<sup>1</sup>

## >£1.1bn

### Cost reductions

EnergyREV estimates that there could be yearly total system cost reductions of £1.1 - £2.5bn from local demand flexibility, solar power and energy storage.<sup>5</sup>



**This value and growing support for ‘local’ is not widely recognised or incentivised in today’s UK energy system.** A lack of consistent, strong price mechanisms for local renewable projects makes producing compelling business cases or community wealth-building difficult. While options exist to facilitate some local energy supply and tariff arrangements<sup>6,7</sup>, these remain challenging to navigate – particularly for communities or local partnerships developing projects in their own neighbourhoods, towns and cities.

**The UK energy system is also largely agnostic to scale and place.** For example, energy supply companies operate almost exclusively national operations without consideration of where people are or the local context they live in – and without engagement with place-based needs or initiatives. Regulation broadly treats rural and island areas like metropolitan ones, making it challenging to implement tailored solutions that work for different geographies, populations and communities. Overall, UK energy policy, markets, and regulation still strongly favour economies of scale, which bigger, nationally minded projects are better placed to achieve. Bigger projects will of course be the cornerstone of the UK’s critical net zero 2050 ambitions.

**Yet more local approaches to energy can deliver extensive and unique value for local people and places, that may themselves facilitate far wider energy system changes.** While they may not always provide the same efficiencies as larger projects or services, the social, economic and engagement benefits they offer beyond place-agnostic approaches make them potentially priceless to pursue.

There are significant changes underway in the energy system that, with a local energy lens, could unlock further opportunities across the country. The introduction of the UK Government’s flagship GB Energy programme and the Local Power Plan within

that may improve access to finance. Reforms of energy markets such as, the Review of Electricity Market Arrangements (REMA) and potential future retail market reforms such as adding in a geographical layer to the retail market, could spur innovation and help smaller and local sites compete better in our national systems. Changes to the connections process (potentially prioritising smaller locally owned projects) and the introduction of new regional governance arrangements all present exciting new opportunities for the local energy space.

This paper draws on insights from systematic literature reviews and engagement with 15 local authority and community energy stakeholders involved in the Net Zero Living programme to spotlight the broad and significant value of local energy. **It sets a vision for an energy future which unlocks the inherent value that local has to offer, offering 15 recommendations to build this vision going forward.**

## What is local and community energy?

Local energy offers an innovative and collaborative way of thinking about and managing our energy systems. It strongly emphasises decentralised, integrated, place-based, and community-focused projects tailored to local needs<sup>8</sup>. Within the national framework, ‘local’ emphasises policy, markets and regulation that reflect, enable, incentivise and pass on the value of clean energy to local people.

These approaches encompass a range of technologies and initiatives, including community-owned generation such as wind turbines or solar installations; local energy supply models, tariffs and services which look to balance local supply and demand; integrated approaches that bring these together with heat and transport solutions; and locally led energy efficiency or home retrofit programmes (Table 1).

## Model

## Overview

### Generation

Wind turbines and solar installations, often with some form of ownership or shareholding by a local community, council or other organisation – or in partnerships with developers or local businesses with a high degree of community input.

### Heat and energy efficiency

Installation of heat pumps, heat networks, energy efficiency and retrofit measures in local homes, led by a community organisation, local authority or often in partnership between the two.

### Storage and flexibility

Battery storage projects, typically owned by a community organisation or local developer, provide flexibility to the grid either through a single large battery or by aggregating solar panels and batteries in local homes.

### Energy support and services

Advice and support for local household and business decarbonisation, delivered by known trusted actors such as local authorities, community organisations or the third sector, tailored to local building stock, environment and socioeconomic circumstances.

### Integrated energy systems

Energy generation, heat, transport, and demand are linked together across a neighbourhood or town either physically or via smart technologies and platforms, e.g., a community-owned solar farm powering electric vehicle (EV) chargers.

### Local supply models

A model or tariff that enables consumers to buy energy from a local energy source, and normally receive some form of discount or additional consumer benefit. Often forming the basis for consumers to provide flexibility and local grid services.

**Table 1:**  
Local energy approaches



**Local energy emphasises decentralised, integrated, place-based, and community-focused projects tailored to local needs.**



## 2—The value of ‘local’

**As the UK government addresses the complex challenges of energy security, flexibility, affordability and sustainability, more widely enabling local energy presents a significant opportunity.**

Beyond the value of decarbonising our energy system, local energy can unlock distinct and significant benefits. This is because local energy projects and systems can be tailored to local needs, demographics, housing stock, geography, etc., with more direct engagement with an area’s people, communities, and stakeholders.

Local authorities and community organisations are also better-placed than national bodies to engage marginalised and lower-income households<sup>9</sup>, supporting a more just and inclusive net zero transition. This is especially important for inherently local issues like clean heat and transport.

Revenues from local energy can be stewarded to address local issues such as tackling fuel poverty or decarbonisation<sup>9</sup>. Local authorities, communities, and other partners can be responsible for shaping and delivering solutions that work more specifically for place-based interests and circumstances<sup>10</sup>. Citizens and communities can benefit from local supply models which enable bill savings or benefits to be passed on from nearby renewables.<sup>6</sup>

They can also support a more resilient energy system, diversifying the energy mix to better insulate consumers from price shocks such as those seen over the last three years, and providing crucial local flexibility services to help balance renewable generation and demand.<sup>11,12</sup>



All of this has the knock-on effect of bolstering support for renewable projects and the wider national net zero mission, as people and communities feel they have a more direct stake in – and experience more direct value from – a clean energy system.<sup>13,14</sup>

That is not to say that policymakers now have a choice between local or national approaches. Large-scale projects which can easily achieve economies of scale will be the key to realising clean power by 2030. However, by supporting local approaches, there is scope to add further value to the transition overall.

