The Value of Community Energy: a digest of supporting evidence for the Energy Learning Network

March 2025

Energy Learning Network

Rhwydwaith Addysg Ynni

This document, produced by Saskya Huggins on behalf of the Energy Learning Network, supports our full report on the social, economic and environmental value of a community energy approach.

The value of community energy: a digest of supporting evidence

There is a wealth of evidence that community energy can make a significant contribution to the creation of a just and fair transition to net zero. It is also evident that a just transition isn't simply a 'nice to have', rather it is essential to build the public consent and participation that's required to make it happen.

The community energy sector can deliver huge value to both the energy transition and wider society. You'll find community energy organisations and our 70,000 members right across the country. We're already make a significant contribution and can do so much more with the appropriate policy and financial support.

This repository is a digest of the evidence of the value-add of a community energy approach. Community energy organisations are welcome to use this evidence to support your work to make a case for community energy. We do however ask that you cite the relevant authors, and source, of any evidence you quote and respect any copyright relating to original material. Text given in italics, diagrams and tables are taken direct from the source and should be referenced accordingly.

If you would like to suggest any additional evidence for inclusion in this evidence bank, please email details, including a link to any published information, to phillip.morris@ashden.org

Thank you **Last updated: 10.02.25**

Table of Contents

Contributes to national net-zero plans

Evidence regarding current contribution of the sector

Community Energy State of the Sector Report 2024
https://communityenergyengland.org/pages/state-of-the-sector
Overview of the UK Community Sector, its current activities and key metrics.

Evidence regarding alignment to national net-zero plans

Leveraging local and community energy for a just transition in Scotland
Fraser Stewart, Rebecca Ford, Prina Sumaria and Robbie Evans, Regen, 2023 Available from: https://www.climatexchange.org.uk/publications/leveraging-local-and-community-energy-for-a-just-transition-in-scotland/

This report found evidence that local and community energy can directly contribute to all eight of Scotland's national just transition outcomes (NJTOs) and includes recommendations to help increase the contribution of the local and community energy sectors to Scotland's just transition. It also sets out the distinction between local and community energy.

NJTO	Advantage of local and community energy
1. Citizens, communities and place	Stronger inclusion of citizens in energy decision making and design; retention of value through local ownership; social and economic benefit such as new revenue and skills opportunities; local development and investment; energy projects reflective of local need.
2. Jobs, skills and education	New job opportunities in installation, fitting, retrofit, and energy advice; grassroots education and upskilling; maximising local supply chains.
3. Fair distribution of costs and benefits	Benefits for typically excluded communities through collective, public or private funding; new models to support uptake of low carbon technologies.
4. Business and economy	Role for businesses and investors, particularly in local energy systems; new business models and opportunities in areas such as data, flexibility and innovation.
5. Adaptation and resilience	Community-led responses to climate adaptation and resilience; holistic local climate and energy planning.
6. Environmental protection and restoration	Community-led responses to protection and restoration; holistic local climate and energy planning.
7. Decarbonisation and efficiencies	Local, tailored approach to energy and buildings decarbonisation; grassroots outreach and education; local network building and knowledge-sharing.
8. Equality and human rights	Inclusive engagement; advocacy and representation; more democratic ownership and governance; locally-tailored solutions targeted at addressing e.g. fuel poverty.

The report also identifies the key barriers to delivery across sectors as follows:

- *limited resources to build capacity for local and community energy projects in underserved areas*
- *challenges around skills and project delivery processes particularly within local authorities*
- *justice and equity issues within projects themselves*
- *lack of appropriate finance and business models*

Scales up and delivers significantly more

Potential for the sector to scale

The Future of Community Energy report
WPI Economics for SP Energy Networks (2020)
Available at: http://wpieconomics.com/publications/future-community-energy/

Explores the potential for growth in community led renewable energy, energy demand reduction and energy supply projects, and the economic, social and environmental benefits that such growth would deliver for the country. It highlights the untapped potential of the sector, due to unsupportive government policies, and lack of a community energy strategy. The report estimates that given the appropriate policy and financial support across the UK, the sector could become 12-20 times larger by 2030. Community energy could contribute 5,270 MW, power 2.2 million homes, support 8700 jobs, save 2.5 million tonnes of CO_2 emissions and add over £1.8 billion to the economy each year.

Shared ownership and scale up

Sharing Power: Unlocking shared ownership for a fast and fair net zero transition
Regen (2024) Available at: https://www.regen.co.uk/reinvigorating-shared-ownership-for-a-fast-and-fair-transition/

Identifies shared ownership as a critical driver to reaching the 8 GWh target for 2030 set out in the Local Power Plan and sets out the value a shared ownership approach can deliver, the current landscape, challenges and recommendations to enable it to thrive.

Provides excellent value for money and a wide range of benefits

SROI Evaluation of Community Energy Advice Programmes

Evaluation of the social return from the investment in Cosy Kingdom
Karen Carrick, Improvement Service (2024) Available at:
https://www.improvementservice.org.uk/__data/assets/pdf_file/0023/55823/Cosy-Kingdom-SROI-Analysis.pdf

- for every £1 invested by a range of funders, £34 of benefits were generated.

Cosy Kingdom is a free energy and debt advice service for tenants and homeowners in Fife. It is a partnership between Greener Kirkcaldy, St Andrews Environmental Network and Citizen's Advice & Rights Fife. The service collaborates with local and national organisations and provides basic energy advice training for staff and volunteers. They identified the individuals and organisations that benefited from the service and also values some of the changes that participation in, or engagement with, the service contributed.

Their evaluation conducted in 2023-2024, using social return on investment (SROI approach), found that for every £1 of the £1 million invested by a range of funders, £34 of benefits were generated.
Benefits included:

- Improved health and wellbeing as a result of living in warmer homes and less stressed about energy costs
- Increased awareness, understanding and confidence to use energy more effectively
- Staff had improved skills and understanding around energy provision
- Other organisations were able to refer clients to them as a trusted organisation to access energy advice and support
- Environmental benefits due to reduced energy consumption

It also identified that there is no alternative organisation providing a similar service, and that the loss of Cosy Kingdom would leave a gap that would be hard, and expensive to fill. The service it offers is highly valued by both individuals and organisations. The report includes a detailed explanation of the financial proxies used and their approach to calculating the SROI, and also the benefits that they identified but were not included.

Capturing the value of community fuel poverty alleviation
Colin Nolden, Daniela Rossade, Peter Thomas University of Bristol Law School, Bristol Law Research Paper Series, Paper 002 (2021) Available at: https://www.bristol.ac.uk/media-library/sites/law/research/Nolden%20et%20al.%20BLRP%20No.%202%202021.pdf

- Calculated a 9-10 to 1 return on investment

The key input was in the form of staff time, partially paid for by funders and partially volunteer hours.
Returns included the following outcomes:

- More money for life basics
- Improved mental health
- Increased productivity in life and at work
- Future knowledge (about energy expenditure)
- Improved comfort
- Improved physical health

Evaluation of the SROI from two community energy fuel poverty alleviation programmes using data from 2018-19 found an SROI of 9-10 to 1.

The researchers also noted "*The qualitative analysis revealed the systematic underreporting of such value as funders' targets are narrowly defined around numbers rather than genuinely lifting people out of fuel poverty*".

Inputs	Outputs		Outcomes			
			1	2	3	4
Staff time	40, 6 hour-long energy cafes reaching 280 people on a one to one consultation basis 35 events (workshops, talks or stalls), engaging 479 clients of which 145 received short on to one advice slots 20 Front line worshops in which 213 front line workers were trained	45 people **switched suppliers** on the day, 227 agreed to review savings with a view to switching (total 258 people reached)	More money for life basics	Improved mental health	Better performance life/ work	Better equipped with info to switch in future/ automony over finances
		Assisted 57 clients applying for **WHD** during the session, assessed 30 as eligible for WHD. Gave advice to a further 111 so they could apply when applications re-opened.	More money for life basics	Improved mental health	Better performance life/ work	Better equipped with info to switch in future/ automony over finances
		45 people applied for **watersure discounts** in the sessions, assesses 27 as eligible, gave advice to 111 about watersure disocunts	More money for life basics	Improved mental health	Better performance life/ work	Better equipped with info to switch in future/ automony over finances
		30 people presented **debt** problems, 22 were received an **action** (onward referral or application), 6 received **advice**	Improved mental health	Increased productivity in life/ work	knowledge of how to do it in the future	
			More money for life basics	Improved mental health	Better performance life/ work	
		34 people receiving **behavioural advice** which will save money and some of this advice (eg draft proofing) will also improve lived comfort and/or physical health (eg reducing damp/mould)	Less energy expenditure	better mental health as result of saved money	Better performance life/ work	
			Improved comfort	Better physical health	better mental health as result of living conditions	Increased productivity in life/ work
		51 **PSR** applications made, 23 other given advice on how to do so	The value of PSR applications for the clients was hard to estimate- not including it leads to an overall underestimate of SROI.			
		Advocacy- Advisors advocated on behalf of 31 clinets- in 9 cases with a landlord, in 22 cases with an energy company	These can be highly time consuming, it's hard to estimate the value created but not including them in clculations leads to an overall underestimate in SROI.			
		85 referrals for **home visits**	Home visits are often extremely highly valuable- excluding them here results in a big underestimate of SROI			
		OTHER (inc. advice on smart maters, white good and referrals to other advice organisations)	These are smaller, some=times one off interventions that reach only a small number of clients. Not including them leads to an underestimate of SROI.			