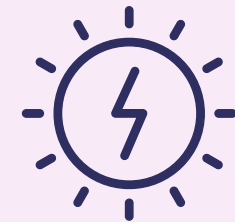
**The distinct value of local energy can be grouped into three main categories**



**Benefits to people**



**Benefits to places**



**Benefits to the energy system**



# Benefits to people

## Lowers energy bills

Local energy has demonstrated significant potential for lowering energy bills:

- The Energy Local model, which sells electricity from locally owned renewables to local households, has saved users in Bethesda 24% on their energy bills.<sup>15</sup>
- Community energy organisations have saved UK residents £4.4 million on energy bills since 2020 through energy efficiency initiatives and advice services.<sup>16</sup>
- Every £1 spent by local groups on energy advice and fuel poverty yields £9-10 in social returns, including for health, income, education performance and healthcare costs.<sup>17,11</sup> E.g. Nottingham's city council Deep Retrofit Energy Model<sup>8</sup> halved energy bills (from about £120 to £65) and reduced 86% of carbon emissions from existing homes.
- Smart local energy system (SLES) customers see lower electricity bills than non-SLES customers.<sup>2</sup>

## Improves energy efficiency & reduces fuel poverty

Targeted fuel poverty alleviation and engagement:

- Many local energy organisations focus on reducing fuel poverty and helping under-served communities<sup>10</sup>, leveraging their understanding of resident needs, local data and community trust to implement targeted interventions.<sup>3</sup>
- From 2016-2019, community energy organisations engaged 234,000 locals and facilitated nearly 28,000 energy-saving improvements in homes and buildings.<sup>17</sup>

**£4.4m**

energy savings to UK residents since 2020

**28,000**

energy-saving improvements to homes from 2016-2019

**£9-10**

social returns for every £1 spent by local groups on energy advice





## More engaged citizens in net zero

### Greater community engagement and social cohesion:

- Local energy promotes more inclusive, active engagement in net zero initiatives, enabling active participation in energy generation, demand and energy efficiency.<sup>4</sup>
- Increased engagement and benefits through local energy can increase community empowerment/pride, feelings of social cohesion, and more coordinated local planning.<sup>3</sup>
- Communities prefer engaging with local entities over national ones for energy schemes, leading to greater participation in locally-owned projects.<sup>4</sup>

### Public support and acceptance:

- Locally owned renewables gain greater support than commercial projects<sup>20,16</sup>, reducing opposition that can delay the energy transition.<sup>15,21</sup>
- This increased acceptance stems from local projects tending to meet locals' expectations for benefits from the project (usually financial) and involving residents in decisions.<sup>21</sup>



## Improves health and wellbeing

### Enhances living conditions:

- Locally led initiatives enable tailored retrofits that account for local housing stock characteristics and residents' needs, improving home warmth and comfort, while reducing winter mortality through targeted, locally informed interventions.<sup>8</sup>
- Local energy improves indoor and outdoor air quality through locality-specific energy efficiency measures and clean energy solutions reducing the burning of fossil fuels.<sup>8</sup>

# Empowerment

Locally owned renewables have stronger community backing





# Benefits to places

## Revenue and investment

### New and increased revenues for local communities:

- North West Net Zero Hub's local energy investments between 2019-2022 turned £1.5 million of funding into £54 million of returns and locally owned assets.<sup>22</sup>
- UK community energy groups achieved £43.2 million turnover in 2023.<sup>17</sup>

### Opening up investment opportunities:

- Community energy has secured £225 million of investment since 2017.<sup>9</sup>
- Local net zero initiatives could create a £500bn local investment opportunity primarily for buildings and transport, but also for local energy assets (supply and demand).<sup>23</sup>
- Partnerships among local councils, private investors and national government could unlock over £100bn in local clean energy investments across the UK.<sup>24</sup>

## Local economic development

### New local job creation:

- UK community energy currently employs 796 people, including 102 new jobs in 2023.<sup>17</sup>
- Locally owned projects can stimulate local jobs, as new revenue and investment recirculate the local area, and as local owners are more inclined to hire locally.<sup>25</sup>

### New local business opportunities:

- Bath & West Community Energy uses renewable revenue to support local businesses in decarbonisation (e.g. air source heat pump for Bath City Farm), capacity growth (e.g. freelance hire for Transition Bath) and energy education (e.g. SWALLOW's Energy Saving Project for people with learning disabilities).<sup>26</sup>
- Huntly and District Development Trust invests wind energy income in local enterprises, including a community-owned car club, sustainable travel hub and bookstore.<sup>27</sup>

**£225m**

**secured investment by community energy projects since 2017**



## Reduces carbon emissions and fosters environmental awareness

### Delivers climate impact through local action:

- UK community energy projects cut 166,000 tonnes of CO2 in 2023, equivalent to 209,000 London-New York round-trip flights (assuming 792kg CO2 per London-New York round-trip flight/passenger).<sup>17</sup>

### Increases environmental education and awareness:

- Community energy organisations enhance environmental learning through hands-on experience with renewables, organising workshops and demonstrating the tangible impacts of carbon reduction efforts on local communities.
- Local initiatives tend to have environmental goals alongside energy:
  - Wiltshire Wildlife Community Energy partnered with Wiltshire Wildlife Trust, integrating biodiversity into their energy projects by planting wildflower meadows around solar panels.<sup>28</sup>
  - Point & Sandwick Trust is using funds from its community-owned wind farm to plant a million native trees on crofts in the Hebrides, with 211,000 already planted.<sup>29</sup>



**166,000**

**tonnes of CO2  
cut by community  
projects in 2023**



**211,000**

**trees already planted  
by Point & Sandwick  
Trust community wind  
farm funds**



# Benefits to the energy system

## Energy system savings

### Cost effectiveness of local energy:

- PwC/UKRI finds that locally tailored net zero delivery could generate 4x greater value at lower costs than national approaches by improving energy efficiency, jobs, health and resilience.<sup>1</sup>
- EnergyRev estimates yearly cost reductions of £1.1 - £2.5bn from local demand flexibility, solar power and energy storage. Their middle range smart local energy system deployment estimates savings of £1.7bn annually (4.2% of total system cost), potentially increasing to £2.2bn with energy efficiency measures.<sup>2</sup>
- Energy Systems Catapult's Local Area Energy Planning pilots show locally tailored transitions are more cost effective than one-size-fits-all approaches because they optimise infrastructure investments for local needs, ensure targeted, high-impact retrofits, and coordinate implementation which leverages economies of scale.<sup>30</sup>



## Enhancing energy grid resilience through local flexibility

### Capability of local energy systems:

- Local energy systems can:<sup>34,13</sup>
  - Match local generation with demand, minimising electricity import/export and reduce pressure on higher voltages of the network, potentially reducing network losses, constraints and cost of upgrades.<sup>31</sup>
  - Provide flexibility services to network operators, managing constraints through aggregated small-scale assets (e.g. batteries, smart EV chargers)
  - Encourage off-peak consumption through time-of-use tariffs and enhance voltage and frequency control, aiding grid balance and improving system stability.

### Reduces costs and improves system flexibility and network management:

National Grid's electricity system balancing costs rose to over £1.19bn in 2018/19.<sup>12</sup>

- Local energy provides flexibility to the system, enabling cost-effective integration of renewables.
- Imperial College research shows distribution-level flexibility could cut system operation costs by 25-40%, while also improving efficiency and renewable utilisation.<sup>14</sup>

Local flexibility may cut system operation costs  
**25-40%**





## A changing landscape

Significant changes are underway which provide an opportunity to better enable this value of local. The UK Government has given clear signals of intent to invest in local and community-led energy initiatives, particularly community and locally-owned generation, as part of its Clean Energy Superpower mission.<sup>33</sup> Initiatives such as market reform and addressing the connections queue likewise serve as key leverage points to take this further, fully enabling a more local dimension to the wider energy system (Table 2).



**Table 2:**  
Policy changes to enable more local approaches

### Changes under way

### Opportunity

#### Review of Electricity Market Arrangements (REMA)<sup>34</sup>

Exploring new market structures to support price mechanisms and local market offerings for small-scale generators.

Potential future retail market reform may present further scope to enable local energy supply options by adding a spatial or geographical layer to retail markets.

#### GB Energy and the Local Power Plan

Target of 8GW local and community-owned energy set out in the GB Energy Founding Statement.

New institution to support coordination, project development and finance.

#### Regional Energy Strategic Planning<sup>35</sup>

New function of the National Energy System Operator (NESO) to provide place-based engagement and support for local and regional strategic energy ambitions – including direct support for local authorities and community energy.

#### Connections reform<sup>36</sup>

Reforms to the connections queue to reduce timeline for new clean energy projects to connect to the grid, with potential to streamline connections for local and community projects, recognising social value.



# 3—A vision for local energy

The vision captured below shows what a thriving local energy system could look like in a specific community, under a policy, regulatory and market framework that better recognises the distinct value of more locationally specific energy projects, systems and services.

It shows locally owned generation supplying electricity to decarbonised local buildings, with shared heat and transport solutions delivered by local partnerships.





# The five pillars

**Substantial value can be unlocked through more locally and community-driven energy projects, systems, and offerings.**

By better recognising, incentivising and enabling this in policy, markets, and regulation, there is scope to create a thriving local energy landscape that enables more place-based approaches to energy overall.

**But what does a ‘thriving local energy landscape’ look like?**

To illustrate this, we set a vision for a future where local energy is recognised as a key component in unlocking new value for citizens, communities and the UK’s wider energy ambitions. This vision is underpinned by five key ‘pillars’, which have been developed through a systematic review of literature on local and community energy alongside engagement with key community energy and local authority stakeholders.

**Principles of a just transition** – recognising the diverse needs of people and places, inclusive participation and engagement, and equitable sharing of benefits – are fundamental to all of these. Each pillar is discussed in more detail in the following sections.

The five key pillars:



# 1. Empowered communities



**Citizens and communities with the capacity to participate directly in the ownership, design and governance of local energy projects and systems – supporting local wealth building and increasing support for national net zero ambitions.**

Local and community energy has made some progress in the UK, with varying levels of support available to enable local places to lead on energy projects in recent years. Feed-in tariffs of the 2010's created a boom for the sector before closing in 2019<sup>20</sup>, paying generators well for electricity sold to the grid.

The 2010's likewise saw an organic growth in local and community renewables, with revenues used to build capacity further in the sector. This has been accompanied by various capacity support schemes. Most recently at UK-level, the UK Government Community Energy Fund<sup>37</sup> allocated £10 million to the development of community-owned energy projects. For local authorities, the Net Zero Hubs (England)<sup>38</sup> provide guidance and peer support for developing local energy plans, projects and investment.