Table 8: A table of inputs, outputs, and outcomes. The outcomes in green correspond directly to monetary gain, the outcomes in blue are related to mental health, the outcomes in grey are related to increased productivity and those in pink are related to knowledge. All others are presented in yellow.

Report extract describing the services:

"Energise Sussex Coast (ESC) was founded in 2012 to address fuel poverty and increase renewable energy generation in the Hastings area. Since 2013, ESC has been running pop up energy shops and energy advice desks staffed mainly by trained volunteers in locations frequented by the fuel poor, such as libraries, town halls, community centres, medical practices, job centres and day centres. To achieve continuity in light of piecemeal funding, ESC complements grant income with renewable energy generation. In the last 8 years, ESC has helped thousands of people make their homes more efficient and save vulnerable people money on their bills, as well as lowering carbon emissions. Mostly this has been achieved through face-to-face meetings and events where ESC representatives discuss clients' issues. As this has not been possible in 2020 due to Covid-19 restrictions, ESC has set up a new Energy Helpline in collaboration with Hastings Advice and Representation Centre (HARC), alongside their online help.

South East London Community Energy (SELCE) was founded in 2014 and now comprises three strands. The fuel poverty side of its business model, which increasingly includes energy efficiency, is highly dependent on grant income are barely breaks even. To help address this issue, SELCE developed a 0.5MW community financed solar scheme to provide a continuous income stream. Increasingly, SELCE is moving into the retrofitting business with able-to-pay clients by offering a wide range of energy efficiency services. SELCE's approach typically follows the sequence of switching to an energy company which provides a Warm Home Discount (mainly funded through the Energy Company Obligation which covers about half the money required), checking bills to assess whether they are higher than average (standard contracts are for one year so this needs to be done on a regular basis) and home visits (where possible) to improve energy efficiency."

Creates more value to local economies than commercial alternatives

Community-owned renewables deliver more local value than commercial alternatives

A comparison of the financial benefits arising from private and community owned wind farms.
Aquatera (2021) A comparison of the financial benefits arising from private and community owned wind farms. Available at: http://www.pointandsandwick.co.uk/wp-content/uploads/2021/06/Financial-comparison-of-private-and-community-wind-farms-report-FINAL-1.pdf (Accessed 10 December 2024)

- Community owned wind farms deliver an average financial return to local communities 34 times greater per MW installed than comparable commercially owned wind farms.

This independent report for Point and Sandwick Development Trust by Aquatera Ltd in 2021 compared the community benefit payments made by private wind farms, with the funds that community owned wind farms reinvested in the local economy.

They found that, on average, community owned wind farms delivered £170,000 per installed MW – 34 greater a financial return to local communities than comparable commercially owned wind farms. They found even the lowest average community energy donation on a £ per installed MW per annum basis in their study was 15 times more beneficial that the £5000 per installed MW recommended by the Government for their privately owned counterparts.

Community Renewable Electricity Generation: Potential Sector Growth to 2020
Pete Capener report to Department of Energy and Climate Change (2024.
Available at:
https://assets.publishing.service.gov.uk/media/5a7c1b9640f0b645ba3c6bd6/20140108_Community_Energy_Modelling_FinalReportJan.pdf

- Community energy delivered between 12-13 times as much community value reinvested back into the local area as would be through 100% commercial models

This 2014 report to the Department of Energy and Climate Change submitted by Pete Capener found that community energy delivered between 12-13 times as much community value reinvested back into the local area as would be invested through 100% commercial models, based on the amount of annual project income retained locally. The report focus was on the difference in community benefit funding made available to the local community - these are the payments over and above the normal benefits to the local economy which come from the operational costs of all wind farms such as land rental. It excluded analysis of differences in project financing, use of local contractors, wider socioeconomic benefits or returns to investors.

Added value of electricity procurement from community energy

Devon Community Energy: Socio Economic Assessment
CAG Consultants (2021) Devon Community Energy: Socio Economic Impact Assessment Available at: https://cagconsultants.co.uk/wp-content/uploads/2021/06/Final-Report-March2021.pdf

- Purchasing electricity from a local community energy generator, rather than a local commercial alternative, can under some scenarios deliver almost 50% greater local value.
- Purchasing electricity from local community energy generator, rather than non-local commercial alternatives, can under some scenarios deliver more than triple the local economic value.

- By purchasing their electricity from community energy, Devon County Council could deliver an additional £15.27m in economic value to the Devon economy, significantly outweighing any slightly higher cost of purchase that might be assumed.

The report calculates the direct and indirect benefit that can derive from investment in Community Energy (in the form of a local, community-owned renewable energy generation project). Some benefits would be similar regardless of whether the project was community owned or commercially owned. Others, such as returns to local community shareholders and local investment of surplus, are specific to a local community-owned scheme. The way in which the surplus is used can have a material change on the nature of the impact delivered. For example, using it to support further generation or retrofit could drive carbon savings, a focus on funding energy efficiency measures for people in fuel poverty could offer multiple co-benefits from income maximisation, health and welfare improvements and health service savings. They also highlight local multiplier effects resulting from the project's supply chain and expenditure on goods and services by those employed in the construction and operation of the project.

A socio-economic assessment in Devon explored various scenarios to determine whether the potential benefits of locally generated, community-owned electricity could outweigh its slightly higher anticipated purchase cost. The report found that under one scenario, purchasing electricity from local community energy projects could generate 46% more local value than buying from a local commercial supplier. Purchasing electricity from local community energy generator, rather than non-local commercial alternatives, could deliver more than triple the local value. By purchasing electricity from local community energy Devon County Council could deliver an additional £15.27 million to the Devon economy. (CAG Consultants, 2021)

The report was commissioned by Devon County Council to assess whether investing in local, community-owned renewable energy generation projects can deliver better value for money for a local economy than purchasing similar energy from a traditional commercial provider.

The report contains a detailed breakdown of the direct and indirect benefits that can flow from the purchase of electricity from community energy projects, in comparison to those that would result from either a local or non-local commercial generator. It details the methodology behind their calculations and cites a wealth of evidence relating to the value created in terms of jobs and the local economy, local investment, CO_2 savings, local environmental impacts, Energy prices, resilience, investment of surplus, leverage of additional investment, and community engagement.

The report concludes *"Using cautious and well evidenced assumptions we estimate that these additional benefits would, on this model, generate an additional £15.23m* in economic value to the Devon economy. This would more than outweigh the additional cost to Devon County Council of purchasing either a local, or non-local, commercial equivalent product."*

*the original report states £15.9m, this has been corrected by the authors and should state £15.23m to reflect the figures in the main report.

Table 6.4 Comparison on Monetised Benefits (£m)

	Central Assumption	Low Sensitivity	High Sensitivity
Community Energy Local	15.27	9.04	25.38
Commercial Local	10.42	8.77	12.07
Commercial Non-Local	4.02	4.02	4.02

The study also examined the differential in cost between the anticipated strike price for community energy, and commercial suppliers to the council. Even when the anticipated lower strike price for commercial electricity, they found community energy represented better value for money.

Purchasing locally generated electricity from a community energy delivered 46% more local economic value than that arising from a local commercial generator. Although both result in significant local economic impact, community energy brings additional value of leveraged funds, local income multiplier effects and community benefit fund impact.