In Scotland, the Community and Renewable Energy Scheme (CARES), funded by the Scottish Government and managed by Local Energy Scotland, supports local organisations and community groups in delivering their own decarbonisation projects, including generation, transport, and heat decarbonisation.<sup>39</sup> CARES includes capacity support and guidance throughout projects on legal, financial, and technical issues and grant and low-interest loan funding. In Wales, the Welsh Energy Service provides a similar function for community and public sector organisations.<sup>40</sup>

## Opportunities to go further

**Ensure access to a stable price mechanism.** Local and community-owned renewable generation are often the backbone for local energy activity, providing revenues that can then be used to resource local organisations to deliver further services, such as community benefit funds, home heat decarbonisation or fuel poverty support.<sup>11</sup>

However, without the feed-in tariff, smaller generators have no access to a consistent or viable stable price mechanism. The Smart Export Guarantee, which replaced the feed-in tariff, provides no long-term price certainty, while price per unit of electricity and timescales can vary widely depending on the supplier delivering them. This makes it doubly challenging to develop a compelling business case.

Smaller-scale generation (<5MW) also cannot currently access the Contracts for Difference scheme<sup>41</sup> and so cannot guarantee the same revenue returns as larger-scale developments. Other options do exist for securing long-term revenues (see Pillar 2) but there is no national or regional scheme which directly supports small-scale generators in the way the feed-in tariff did or the CfD could. A stable price mechanism would make it significantly easier for small-scale renewables to build a compelling business.

### Provide greater development funding and capacity building.

Communities often develop projects by relying on motivated volunteers to navigate complex technical and legal processes. Not all communities have the right technical, financial, legal etc. expertise or capacity in place, particularly in less affluent areas, making it difficult to get projects off-the-ground. For local authorities, stretched budgets make prioritising and delivering more ambitious, 'riskier' local energy initiatives such as local markets, smart systems, or heat networks challenging.

This creates some scepticism for commercial developers and financial partners. Not only are the financial returns potentially smaller with a smaller-scale project, but there are concerns around the ability of local organisations, particularly communities, to participate and deliver within legal or financial partnerships. There is thus a clear need build greater capacity, backed by resources, at the local level.

## Leverage points



## Reform

**Reforms to the energy market**, such as the Review of Electricity Market Arrangements (REMA), present an opportunity to reflect local value and embed a more stable price mechanism for local and community generation. Within this, Community Energy England and others have called for opening access to the Contracts for Difference scheme for smaller-scale projects.<sup>35</sup>

## Invest

**GB Energy** will develop and invest in clean energy projects by – among other things – allocating funding for local, community and municipal energy projects under a to-be-defined **Local Power Plan**. The local and community funding allocation should include resources which could be used to build capacity in the sector alongside the proposed grant and low-interest loan funding for local and community energy projects led by communities, local authorities or local partnerships.<sup>42</sup>

## 2. Locally-minded markets



**New models of local energy supply, tariffs, consumption and flexibility, alongside national energy markets and processes which recognise and enable the wider inherent value of local energy.**

As it stands today, 'local' plays a very limited role in energy supply. National energy suppliers supply energy to their national customer base without considering where they are on the energy system and other place-based factors.

Yet polling shows that people are highly supportive of engaging with local energy supply, either via purchasing energy from community renewables directly or receiving savings on their bills through tariffs that pass through the value of local renewables at times of high performance.

Within the UK market today, some options for this exist<sup>6</sup> along with some innovation areas:

### Model

### Overview

#### Local supply

Local or community-owned renewables sell electricity to local households and other consumers directly, either as a supplier or via a licensed supplier e.g. Energy Local Clubs.

#### Local tariffs

Models such as Ripple Energy or the Octopus Fan Club provide savings on bills when local renewables are performing well. In the Octopus case, consumers receive a 20% discount when their local turbine is spinning.<sup>43</sup>

#### Power Purchase Agreements

Renewable generators supply energy directly to an off-taker at a contract of up to 20 years. This can be done either directly with a single contract between a generator and off-taker (usually public sector or commercial buildings) or via an established supplier. However the location of these two parties is of no consequence, they could be 2 miles or 200 miles apart.

#### Green Power Pools

GPPs are an idea being explored to bring together local renewable generation with local organisations, either via multiple PPAs or via a licensed supplier. Multiple local generators sell their energy into the pool, where it is then directed to local consumers on locally reflective tariffs that can be tailored to specific sectors, localities, or consumer groups (e.g., those in fuel poverty).<sup>44</sup>

## Opportunities to go further

**Incentivise suppliers to work with and enable local renewable schemes.** Despite carrying substantial public and political support, local authority and community renewable schemes have struggled to supply energy directly to local consumers due to insurmountable policy and regulatory costs, eliminating a potentially significant revenue stream.

Licensed suppliers can facilitate local supply and tariffs under 'sleeving' arrangements, although they have no incentive or obligation to do so. They also have no incentive to engage with other place-based initiatives such as energy efficiency schemes or heat networks. This makes it difficult for local organisations delivering renewable, heat or demand and flexibility projects in their area to engage people via the most obvious means: their energy bills.

**Demonstrate and provide guidance on new local supply models.** A significant new code modification to enable local supply has recently been approved by Ofgem and is awaiting implementation<sup>45,46</sup> (see page 20). Under this new modification, local generators will be able to supply electricity to households directly, up to 2.5MW in total, without having to pay the policy costs of becoming fully licensed suppliers. Demonstrating the viability of local supply under this model through supporting innovation – and subsequently providing guidance for local and community renewable projects for delivering this – would prove useful.

This is likely to still require some interaction with suppliers to provide top-up services and support collaboration on billing and metering. More strongly incentivising suppliers to work consistently with local renewable projects would support greater opportunities for local renewable supply, flexibility, heat and tariff arrangements, better reflecting local needs and circumstances.

**Increase awareness and availability of Power Purchase Agreements.** PPAs can provide a stable revenue return in the absence of a national price mechanism for small-scale generators. However, there is low awareness of PPAs as an option for energy supply among larger commercial, public sector, or industrial off-takers, and community and local schemes may only provide a small proportion of their needs. As such, it can be difficult to link-up local generators with off-takers. The lack of perceived creditworthiness or 'market power' of community organisations also makes it difficult for a community to set up longer-term contracts.<sup>6</sup>

**Test and demonstrate Green Power Pools.** Green Power Pools offer a potentially exciting new means for bringing together local renewables with local consumers via more expansive partnerships. However, while suggestions for how local Green Power Pools can work exist (see Regen's feasibility study for a 'sleeving' pool in Bristol City<sup>47</sup>), they still remain largely theoretical. Innovation is required to test how they can work locally and scale to enable value in different places.

# Leverage points



## Reform

**Retail market reform** is expected to follow the Review of Electricity Market Arrangements shortly. This is a prime opportunity for example to develop a geographic layer to our national market and the innovation that might evolve from that, including in local supply models and locally matched tariffs, green power pools etc. There is also an opportunity to incentivise suppliers to work with local generators more consistently or create new locally targeted services that better integrate with demand and network flexibility.

## Support

Under the **Local Power Plan**, GB Energy could also support new local supply, PPA and Green Power Pool models, providing guidance and serving as a potential underwriter to help absorb some of the perceived risks they present.

## Governance

Within **NESO's Regional Energy Strategic Planning function**, which includes new governance arrangements such as Strategic Boards and working groups, representation from energy suppliers could help join local renewable or demand reduction initiatives with licensed suppliers to help engage people on their bills (as well as in project development), allowing suppliers better sight of local and regional circumstances.

### Code modification P442

Until now, local and community renewable projects had to become fully licensed suppliers if they wanted to sell energy to households directly. This meant they would be required to pay the same policy and regulatory costs as national suppliers, which were simply too expensive (and complex) for small-scale projects to navigate.

However, **Balancing and Settlements code modification P442** is about to change this. This modification would raise the threshold for local supply license exemptions to 5MW in total, of which 2.5MW can be sold to domestic consumers.

It is estimated that this change could save local and community generators who want to supply locally up to £45 per MWh on average – a significant amount.

Modification P442 is currently at implementation stage and will soon become a new, viable mechanism for local supply.



### 3. Innovative solutions



**Innovation towards new locally focused energy solutions, including regulation which supports integrated local projects and enables the different needs of places.**

The UK Government, via Innovate UK and research councils, has funded extensive local energy innovation. The Prospering from the Energy Revolution programme leveraged £102 million funding over four years to demonstrate smart local energy systems (SLES)<sup>3</sup>, which involve bringing together local energy generation, heat, and transport through local energy markets, e.g., a wind farm supplying an electric vehicle charging hub, or solar and battery storage in homes trading energy with one another or aggregating to provide flexibility services to the grid.

Local communities have also been responsible for substantial innovation themselves, particularly in the heat decarbonisation and energy efficiency space. Organisations such as the People Powered Retrofit in Manchester<sup>48</sup> and Loco Home Retrofit in Glasgow<sup>49</sup> have developed their own community-level decarbonisation initiatives, designed to support local people to install energy efficiency and retrofit gas boilers for heat pumps.

### Opportunities to go further

#### **Simplify regulation for integrated local energy systems.**

Under policy and regulation today, networks, suppliers, energy markets, and generation all run operations separately. These also happen through a predominantly national lens, which in many places simply make little sense. The unique circumstances of somewhere like Shetland, for example – an island with distinct housing stock, geography, high fuel poverty and abundant energy resources – are not well served in policy, markets and regulation today.

Communities and local areas are instinctively interested in integrated local energy systems that bring together local generation with consumers and other services, such as flexibility and clean heat. The current lack of recognition of geography in the retail market along with the division of networks, suppliers, markets, and generation makes this difficult to do. The national focus of policy and regulation likewise make it difficult to tailor integrated systems to local need. Clearer regulation to allow for more integration between demand and supply in local energy systems where they might add value and how they can work with/enable value to existing electricity and energy networks (offsetting reinforcement costs, for instance) would make this substantially more viable.

**Support scaling of innovations in local heat, energy efficiency and flexibility services.** Generation is often the main priority for local and community energy. However, communities increasingly seek to deliver heat decarbonisation, heat networks, retrofit, transport, storage and energy efficiency services.

Local communities and partnerships with e.g. the local authority are well-placed to deliver such services – addressing inherently local problems as trusted actors who know their local people, building stock and socioeconomic circumstances well.<sup>50</sup> They also tend to support a more just transition, directly engaging more marginalised, lower-income and fuel-poor households.

Outside of support for individual schemes or locally delivered national initiatives such as the short-lived Green Homes Grant, local and community delivery of heat, transport and energy efficiency do not have clear national backing either in resource or strategic direction. Current policy and regulation do not outline how these can be developed by individual communities or the role they may play in delivering national initiatives. Clear long-term policy direction (and subsequent resources) would help to prove and scale these approaches.

### Rural and island innovation

Despite a lack of recognition of their unique circumstances in policy, markets and regulation today, rural and island communities often sit at the forefront of energy system innovation. Examples of this include:

- **Carbon Neutral Islands:** six islands funded by the Scottish Government in partnership with Highlands and Islands Enterprise to explore options for decarbonisation
- **Net Zero Living:** an Innovate UK-funded initiative providing support to 52 local authorities to deliver net zero solutions, including islands such as Comhairle N'Eileanan Sar, Orkney and Shetland and Isle of Wight
- **Rural Energy and Community Heat (REACH):** a Strategic Innovation Fund project which explores community energy clean heat solutions for off-grid areas.