Improves people's well-being

Power of Places, A vision for local energy in the UK

Created for Innovate UK by Regen October 2024
https://www.regen.co.uk/wp-content/uploads/2024-12-09-Power-of-Places-Regen.pdf

Report cites the following evidenced benefits to people:

Lowers energy bills:

- The Energy Local model saved users in Bethesda 24% on their energy bills (Energy Local, 2016).
- UK community energy organizations saved residents £4.4 million on energy bills since 2020 (Community Energy England, 2024).
- Every £1 spent on local energy advice and fuel poverty support yields £9-10 in social returns, including health, income, education, and reduced healthcare costs (Community Energy England, 2024).
- Nottingham's Deep Retrofit Energy Model reduced energy bills from £120 to £65 and cut 86% of carbon emissions from homes (Greater South East Net Zero Hub, 2020).
- Smart Local Energy System (SLES) customers pay lower electricity bills than non-SLES customers (Aunedi et al., 2022).

Improves energy efficiency & reduces fuel poverty

- Local energy groups help underserved communities by using local knowledge and trust to deliver targeted fuel poverty interventions (Nolden et al., 2021).
- From 2016-2019, community energy organizations engaged 234,000 people and facilitated nearly 28,000 energy-saving improvements in homes and buildings (Community Energy England, 2024).

Improves health & wellbeing

- Locally led initiatives improve home warmth and comfort, reducing winter mortality (Bray et al., 2024).
- Local energy improves indoor and outdoor air quality by reducing fossil fuel use (Bray et al., 2024).

Strengthens communities and local places

See also: **Can deliver more value to local economies than commercial alternatives**

Power of Places, A vision for local energy in the UK

Created for Innovate UK by Regen October 2024
https://www.regen.co.uk/wp-content/uploads/2024-12-09-Power-of-Places-Regen.pdf

Report cites the following evidenced benefits to places:

Generates revenue and investment

- North West Net Zero Hub's local energy investments (2019-2022) turned £1.5 million of funding into £54 million in returns and locally owned assets (Community Energy England, 2024).
- UK community energy groups achieved a £43.2 million turnover in 2023 (Community Energy England, 2024).
- Community energy has secured £225 million in investment since 2017 (Community Energy England, 2024).
- Local net zero initiatives could create a £500 billion investment opportunity, mainly for buildings, transport, and local energy assets (Innovate UK, 2024).
- Partnerships between local councils, private investors, and national government could unlock over £100 billion in clean energy investments (UK 100, 2019).

Creates local jobs and business opportunities

- UK community energy projects currently employ 796 people, including 102 new jobs in 2023 (Community Energy England, 2024).
- Locally owned projects stimulate job creation, as revenues stay in the local economy and local owners are more likely to hire locally (Communities Living Sustainably, 2020).
- Bath & West Community Energy reinvests renewable revenue to help local businesses decarbonise and expand, such as funding an air source heat pump for Bath City Farm (BWCE, 2024).
- Huntly and District Development Trust uses wind energy income to support local enterprises, including a community-owned car club, travel hub, and bookstore (Huntly Development Trust, 2024)

Reduces carbon emissions and enhances environmental awareness

- UK community energy projects cut 166,000 tonnes of CO2 in 2023, equivalent to 209,000 London-New York round-trip flights (Community Energy England, 2024).
- Community energy organisations improve environmental awareness through hands-on renewable energy projects and workshops (Community Energy England, 2024).
- Local projects often integrate environmental goals, such as:
  - Wiltshire Wildlife Community Energy planting wildflower meadows around solar panels to support biodiversity (Barlow, 2024).
  - Point & Sandwick Trust using wind farm profits to plant one million native trees in the Hebrides, with 211,000 already planted (Carrell, 2024).

Build community resilience

Business models and financial characteristics of community energy in the UK.
Braunholtz-Speight, T., Sharmina, M., Manderson, E. et al. Nat Energy 5, 169–177 (2020)
Available at: https://doi.org/10.1038/s41560-019-0546-4

"The process of working towards a common goal and participating in a renewable energy project can also strengthens regional or local cohesion within the community. Sense of community is not only a prerequisite for a successful energy community to be formed, but also a result of energy communities' activities; it is reinforced by these activities."

Delivers efficiencies and innovation in local energy systems

Power of Places, A vision for local energy in the UK

Created for Innovate UK by Regen October 2024
https://www.regen.co.uk/wp-content/uploads/2024-12-09-Power-of-Places-Regen.pdf

Report cites the following evidenced benefits to the energy system of local and community energy:

Reduces energy system costs

- locally tailored net zero delivery could generate four times greater value at lower costs than national approaches by improving energy efficiency, jobs, health, and resilience (UKRI and PwC, 2022).
- local demand flexibility, solar power, and energy storage could reduce yearly system costs by £1.1 - £2.5 billion, with middle-range estimates of £1.7 billion annually, potentially rising to £2.2 billion with energy efficiency measures (Aunedi et al., 2022).
- local area energy planning optimizes infrastructure investments, ensures targeted retrofits, and coordinates implementation, making local transitions more cost-effective than one-size-fits-all approaches (Energy Systems Catapult, 2018).

Enhances energy grid resilience and flexibility

- local energy systems can match generation with demand, reducing network losses, constraints, and upgrade costs (Regen and partners, 2018).
- local flexibility services, such as aggregated small-scale assets like batteries and smart EV chargers, can help manage grid constraints (Energy Networks Association, 2024).
- time-of-use tariffs encourage off-peak consumption, improving grid balance and system stability (Ofgem, 2019).
- distribution-level flexibility could reduce system operation costs by 25-40% while improving efficiency and renewable energy utilization (Imperial College, 2022).

Supports innovation in local energy systems

- local energy projects integrate generation, heat, and transport through smart local energy systems, such as wind farms supplying EV charging hubs or solar and battery storage in homes (EnergyRev, 2024).
- community-led innovation in heat decarbonization and energy efficiency is emerging, with projects like People Powered Retrofit in Manchester and Loco Home Retrofit in Glasgow supporting local retrofitting and heat pump installations (People Powered Retrofit, 2024; Loco Home Retrofit, 2024).
- Rural and island communities lead energy innovation, such as the Carbon Neutral Islands program in Scotland and the Rural Energy and Community Heat project for off-grid areas (Scottish Government, 2024; Innovate UK, 2024).

Supports a more effective and efficient energy transition

Value of a place-based approach to the transition

Accelerating Net Zero Delivery: Unlocking the benefits of climate action in UK city-regions
Innovate UK, PFER Programme (2022).
Available at: https://www.ukri.org/wp-content/uploads/2022/03/IUK-090322-AcceleratingNetZeroDelivery-UnlockingBenefitsClimateActionUKCityRegions.pdf

- A place-based approach would deliver the transition at less than a third of the cost – and deliver double the benefits.

There is a powerful economic case for local delivery of climate action. Analysis by Innovate UK indicates that a 'place-specific approach' to net-zero delivery, responding to the characteristics, needs and opportunities of different locations, is not only cheaper to deliver, but also results in far greater and wider societal impact.

Approach to meet targets in 6th carbon budget	Investment required	Energy savings Released	Wider social benefits
Place-agnostic	£195bn	£57bn	£444bn
Place-specific	£58bn	£108bn	£825bn

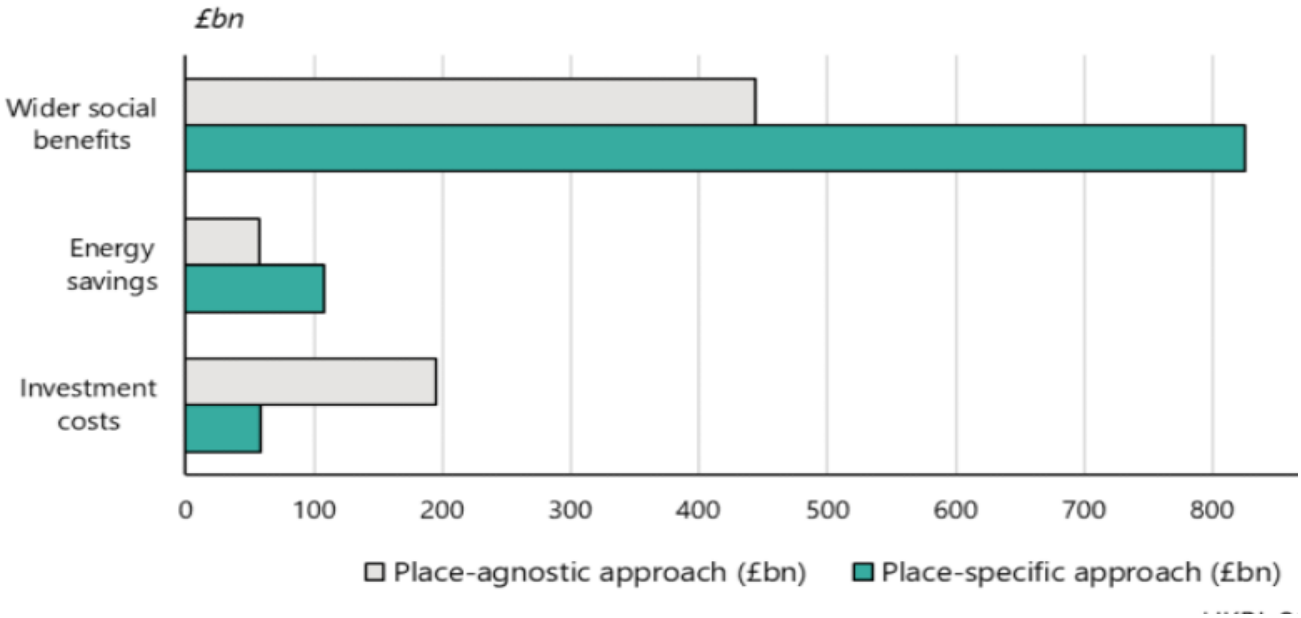


Diagram from Mission Zero, Independent Review of Net Zero (2023) Rt Hon Chris Skidmore MP Available at: https://assets.publishing.service.gov.uk/media/63c0299ee90e0771c128965b/mission-zero-independent-review.pdf

Power of Places, A vision for local energy in the UK

Created for Innovate UK by Regen October 2024
https://www.regen.co.uk/wp-content/uploads/2024-12-09-Power-of-Places-Regen.pdf

This report summarises a wide range of evidence that supports the value-add of a community and local energy approach. The report makes the case:
"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."

The report sets out the current challenges in the UK Energy System:

- The system is scale and place-agnostic, with national energy suppliers operating without local engagement.
- Regulations treat rural and island areas the same as urban areas, making tailored solutions difficult.
- Economies of scale dominate policy, favouring large national projects over local energy initiatives.

And makes the case for local energy:

- Local projects provide social, economic, and engagement benefits beyond efficiency gains.
- Tailored solutions address local demographics, housing, geography, and community needs.
- More inclusive – local authorities and community groups are better at engaging marginalised and low-income households.
- Revenue reinvestment – funds from local energy can help tackle fuel poverty and local decarbonization.
- Resilience – diversifies the energy mix, reducing vulnerability to price shocks.
- Public support – when communities see direct benefits, they are more likely to back renewable projects.

The report concludes that a balanced approach is needed – large-scale projects will drive net zero by 2050, but local energy can add critical value to the transition.
The paper presents 15 recommendations to unlock the full potential of local energy and goes into further detail rewarding the potential benefits around three themes of benefits to people, places and the energy system.
A summary of the benefits they evidence are reported in the relevant sections of this repository.

Business models and financial characteristics of community energy in the UK.
Braunholtz-Speight, T., Sharmina, M., Manderson, E. et al. Nat Energy 5, 169–177 (2020)
Available at: https://doi.org/10.1038/s41560-019-0546-4

Holstenkamp et al (2020) make the case that the actions of community energy organisations can lead to a more effective transition and review the evidence to support this. Opportunities they highlight include:

- Community energy organisations help meet national targets by investing finances and other resources (eg land, time) into energy transition projects.
- They reduce greenhouse gas emissions, and because their generation assets are distributed close to where it is consumed, it reduces transmission losses, and can help with more efficient use of the grid.
- Community organisations can support energy use behaviour changes (although rebound effects may reduce the net gain). By promoting energy literacy, groups increase both environmental awareness, and create expert knowledge which may be passed on by participants in both a personal and work capacity.

They cite direct innovation effects, particularly sectors such as wind power, with community energy acting as change agents in the transition process.

Offers more resilient business models

Co-operative enterprises are more resilient

Co-operatives and Mutual Economy 2024: A report on the UK's democratic economy
Cooperatives UK (2024)
Available at: https://www.uk.coop/sites/default/files/2024-09/Co-operative_Mutual_Economy_2024.pdf

- Co-operatives are over twice as likely to survive early years: 81.2% still trade after five years vs. 39.6% of other start ups.
- Co-ops can harness volunteer support.

This report focuses on the democratic economy which they define as "*businesses that give people a stake and a say. It consists of organisations that are democratically owned and equitably controlled by their members.*"

There are currently 7370 co-operatives, with a combined membership of 15 million (a fifth of the UK's population) and annual income over £42.7 billion. The number of community owned enterprises in the UK has doubled over the last years (49.5%), illustrating the strength of collective and meaningful ownership, driven by innovative financing models like community shares.

They report that the strong growth in energy coops seen in the 2010s has slowed significantly and plateaued in recent years in the face of an unsupportive policy environment.

They also highlight that "their not-for-profit structure gives a greater ability to harness volunteers, and the tenacity, passion, and additional social benefit outcomes can motivate both participants, and volunteers who act as energy champions – who can also benefit from increased wellbeing – and in turn can inspire others to become energy their immediate community, where their detailed knowledge of local context makes it even more effective."

Cooperatives Unleashed: Doubling the size of the co-operatives sector
New Economics Foundation, 2018
Available at: https://neweconomics.org/uploads/files/co-ops-unleashed.pdf

Report sets out the co-operative advantage in more detail in terms of resilience, economic and social benefits, opportunities and barriers. It cites Welsh Co-operative and Mutuals Commission (2016) as source of the following: Cooperatives with ≤75 employees outperform and generate higher profits than conventional businesses.

Increases investment in the transition

Cooperatives can raise community shares, an affordable and flexible form of capital

Price support allows communities to raise low-cost citizen finance for renewable energy projects
Braunholtz-Speight, T et al (2020. Nature Energy, Vol 5 February 2020 (p127-128)
Available at: https://rdcu.be/b1tNF

- Community energy organisations offer interest rates two percentage points lower than loans, making them the cheapest form of capital (other than grants).

Evidence of the potential for more investment by individuals in community energy

Community Municipal Investments: Turning Words into Action:
PCA: Place-based Climate Action Network (2020)
Available at: https://pcancities.org.uk/report-community-municipal-bonds-turning-words-action

- £4bn of investable wealth per 100,00 people in the UK

Report cites HMRC – ISA Statistics & ONS UK Wealth Data as source of the following statistic: "On average there is £4bn of investable wealth per 100,000 people in the UK." And goes to say "m*ost of this money leaves the communities in which the investors / savers live and flows into global companies and funds"*

Analysing the potential of citizen-financed community renewable energy to drive Europe's low-carbon energy transition
C. Pons-Seres de Brauwer, J.J. Cohen, (2020) Renewable and Sustainable Energy Reviews, Volume 133, 2020,
Available at: https://doi.org/10.1016/j.rser.2020.110300

- Citizen-financed community energy could bridge the EU's transition funding gap.

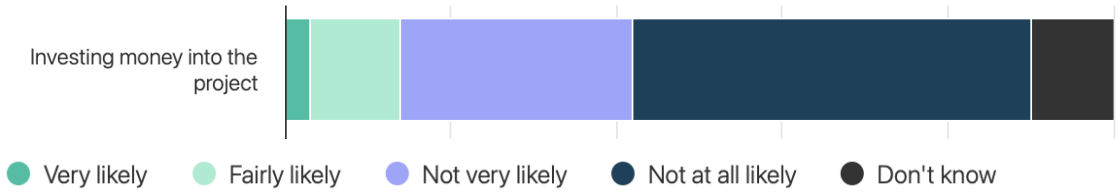
Community energy has the potential to leverage significant investment. This academic study concluded citizen-financed community renewable energy could make €176 billion available to co-finance community-based wind energy to bridge the EU's investment gap in the energy transition.

YouGov poll commissioned by Common Wealth (2025)
Available at https://www.common-wealth.org/publications/the-public-is-enthusiastic-for-community-energy#fn1

- 3% of people were very likely and 11% fairly likely to invest in community energy

Figure 4: More Than Half of the Public Would Reduce Energy Consumption to Support a Community Energy Project

Q: Imagine there was a community energy project in your local area. How likely, if at all, would you be to participate in the following ways?[n = 4562]



Breakdown by age, gender, ethnicity, social grade, education and area is available.

Expands UK ownership of the energy system

Cooperatives Unleashed: Doubling the size of the co-operatives sector
New Economics Foundation, 2018
Available at: https://neweconomics.org/uploads/files/co-ops-unleashed.pdf

- More than half of UK company equity is owned abroad, and only just over 12% by individuals

The wealthiest 10% of households own 45% of the nation's wealth, five times more than the bottom half, and almost 70% of financial wealth, including stocks and shares (ONS 2018a).