Across these projects, key challenges have emerged in delivering innovative, replicable solutions. These include developing business models for more sparse populations, energy network regulation which does not recognise or enable their specific needs, and devolved and UK government policy which broadly treats rural and urban areas the same.

## Leverage points



## Innovation

**Innovation in regulatory structures** to develop new arrangements which enable place-specific solutions for distinct areas, such as rural, off-grid and island communities, can provide new insights into how regulation can be better tailored to local circumstances and enable net zero progress. Regulation specific to local integrated systems would also be beneficial to support smarter local system approaches (including in the areas mentioned above).

## Support

**GB Energy**, in its effort to enable community and municipal renewables projects, can also ensure that support is available for harder-to-fund initiatives such as heat and energy efficiency, providing support and guidance for their delivery via trusted local actors and partnerships.

## Initiatives

**Labour's to-be-defined Warms Home Plan**, which is expected to be the vehicle for household energy efficiency and heat decarbonisation, is an opportunity to leverage local and community approaches and make clear the role of local in its delivery. The upcoming Heat in Buildings Strategy (Scotland), the Heat Strategy (Wales) and relevant local energy planning initiatives should also outline and resource the local and community roles in their delivery.

## 4. Resilient systems



**More local energy systems contributing to a more diverse mix of clean energy supply and services, supporting greater energy security and resilience to market, price or political shocks.**

Local energy can support a more diverse mix of renewables in the wider energy system, adding resilience and energy security. This is especially true locally, whereby local renewables that supply local consumers have an added layer of insulation from price shocks in the wider wholesale market, such as those seen in 2021.

Where local systems are integrated, there is also scope to provide flexibility services and balancing to ensure a cleaner energy system runs more smoothly. This can help to reduce the need for more expensive network infrastructure upgrades while saving additional carbon from more efficient local balancing of supply and demand. Local and community groups are very well-placed to support with this given their close engagement with demand-side users.

Significant innovation is also happening in the energy system planning space. Local energy planning initiatives, led by local authorities, are rapidly improving through projects such as Planning Regional Infrastructure in a Digital Environment (PRIDE)<sup>51</sup> to enhance data sharing between local authorities, networks and other stakeholders and support strategic local planning and investment. This is also emerging at the community and neighbourhood levels.<sup>52</sup>

### Opportunities to go further

**Prioritise and streamline the connections process for small-scale generators.** As it stands, small-scale renewable projects are treated broadly the same as larger developments in the connections queue. This means they face the same administrative costs as larger national or international developers and in turn leads to them being disproportionately expensive.

Any project over 1MW in size automatically triggers a transmission network review, which can hold up the connections process even where these projects are highly unlikely to impact the transmission network directly. Better recognising this by streamlining the planning and connections process for smaller-scale renewables, and prioritising them in the queue, would help get more of these projects online sooner, enabling the wider value offered.

**Provide clearer guidance and models for local flexibility services.** Local and community assets such as solar and storage can be aggregated and leveraged to support the balancing of the electricity system. However, local approaches to flexibility lack clear guidance on how they can be most effectively delivered, how to participate in different markets etc. Clarity and guidance on this process for local actors would help increase local offerings in flexibility markets and services. Elexon’s new role as the market facilitator body, which will provide frameworks, standards and manage flexibility, could help to deliver this.

**Strengthen coordination between communities, local authorities and networks to identify local-level solutions which serve a clear system need.** Networks today have good sight of constraints and capacity data and so know where the system is likely to require upgrading, has space for new capacity, or would benefit from local flexibility. Sharing of this data between local stakeholders is improving but would benefit from happening more consistently and strategically. Better coordination of these activities in both governance and information sharing between networks, local authorities and communities would help identify new local sites and solutions more systematically.

## Leverage points



## Reform

**Reform to the connections queue** to get clean energy projects online more quickly present an opportunity to prioritise and streamline the connections process for local and community projects – particularly those which do not trigger large-scale network infrastructure upgrades and so can theoretically get online sooner

## Support

**Changes to enable more and more consistent flexibility arrangements through the new Market Facilitator Role** provide an opportunity to clarify and promote this process for local and community organisations interested in delivering their own flexibility offerings and services.

## Governance

**NESO’s new Regional Energy Strategic Planning function**, which includes identifying energy needs across the whole system to meet net zero at sub-national level, can establish governance mechanisms (such as the proposed regional Strategic Boards and working groups) to support the identification of new opportunities for local renewable projects or flexibility services where they can also provide benefit to the network.

## 5. Thriving partnerships



**Local authorities, community energy, developers, businesses and other stakeholders enabled to work more collaboratively on mutually beneficial projects, supporting knowledge sharing and leveraging each others' unique skills and capabilities towards shared ambitions.**

Within the local energy sector, there is increasing recognition of the value of partnerships between local authorities and community energy organisations to combine resources, pursue common goals and maximise local benefits.

These strategic collaborations benefit both parties:

- Local authorities can tap into grassroots knowledge and community engagement that community energy groups bring to the table
- Local authorities can help provide much-needed capacity and resource, insights into planning systems and structures, and identify opportunities for community ownership and development in local energy planning activities.

Beyond this, partnerships between local communities, authorities, developers, suppliers, third sector (e.g. fuel poverty charities) and networks can support more joined-up local energy projects and benefit. With representation in partnerships across public, commercial, community, generation and supply stakeholders, more integrated projects which deliver wider and more inclusive value become more viable.