The report makes the case that ownership matters because who owns an enterprise determines how the wealth the business creates is shared. In addition, ownership shapes purpose, creating an economy that addresses the real-world challenges we face – such as climate change – is more achievable if the power to determine the direction and strategy of business is in the hands of those with an interest in addressing today's challenges and who live in the communities directly affected.

They argue that co-operatives have the advantage of being by nature organisations with a purpose, often established to achieve specific environmental and social goals, by a defined group of people pooling their resources, sharing risk, power and reward. This makes them more democratic and accountable – and because they cannot sell equity on capital markets cannot be influenced by shareholding conglomerates.

Cooperative models offer a tried and tested means to democratise, and equitably share the benefits of enterprise, helping re-orientate it towards common good, reduce financial leakage, and share the rewards.

Boosts participation in the energy transition

The next phase of the transition will require greater participation by people

The future of community energy
A WPI Economics report for SP Energy Networks (2020) Available at: https://wpieconomics.com/wp-content/uploads/2020/01/Future-of-Community-Energy-20200129-Web-Spreads.pdf
"The next phase of decarbonisation is likely to need more support from communities. The energy sector is undergoing a multi-faceted transformation to a decarbonised and less-centralised energy system and changes will be required to individual homes (energy efficiency and heat generation), cars (electric vehicles) and types of household appliance (demand response). People will need to be engaged with this change at a local level."

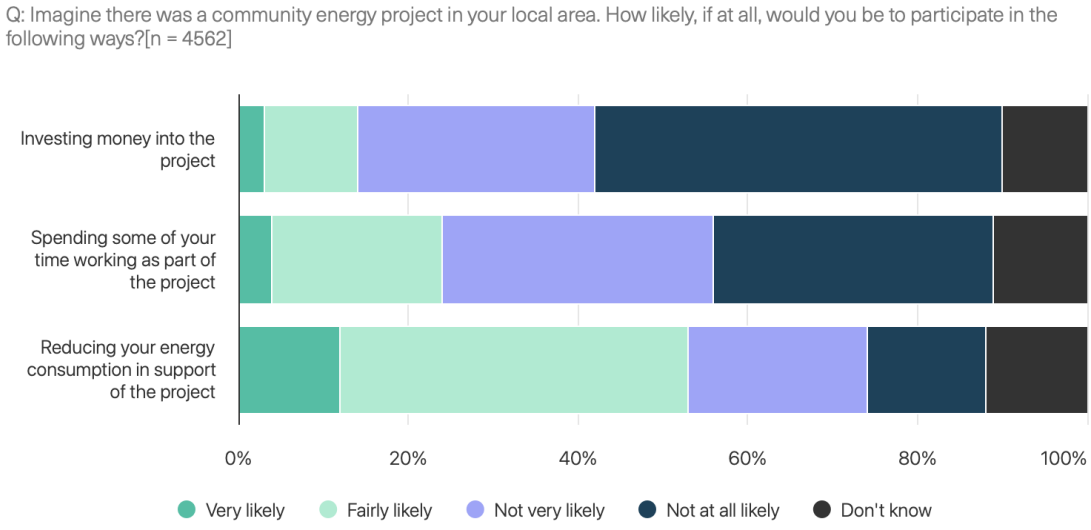
People are interested in participating in community energy

YouGov poll commissioned by Common Wealth 2025
Available at https://www.common-wealth.org/publications/the-public-is-enthusiastic-for-community-energy#fn1

- There is *a good level of interest in participating in community energy through volunteering time, investing money, and reducing energy use.*

The poll sampled 4862 adults in Great Britain in October 2024. Participants were asked how likely they are to participate in an imagined community-owned energy project in their area.

53 per cent of the public say they would be likely to reduce their energy consumption in support of a community energy project, with 24 per cent and 14 per cent likely to volunteer their time and invest money respectively.



Breakdown by age, gender, ethnicity, social grade, education and area is available.

Lack of funds and lack of time were major reasons raised by those who said they were unlikely to participate, and there are differences in likelihood to participate across age, gender, education levels and social grade.

They found *"higher levels of self-reported likelihood to participate among ethnic minority respondents than white respondents, with the difference especially large on investing money and spending time on the project. When split by region/country, there are not major differences, with the notable exception of London which scores higher on all three types of participation, and the North of England which scores notably low on likelihood to invest*

money. The results for household income are generally quite flat, other than a spike in likelihood at the highest levels of income across all three categories"

The most commonly given reasons for not participating:

- Lack of funds (31%)
- Lack of interest (22%)
- Lack of time (22%)
- Lack of perceived knowledge about energy (15%)

"Lack of funds more prominent among lower income respondents and lack of time more prominent among higher income respondents. Also, younger respondents were more likely to select lack of time, whilst respondents over 65 were most likely to select lack of funds, lack of interest or "something else", of which a significant number gave age or health related reasons." Having not enjoyed previous participation in community energy was only given by 1% of applicants.

They conclude *"The results suggest interest in participation in community energy from a non-trivial proportion of the population, a promising sign for the Local Power Plan. In general, investment and volunteering in support of projects do not require mass public participation for community energy to be successful, and the proportions indicating likelihood to participate would represent a vast increase in participation if realised."*

Can use broader sustainability activities to engage with diverse audiences

Britain talks Climate: 2024
Climate Outreach (2024)
Available at: https://climateoutreach.org/reports/britain-talks-climate/

CE activities, such as tree planting, not only offer environmental benefits but also create opportunities to engage a wider audience, including 'hard-to-reach' groups within communities. Many people recognize the link between climate change and nature and feel motivated to protect it.

Source: Climate Outreach (2024) Britain talks Climate: 2024 Available at: https://climateoutreach.org/britain-talks-climate/

Example: Rose Hill and Iffley Low Carbon
By implementing broader sustainability initiatives that provide environmental benefits, communities can engage diverse audiences while fostering stronger connections.

Source (viewed 29.1.25): https://www.lowcarbonhub.org/p/projects/growing-in-the-face-of-challenge-rose-hill-tree-planting/

Builds public trust

Trust is important for a successful transition

Blog: putting people at the heart of the energy-system
Forum for the Future
Available at: https://www.forumforthefuture.org/blog/putting-people-at-the-heart-of-the-energy-system

"Public acceptance and trust are critical because we need people to be involved, to consent to their data being used to manage demand and supply, utilise the battery storage in their electric cars to store energy, insulate their homes to reduce energy demand, and embrace new renewable energy generation installations in their communities. Without it, we will see communities resisting new wind farms, and the system won't be able to adapt to supply and demand, and precious energy will be lost through leaky buildings"

Community energy organisations are trusted providers of energy advice

- Qualified experts, independent advice providers, local authorities, mission driven organisations, medics and peers with personal experience are more trusted providers energy advice
- Scientists and peers are most trusted to tell the trust in relation to innovation and technology
- The media, energy companies and government tend to be less trusted sources of information

The current and potential roles of community groups in the uptake of energy efficiency by UK householders
Energy Saving Trust & Forum for the Future for DECC (2014)
Available at: https://drive.google.com/file/d/15XZHHv3srQXgvzMH1sBnlBSfWqWd3s0W/view

Study found Plymouth Community Energy trained and branded volunteers achieved a 4.5 times higher rate of uptake for home energy assessments than their British Gas trained and branded counterparts supporting the conclusion that community groups may engender better levels of trust and, therefore, better rates of uptake.

'Better' domestic energy advice in England? A narrative literature review.
London: UK Energy Research Centre. Warren, G. and Foulds, C., 2020.
Available at https://d2e1qxpsswcpgz.cloudfront.net/uploads/2020/05/WarrenFoulds_Better-energy-advice_published.pdf

A 2020 review for Energy Saving Trust highlights that community energy projects, being both local and non-commercial, enhance trustworthiness and authenticity. It advocates for using independent and local organizations as intermediaries in energy advice to address low trust in centralized government entities. The study emphasis the critical role of trust in the effectiveness of energy advice and notes that building trust is a time-consuming process. Their conclusions were based on the following evidence:

- A broader range of contact points beyond purely governmental organizations can reduce distrust, resistance, and ambivalence toward advice and scheme uptake (Sovacool et al., 2017)
- Community groups, local institutions, and businesses are more widely trusted than central government and energy companies (Mallaburn and Eyre, 2014).
- Researchers advocate for engaging community organizations as "trusted intermediaries" to improve outreach, particularly with fuel-poor groups (Rugkåsa et al., 2007; Reeves, 2016).
- Trust in local community groups is well-established as crucial for renewable energy projects (Walker et al., 2010).
- Non-commercial project characteristics enhance trust and authenticity in renewable energy initiatives (Burchell et al., 2014).

- Trusted local networks, such as family and friends, can effectively persuade individuals to adopt energy-saving measures (Fornara et al., 2016).

They conclude combining independent and local organisations as intermediaries for energy advice can help address low trust in centralized government entities.

Increasing wellbeing through energy demand reduction for net zero: Citizen perceptions of co-benefits of local measures

Energy Research & Social Science, Volume 118, (2024)
Giulia M. Mininni, Timothy J. Foxon, Claire Copeland, Beatriz Aguirre Martinez, Donal Brown, Marie Claire Brisbois, Gerardo A. Torres Contreras, Siobhan Stack-Maddox, Max Lacey-Barnacle, Christian Jaccarini
Available at: https://doi.org/10.1016/j.erss.2024.103799

This academic paper makes the case that policy and citizens undervalue co-benefits and there is a need to raise greater awareness of the benefits that can arise from the transition. and cites research to support the important role community energy can play as trusted intermediaries and sources of information.

- Trustworthiness is determined not necessarily by social distance, but more by advisor motives, especially in terms of financial interests, Respondents were particularly wary of privatised companies. (Simcock et al 2014)
- Respondents in a 2016 study highlighted a deep distrust in energy companies, usually the only or most common organisation with which the public interact on energy issues (Evensen et al., 2018).
- Community groups, local institutions and businesses are more widely trusted than central government and energy companies. (Mallaburn and Eyre 2014)
- Researchers have advocated for engaging with community organisations in the role of *"trusted intermediaries"* to enhance the reach of certain schemes, particularly when interacting with fuel poor groups (Rugkåsa et al., 2007; Reeves, 2016, p.2) and the importance of trust in local community groups has been well-established in the context of renewable energy projects (see Walker et al., 2010).
- Alongside these local characteristics on-commercial project characteristics are also regarded as enhancing trustworthiness and authenticity of these projects (Burchell et al., 2014).
- Trusted local networks, including family and friends, can persuade individuals to undertake energy saving measures. Using both independent and local organisations as intermediaries of energy advice could be a method of overcoming low levels of trustworthiness in more centralised government entities. Fornara et al. (2016)

Factors influencing perceptions of domestic energy information: Content, source and process

Simcock, N, MacGregor, S, Catney P, Dobson A, Ormerod M, Robinson Z, Ross S, Royston S, Hall S, Energy Policy, Volume 65, 2014, Pages 455-464,
Available at: https://doi.org/10.1016/j.enpol.2013.10.038

Trust is determined in part by advisor motives, especially in terms of financial interests, which has been found to undermine people's trust in energy companies, as profit making organisations. Rather, people value both qualified experts and peers with personal experience as potential information sources.

Getting to Net Zero: Priorities for public engagement in climate policy (2024)

Climate Citizens Research Group, Lancaster University
Available at: https://climatecitizens.org.uk/wp-content/uploads/2024/11/Getting-to-Net-Zero_Priorities-for-public-engagement-in-climate-policy_Nov_2024.pdf

Cites evidence that people are deeply concerned about climate change, but governments have a poor track record of engaging the public and so trust is low. They make the case that political leaders can create well-

supported policies by showing that they understand people's concern, and match that concern with confident, ambitious policies which improve people's lives.

Understanding the barriers and enablers to support fuel poor households achieve net zero
Centre for Sustainable Energy on behalf of Community on Fuel Poverty, (2024)
Available at: https://assets.publishing.service.gov.uk/media/66cde72225c035a11941f63b/fuel-poverty-barriers-enablers-net-zero-report.pdf

Report recommends harnessing and empowering trusted intermediaries and independent advice providers to support clarity around information.

Edelman Trust Barometer UK Report (2024)
Available at: https://www.edelman.co.uk/sites/g/files/aatuss301/files/2024-01/2024%20Edelman%20Trust%20Barometer_UK%20Report_1.pdf

Trust in the government and media is at a ten year low in the UK. By contrast peers are on a par with scientists as being the most trusted source of information when it comes to "I trust each to tell me the truth about new innovations and technologies."

How do UK citizens perceive the co-benefits of climate action?
Jennings, N. and Paterson, P. (2023).
Available at DOI: https://doi.org/10.25561/106595

Mixed method study that found local government, community groups, scientists and medical professionals were among those identified as more trusted groups to communicate information about the co-benefits that climate action can bring.

A perceived lack of trust in national government emerged from focus group discussions they led. In contrast the level of perceived trust in local institutions such as local government and community groups came across as much higher than trust in national government. The report suggests therefore that local authorities and community groups are particularly well-placed to adapt and direct co-benefit related messaging to their residents.

Clean Heat Streets
Based on an interview what Iffley and Rose Hill Low Carbon Group, 2024.
https://www.cleanheatstreets.com

A community-based project in Rose Hill, Oxford to encourage the uptake of heat pumps, Oxford illustrates the influence peers can have on the uptake of new technology. The project found micro-clustering of installations, as immediate neighbours of people installing heat pumps would come forward to also participate in the programme.

How Community Municipal Investments can create a new sphere of civic engagement that will galvanise local action in the fight against the climate emergency
ePlace-Based climate action network (2020)
Available at: https://pcancities.org.uk/sites/default/files/2020_06_18_PCAN-CMI.pdf

Study of attitudes to climate change found trust on climate issues is a function of authenticity and evidence-led approach. They find mission driven and transparent organisations and local authorities and companies who have purpose at their heart are trusted to deliver.

Strengthens public consent for the transition

There is greater support for community renewables than privately owned projects

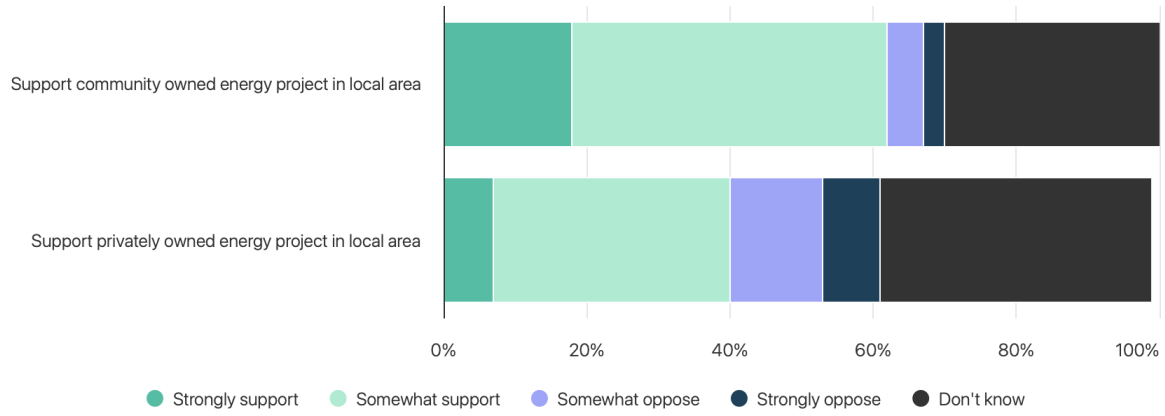
YouGov poll commissioned by Common Wealth 2025
Available at https://www.common-wealth.org/publications/the-public-is-enthusiastic-for-community-energy#fn1

- 62 per cent of the public would support a community-owned renewable energy project in their area, compared to 40 per cent support for a privately-owned project.

A YouGov poll commissioned by Common Wealth has just been published and they found that when it comes to local renewables - people were more supportive of community owned renewable energy projects taking place in their area than commercial ones – tipping the balance from majority opposed to majority support.

A Poll sampled 4862 adults in Great Britain in October 2024 they concluded it *"Shows strong and widespread public support for community-owned energy projects, and a good level of interest in participating in them through volunteering time, investing money, and reducing energy use".*

Figure 1: More People Would Support a Community Owned Energy Project than a Privately Owned Energy Project
Q: To what extent, if any, would you support or oppose the creation of a community/privately owned renewable energy project in your local area? [Asked to half of the the sample; n=2415] for community owned and [Asked to half of the sample; n=2415] for privately owned



Community energy organisations build participation

State of the Sector Survey
Community Energy England (2024)
https://communityenergyengland.org/pages/state-of-the-sector

- 76% of members and supporters of community energy organisations say their relationship with a community energy organisation helped them to get involved in other sustainability initiatives

Boosts public engagement & support for net zero

Power of Places, A vision for local energy in the UK
Created for Innovate UK by Regen October 2024
https://www.regen.co.uk/wp-content/uploads/2024-12-09-Power-of-Places-Regen.pdf

Report cites the following evidence:

- Local energy fosters inclusive, active participation in energy generation, demand, and efficiency efforts (Fell et al., 2019).
- Stronger social cohesion and community empowerment arise from local engagement (EnergyRev, 2024).
- People prefer dealing with local organizations over national entities for energy schemes, leading to higher participation (Fell et al., 2019).
- Locally owned renewables receive greater public support than commercial projects, reducing opposition and delays (Roddis et al., 2018).