### Opportunities to go further

**Guidance and frameworks for local collaboration and partnerships.** Local authorities, community energy groups and renewable developers often differ in terms of organisational culture, risk appetite, skills, and experience. Local authorities often find it easier to work with known commercial organisations rather than community groups due to established procurement processes and legal complexities in forming public-community partnerships.

Facilitated support and guidance that clarifies how best to collaborate, procure services and involve this more diverse mix could help bridge this gap. This should also include suppliers where feasible, ensuring that local renewables and place-based initiatives can subsequently engage people on their bills.

# Leverage points



# Support

Enabling these partnerships is proposed to be a core function of **GB Energy**, which can support by providing guidance and standard frameworks for formal delivery partnerships between local authorities, community energy groups, developers and other stakeholders.

# Governance

**NESO's new regional energy strategic planning function** also offers an opportunity to better coordinate local and regional strategic partnerships, while providing space via Strategic Boards and working groups to enable closer working and identification of opportunities.

To explore the opportunity that these partnerships present, Regen has established the Community Energy policy group as part of Innovate UK's Net Zero Living programme. In its first meeting, group members highlighted several key advantages of local authority and community energy collaborations from those with direct experience. The advantages are illustrated in Figure 2.

**Figure 2.** Benefits of local authority and community energy partnerships.



## Partnership

## Benefit

### Mutual benefit

Local authorities offer resources, capacity and can be a key customer for community energy projects or services. Community energy can provide direct and trusted engagement with citizens and serve as potential delivery partners.

### Access to resources

Through planning activities, local authorities can provide community energy groups with access to land, generation sites and wider stakeholder/business networks.

### Community wealth building

In partnership, local authorities and community energy (and other local stakeholders) can deliver democratically led projects which recirculate value back into the local economy.

### Just and democratic

These partnerships foster more democratic processes and fairer outcomes, working towards locally led solutions informed by local priorities and ambitions.



# 4—Building the vision

**Local energy can enable new value for local people and places, the energy system, and the UK's national net zero ambitions. Opportunities exist within policy, regulation and markets today which can help unlock this in more places around the country.**

There are also significant political, policy and regulatory opportunities which can be leveraged to unlock this value and make the vision of a thriving local energy landscape a reality.

Based on Regen's recent call for evidence on enhancing community energy, alongside engagement with local authority, community energy and academic stakeholders, and a comprehensive literature review, we make 15 key recommendations for this going forward.

To follow offers  
15 key guidance  
recommendations  
to promote the  
Power of Places...



## Vision

## Opportunities to go further

## Recommendations

### 1. Empowered communities



- Access to a stable price mechanism.
- Greater development funding and capacity building support.
- Access to low-cost funding, particularly at the early stages of project development.

1. By establishing a long-term term price mechanism that provides fixed prices to local/community generators over extended periods (>15 years) the UK government could provide greater confidence in community projects from an early stage. Expanding Contracts for Difference to smaller-scale generation in the final REMA decision would also have a positive impact.
2. Local and community energy projects would benefit from access to a support scheme accessible to both communities and local authorities, with a focus on providing training and expertise in legal and planning knowledge, consultations and negotiation, partnership facilitation, financial modelling and project coordination. GB Energy (under the Local Power Plan) could be well placed to deliver such a scheme.
3. Grant funding at the feasibility and development phases, and low-cost finance through all stages of local energy projects (not limited to generation alone) would further support community led initiatives. GB Energy (under the Local Power Plan) could achieve this by extending The Community Energy Fund.

### 2. Locally-minded markets



- Incentivise suppliers to work with and enable local renewable schemes.
- Demonstrate and provide guidance on new local supply models.
- Increase awareness and guidance for PPAs.
- Innovation to deliver local Green Power Pools.

4. An incentive structure to encourage national suppliers to work with local and community renewable projects, including involvement within the RESP process, would increase the viability of these initiatives. Ofgem would be well placed to develop such a structure.
5. Guidance and frameworks for local supply and PPA arrangements, including promoting this as a supply option to commercial, industrial and public sector off-takers, would normalise, standardise and socialise local approaches. GB Energy may be well-placed to codify this.
6. More information about, and access to, green power pools and local generation tariffs would benefit local energy initiatives. Ofgem could explore the potential to promote and share these.

## Vision

## Opportunities to go further

## Recommendations

### 3. Innovative solutions



- **Simplify regulation for integrated local energy systems.**
- **Support scaling of innovations in local heat, energy efficiency and flexibility services.**

7. New 'guidelines for integrated energy projects' which set out distinct codes for initiatives where a local body wishes to develop, generate, supply and/or trade electricity at a local level would clarify and simplify pathways to success. Ofgem would be in a strong position to draft and champion this guidance.
8. New policy and regulatory mechanisms which reflect the distinct need of different places, such as islanded and remote communities, would help those places with 'non-standard' contexts shape distinctive and appropriate projects. Ofgem, UK Government and devolved governments could collaborate to formulate these mechanisms.
9. Non-generative projects, such as local heat or retrofit initiatives, would benefit from funding and capacity support in the same way as generating projects. GB Energy (via the Local Power Plan) would be well placed to provide this support.
10. A clearer understanding of the role of 'local' in the delivery of local, devolved and national clean heat, transport and energy efficiency schemes would be of value. If UK Government would provide this understanding it would help local initiatives position themselves within these schemes.

### 4. Resilient systems



- **Prioritise and streamline the connections process for small-scale generators.**
- **Provide clearer guidance and models for local flexibility services.**
- **Strengthen coordination between communities, local authorities and networks to identify local-level solutions which serve a clear system need.**

11. The grid connection queue can delay or inhibit local and community energy projects. By raising the threshold at which small projects trigger a connections review from 1 MW to 5 MW (England and Wales) and/or reviewing network governance arrangements to increase the current 200kW threshold in Scotland, UK Government could help expedite local initiatives.
12. Straightforward guidance and processes for local and community aggregation, balancing and flexibility services would provide clarity for local energy projects. Ofgem and Elexon in its new Market Facilitator role would be well placed to formulate this.
13. Stronger collaboration and information sharing between energy networks, local authorities and community energy organisations would help to identify priority areas for local projects. NESO and energy networks would be in a strong position could build on good work to facilitate with this.

## Vision

## Opportunities to go further

## Recommendations

### 5. Thriving partnerships



- **Guidance and frameworks for local collaboration and partnerships.**

14. Collaboration guidance for local authorities, community energy and networks would be helpful in strategically planning and delivering local and community projects. NESO (under the RESP function) would be suited to establishing this guidance.
15. Support for establishing formal partnerships between community energy, local authorities, networks, developers, in shared ownership or joint enterprise projects would assist in establishing the ownership and governance arrangements for local initiatives. GB Energy (via the Local Power Plan) could be a good source of this support.



## Case study:

### UKRI Fast Followers Grant: Addressing non-technical barriers to net zero

**Local authority and community energy partners: Three Rivers District Council and Grand Union Community Energy**

#### **Funding received:**

£298,000 from Innovate UK (Net Zero Living programme), with almost £30,000 allocated to GUCE's workstreams, for a duration of two years starting July 2023.

#### **Project overview**

Three Rivers District Council (TRDC) and Grand Union Community Energy (GUCE) have forged an innovative partnership as part of Innovate UK's Net Zero Living Programme, aiming to identify and address non-technical barriers to achieving net-zero targets. This collaboration combines TRDC's institutional resources and project management expertise with GUCE's grassroots energy and community engagement skills. While TRDC focuses on developing green finance options to decarbonise its own buildings and trialling a 'Retrofit One Stop Shop' to help residents decarbonise their homes, GUCE leads the Transition Streets behavioural change programme and promotes community-funded renewable energy options for local schools and community buildings. Together, they're leveraging their complementary strengths to cut carbon emissions across the district, demonstrating the power of local authority-community energy group partnerships in driving their vision for local energy.

This project empowers communities to shape their energy future while building resilient systems. The Transition Streets programme fosters grassroots involvement and community-oriented action, while the 'Retrofit One Stop Shop' provides residents with technical knowledge and tools. These initiatives diversify local energy solutions and improve efficiency, enhancing the district's energy infrastructure resilience and enabling active community engagement.

By exploring new financial models for sustainable energy projects, the partnership is paving the way for more accessible and locally tailored energy solutions. This initiative aims to help make clean energy investments more attainable for residents, businesses, and community organisations alike, which could reshape local energy markets. The collaboration between TRDC and GUCE in navigating school solar installations also demonstrates their ability to work at overcoming complex barriers and implementing innovative approaches to local energy generation, while supporting schools with their energy bills.

Perhaps most significantly, this project exemplifies thriving partnerships. Despite initial challenges, the collaboration has proven invaluable. TRDC's institutional authority complements GUCE's flexibility and community connections, creating a powerful synergy. This partnership has transformed how both entities approach climate action, with TRDC gaining extended community reach and GUCE receiving increased legitimacy and access to funding opportunities. The Net Zero Living project's long-term funding has been instrumental in overcoming challenges, providing resources for effective collaboration and creating a foundation for sustainable partnerships. This support allows the partners to develop a model of local climate action that leverages the strengths of both local governmental and community organisations, showing an effective pathway for similar collaborations across the UK.



## Case study:

### Leicestershire CAN (Collaboration to Achieve Net Zero)

**Local authority and community energy partners: Leicestershire County Council and Green Fox Community Energy Co-operative**

**Funding Received:**

£2.56 Million from Innovate UK (Net Zero Living programme)

**Project overview**

Leicestershire CAN is a collaborative initiative bringing together six partners, including Leicestershire County Council and Green Fox Community Energy Co-operative. The project aims to develop a Local Area Energy Plan, support six new community energy groups and create an advisory service with digital resources. It demonstrates how coordinated community efforts can drive local development and innovation, addressing challenges across all five pillars of our vision for local energy.

At its core, Leicestershire CAN is about empowering local areas to take ownership of their energy future. By supporting the formation of six new community energy groups, the project is fostering grassroots involvement in local energy decisions. The advisory service and digital resources being developed will help build long-term capacity within these communities, providing them with flexible knowledge tools and connections to local, regional and national resources needed to actively shape their local energy landscape.

The development of a Local Area Energy Plan is also a cornerstone element of the project, which could lead to more locally-minded markets, innovative solutions and resilient systems. This plan will identify opportunities for cost effective and technically sound approaches to decarbonisation. Leicestershire CAN also opens the door to exploring cutting-edge local supply options, such as through locally owned solar initiatives, while contributing to a more diverse and resilient local energy system.

The project also builds lasting partnerships between local authorities and community energy groups. This collaboration leverages community groups' willingness to undertake energy projects where councils may be risk-averse, and their ability to get local people involved and excited about clean energy initiatives. The collaboration has also improved communication within the local authority, helping different departments work together more effectively on energy issues. This has made it easier for community energy groups to talk directly with senior decision makers, leading to better outcomes for everyone involved.

By fostering this collaborative approach, Leicestershire CAN not only accelerates progress towards net zero but also provides a valuable model for other regions looking to achieve similar goals through coordinated community efforts.

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# Power of Places

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