There is scepticism that the government's commitment to net zero is genuine

Whose energy transition is it anyway?

Social Market Foundation (2025)
https://www.smf.co.uk/wp-content/uploads/2025/01/Whose-energy-transition-is-it-anyway-Jan-2025.pdf

- There has been a failure to make people feel included in the net zero transition, jeopardising its success

SMF conducted focus groups and a survey to explore attitudes to home heating. They focused research on homeowners, as they are more likely than other tenure groups to make decisions on the heating systems in their homes. *"As a result, the total sample is older, whiter and more Conservative than the national average."*

They found that despite their support for net zero, people question its practicality and feasibility

- Almost half (48%) of people think net zero should be a top priority for government, but 63% of people think it will be too difficult to achieve by 2050.
- There is also scepticism that governments' commitment to net zero is genuine, rather than political posturing.

People feel the transition is happening around and to them, rather than feeling part of it

- Almost half think the government have done a bad job at engaging the public on net zero and even more (48%) feel the transition is happening to them, not with them.
- Over a third felt they could not engage or be involved with the transition.

The report also covers:

- A summary of recent examples of the 'greenlash' taking place across the UK.
- The public attitudes on net zero transition
- Insights into who is feeling cut off from the transition and what could be done to build their trust
- The relative popularity of different actions
- Public attitudes to low carbon heating

Social and Economic Benefits of Community Energy Schemes

Mark Walton, National Trust (2012)
Available at: http://base.socioeco.org/docs/report_-social-and-economic-benefits-of-community-energy.pdf

This report concludes community energy ownership can deliver a range of benefits including increasing autonomy, resilience, and local income, especially in areas with few wealth generating options.

Improvements in decarbonisation decision-making require openness and inclusivity, with strategies like citizen assemblies showing potential. However, genuine follow-through is critical. Inauthentic or unused public input risks disempowering citizens, eroding trust, and fuelling resistance.

Promotes fairness and justice in the transition

The transition needs to be fair to build the public support it needs to succeed

Building stronger and fairer communities: sharing the co-benefits of local action on climate.
Mayne, R, Environmental Change Institute, University of Oxford (2016), Available at: https://www.eci.ox.ac.uk/sites/default/files/2023-10/Building-stronger-fairer-communities.pdf change

Mayne (p6) sets out why fairness is an important value in and of itself, and a high degree of inequality is considered to be bad for policy, people, the economy and the environment.

Developing an ethical framework for local energy approaches
Huggins, S, Low Carbon Hub on behalf of Project LEO (2020)
Accessible at: https://project-leo.co.uk/wp-content/uploads/2020/11/Project-LEO-ethical-framework-2020-final_ext.pdf

Makes the case that the transition needs to address fairness of outcomes, treatment and process. And being seen to be fair is key to building the public acceptance that there is a need to deliver a fast transition.

"Any arrangement considered fair is more likely to meet with social approval. Social licence to operate not only then makes it more likely that local energy solutions will be agreed and implemented, but that we will achieve the mass participation required to deliver a locally balanced energy system at sufficient scale. The pursuit of energy equity therefore is not only an admirable goal for the energy transition – but also a means to our end."

Bottom-up, inclusive strategies are more transformative and face less resistance.

Coping with decarbonisation: An inventory of strategies from resistance to transformation,
Marie Claire Brisbois, Roberto Cantoni, Global Environmental Change, Volume 90, 2025, Available at: https://doi.org/10.1016/j.gloenvcha.2025.102968.

They found ignoring the impact of policies on distribution can cause social disempowerment and frustration, especially if existing inequalities are not addressed. Bottom-up, inclusive strategies are more transformative and face less resistance.

Marie wrote "5 years in the making, we used interviews, focus groups, documents and a big media analysis across 11 EU countries to analyse how people are responding to decarbonisation, and especially the EU Just Transition approach…. We found that people want to be included in processes of decision-making, and there's not much enthusiasm for transitions that just reproduce the same unequal patterns of wealth and power distribution."

- Resistance is a common response to decarbonisation policies, often aimed at preserving current conditions and opposing drivers of change.
- Resistance strategies differ based on who is resisting and can arise at the intersection of top-down decarbonisation efforts and bottom-up justice and distribution concerns (Del Bene et al., 2018).
- In countries where meaningful participation and inclusion are integrated into wind planning processes, resistance tends to be lower, as concerns are addressed during institutionalised processes (Armeni, 2016).
- Social movement resistance strategies highlight claims of injustice, such as: Job losses (e.g., opinion pieces in Spanish newspapers). Community impacts (e.g., protests in Western Macedonia about former mining lands). Exclusion from decision-making (e.g., workers' strikes in Romania) (Gaventa, 2019).
- Resistance by non-fossil fuel actors signals two justice issues: Underlying distributional inequalities and lack of inclusive and recognitional decision-making processes (Brink et al., 2023).
- Resistance often highlights unaddressed concerns about the implications of change, serving as a signal to explore why actors are resisting rather than simply treating resistance as a barrier. Examples show resistance

can be resolved through negotiations, such as compensation and retraining packages for unions in Germany, the Netherlands, Poland, and Spain. However, such negotiations sometimes result in delays to mine closures (Broughton and Wehnert, 2020).

- Treating resistance as illegitimate can worsen inequality and fuel populist unrest. For example: Populist parties in Poland leverage coal mine closures to reject decarbonization and rally support for coal workers and communities (Allen, 2021; Yazar and Haarstad, 2023).
- Ignoring the distributional impacts of policies can lead to social disempowerment and populist backlash. For example: *Gilets jaunes* protests in France arose from carbon taxes disproportionately affecting the working class (Mehleb et al., 2021). Farmer protests in the Netherlands and France targeted environmental policies (van der Ploeg, 2020).
- Many citizen resistance movements oppose low-carbon infrastructure when it perpetuates social and economic inequalities. For example: Protests in Greece against wind farms highlight how profits benefit large companies but fail to support local communities (inventory data).
- Renewable energy efforts that reproduce existing inequalities are likely to face resistance rather than acceptance. Addressing systemic distributional inequalities is essential for successful decarbonization policy implementation (inventory data)

They also cite evidence that Enabling transformations involve actions that provide the skills and spaces needed for deep structural change. Protests, resistance movements, and individual adaptation strategies often highlight the lack of inclusion in decision-making, reflecting procedural and recognitional injustices. Examples include disempowerment in oil shale regions of Estonia and the French *gilets jaunes* protests.

Efforts to address these issues include creating forums and commissions, such as the Forum of Mayors in Greece and Germany's Coal Commission, which promoted inclusive, collaborative governance to mediate societal divisions. Best practices from fields like natural resource governance emphasize meaningful participation, where affected parties help shape decisions that impact them, ensuring fair benefit distribution and integrating local knowledge.

Key dimensions for a just transition

Leveraging local and community energy for a just transition in Scotland
Fraser Stewart, Rebecca Ford, Prina Sumaria and Robbie Evans, Regen, 2023 Available from: https://www.climatexchange.org.uk/publications/leveraging-local-and-community-energy-for-a-just-transition-in-scotland/

The report sets out the following key dimensions for ‘just’ transition and sets out best practice for just outcomes and conclude that leveraging local and community energy for a just transition means: expanding local and community energy across regions as a whole; and creating the right policy and delivery environment to enable projects to be more just in their processes and outcomes.

Table 4: Key dimensions for 'just' local and community energy projects

Dimension	Best practise for "just" outcomes
Ownership and governance	Democratic, accessible, and accountable ownership, with proactive involvement of diverse citizens and stakeholders in decision making.
Participation and engagement	Meaningful, proactive engagement with a diverse range of citizens and communities, people supported to help co-design projects from early stages and on an ongoing basis.
Finance, funding and investment	Transparent financial models that prioritise multiple just transition outcomes and do not exclude based on ability-to-pay.
Benefit and beneficiaries	Benefits realised socially, economically and environmentally for people and places first and foremost (including in jobs and skills, healthier homes and environmental protection), both individually and collectively where possible. Diverse opportunities for businesses, investors and industry.

Community energy can provide opportunities in areas with few wealth generating opportunities

Sharing power, spreading wealth: Towards an equitable energy transition for Wales
Institute of Welsh Affairs**,** March 2024
Available at: https://www.iwa.wales/wp-content/media/IWA_Sharing-Power-Spreading-Wealth_v2b.pdf

- An example from Wales of the characteristics of a just transition

Wales has a legacy of resource and wealth extraction with little long-term economic benefit. The current growth in renewable energy presents an opportunity to change this by ensuring local communities retain a greater share of the economic benefits.

Redistributing income from commercial renewable energy projects can strengthen the Welsh economy, particularly in disadvantaged areas, and the authors advocate for policies that ensure that profits generated remain within Wales, and that greater community ownership of renewable projects should be pursued to ensure lasting local impact. They point to the experience in Denmark as an example of a successful model.
They also make the case that communities should be stakeholders, not just hosts. Welsh communities should actively benefit from renewables, not merely accept developments in their areas. Participation should go beyond consultation, ensuring direct economic and social gains.

Wales' abundant renewable resources (wind, solar, hydro) should be managed equitably for the collective benefit of its people. The private sector should not extract resources without returning fair value to Welsh communities. They call on the Welsh Government to define the conditions under which private companies access and profit from Wales' renewable resources. Policies should ensure wealth redistribution from energy profits to local communities through ownership models, CBFs, or new legislative measures.

The transition to renewables should not be extractive, but should deliver widespread economic and social benefits across Wales. Redistribution should not just be a tool to gain community acceptance but an integral part of a fair energy transition.

The Case of Former Coalfield Communities highlights other sources evidence:

- Renewable energy projects, especially onshore wind, are often located in former coalfield communities due to existing infrastructure (grid capacity, roads) (Joseph Rowntree Foundation, 2012). However former coalfield communities, despite hosting many renewable energy projects, see little local benefit.
- These areas have historically suffered from extractive industries, and there is concern that renewables might repeat past patterns of resource exploitation without local benefit (Blowers & Leroy, 1994).
- Many residents feel that affluent areas are protected from hosting energy infrastructure, while economically disadvantaged communities bear the burden (Blowers & Leroy, 1994).
- Though wind energy has minimal environmental impacts, local perceptions vary, and communities often see landscape changes without tangible local benefits (Cowell et al., 2012).
- Former coalfield communities host many large-scale renewables projects, yet direct economic benefits remain limited (Coalfields Regeneration Trust, 2023). Studies show that employment opportunities from wind energy projects are minimal, with most profits flowing outside local communities (Cowell, Bristow & Munday, 2011).
- Some residents worry that renewables may replicate the extractive approach of past mining industries, providing little economic resilience (Rohse et al., 2020). Ex-mining communities show lower political engagement and trust in officials, alongside higher climate scepticism (Jones & Abreu, 2021). Many believe public officials do not care about their interests, increasing resistance to renewable developments (Jones & Abreu, 2021).
- To address perceptions of inequality and avoid repeating historical patterns of exploitation, stronger redistributive policies and community ownership models are essential for a genuinely just energy transition.

It includes other international case studies, including:

Canada
A global leader in renewable energy, with most large-scale projects publicly financed or developed through public-private partnerships. Community ownership is emerging as a tool for reconciliation and a just transition for Indigenous communities.

Denmark
A global leader in wind energy, with 51% government ownership of Ørsted, its largest renewable developer
The electricity transmission grid is fully publicly owned. Community ownership is deeply rooted, with local investment in wind energy since the 1970s. 2009 legislation mandates at least 20% local community ownership in new wind projects, ensuring economic benefits remain within host communities. Developers must offer ownership within a 4.5km radius, reinforcing local economic participation without deterring investment.

Principles for Natural Resource Governance Research Summary

Centre for Local Economic Strategies and Scottish Land Commission 2024
Available at: https://www.landcommission.gov.scot/news-events/news/natural-resource-governance-lessons-for-scottish-land-reform?p_slug=news&utm_source=CLES&utm_medium=Website_Referral&utm_campaign=CLES_Report&utm_id=CLES_Report

- Direct involvement of communities and public interests in the governance of natural resources helps create and maintain value

The study highlights that community and public ownership models offer sustainable ways to manage natural resources, ensuring wealth is retained locally. They make the case that land is Scotland's most valuable natural resource**,** with its use evolving due to climate change, biodiversity loss, and economic pressures (farming, forestry, renewables). The growth of natural capital markets and renewables raises questions about balancing different interests.

Research by CLES examined six governance models across Europe, highlighting diverse approaches including public, shared, and charitable ownership, as well as sovereign wealth funds. Two recurring themes emerged: Municipal governments play a crucial role in supporting effective governance structures and community and public participation enhance long-term value retention**,** moving beyond basic benefit-sharing agreements. They found:

- Ownership models matter**:** Community, cooperative, and public ownership allow for greater local control, accountability, and decision-making in resource management.
- Flexible financial mechanisms**:** Different approaches (land rents, service payments) are used to capture and distribute wealth effectively.
- Clear but adaptable organisational objectives: Successful models maintain a long-term strategic vision while remaining adaptable to shifting economic and social needs**.**
- Democratisation enhances value retention**:** Effective governance structures ensure collective and equitable financial returns to communities.

They propose six key principles crucial to success:

- Clear organisational purpose
- Future proofing for long-term sustainability
- Creative use of legal ad policy tools
- Transparency to build trust
- Internal democracy for accountability
- Local voice to represent community interests

An example Case Study: Hvide Sande Wind Turbines, Denmark

Denmark's Renewable Energy Act mandates 20% local ownership in wind projects. In Hvide Sande, a community-led wind project was developed to fund local infrastructure:

- 80% owned by a community foundation supporting economic initiatives.
- 20% owned by a local cooperative**,** benefiting 400 shareholders.
- In 2018, shares were transferred to the local district heating network, reducing heating costs.

Social and Economic Benefits of Community Energy Schemes

Mark Walton, National Trust (2012)
Available at: http://base.socioeco.org/docs/report_-social-and-economic-benefits-of-community-energy.pdf

This report concludes community energy ownership can deliver a range of benefits including increasing autonomy, resilience, and local income, especially in areas with few wealth generating options.

Improvements in decarbonisation decision-making require openness and inclusivity, with strategies like citizen assemblies showing potential. However, genuine follow-through is critical. Inauthentic or unused public input risks disempowering citizens, eroding trust, and fuelling resistance.

Supports better health and wellbeing

Preventing Illness by Tackling Cold Homes
Phillip Morris, Centre for Sustainable Energy for Bristol Health & Wellbeing Board (2015)
Available at:
https://democracy.bristol.gov.uk/Data/Health%20&%20Wellbeing%20Board/201510211430/Agenda/1021_9.pdf

This report highlights the health and wellbeing co-benefits that arise from tackling cold homes. "*Cold homes are a health issue. Substantial evidence shows living in an under-heated home is bad for people's health. Making homes easier to keep warm can improve the health and wellbeing of vulnerable groups and reduce the pressure on health and social care services.*"

The report estimates that in 2014 78,000 people in Bristol were at risk of ill health from living in a cold home. The report highlights the role community led initiatives can have in delivering NICE guidance on cold homes and the health benefit of installing energy efficiency measures in Bristol. This was before the benefits of reduced hospital admissions, reduced GP visits and out of hours emergency call outs or benefits in terms of reducing mental health issues and social care costs associated with cold homes.

Table 3 – Health benefit of installing energy efficiency measures in Bristol: 2000-2012.

Year	Measure	Number of Install	Quality Adjusted Life Years benefit per measure	Net Present Value (per household)	Total value of health benefit per year for all household
2000-2012	Cavity Wall Insulation	9,141	0.049	£969	£738,135
2000-2012	Loft Insulation	17,884	0.045	£885	£1,318,945
2000-2008	Boiler Replacements	2,583	0.009	£224	£48,216

Can improve Biodiversity

- CE organisations directly support local biodiversity through their stewardship of the sites where their renewable installations are situated. CE organisations also deliver wider nature-based projects such as tree planting.

Delivering biodiversity plans above and beyond planning requirements

CE organisations can deliver ambitious nature restoration projects on-site and tap into local voluntary support to improve and maintain their sites.
Example: https://southillcommunityenergy.coop/blog/2019/6/9/biodiversity-survey-report

Energy Learning Network

Rhwydwaith Addysg Ynni