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Enabling Community Energy in the North East of England: Tackling the Climate Emergency

RESEARCH REPORT

Study by the Centre for Sustainable Energy for
the North East Local Enterprise Partnership,
North of Tyne Combined Authority, Durham County
Council and South Tyneside Council



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The North East Community Energy Study was written by the Centre for Sustainable Energy and commissioned by the North East Local Enterprise Partnership, North of Tyne Combined Authority, Durham County Council and South Tyneside Council.

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Purpose of this report

The Centre for Sustainable Energy (CSE) has been appointed, in partnership with VONNE (Voluntary Organisations' Network North East) and Community Energy England, to carry out in-depth research to understand the structure, mechanisms, models and support that would enable the successful development and delivery of community energy projects in the area covered by the North East Local Enterprise Partnership (North East LEP).

The research has been commissioned by the North East LEP alongside North of Tyne Combined Authority, Durham County Council and South Tyneside Council.

This report summarises the findings from the research and provides a series of recommendations for supporting community energy in the North East based on:

- 75 responses to our 'Energise your Community' survey of the voluntary, community, and social enterprise (VCSE) sector in the North East.
- Five focus groups with representatives of the VCSE sector, local authorities, and elected members from across the North East's different authorities.
- Ongoing engagement and consultation with Northern Powergrid, Community Energy England, VONNE and a steering group comprised of representatives from each of the commissioning local authorities.
- Extensive desk-based research and inputs and insights from community organisations and representatives across the UK.

The findings of this report will help inform the approach and actions taken by regional stakeholders, including but not limited to the combined authority, LEP, local authorities and community groups.

Context of this report

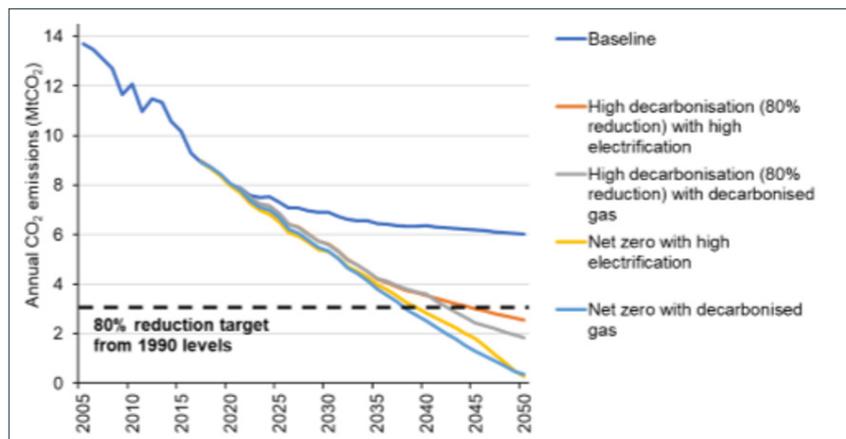
Annual Carbon Emissions

Annual carbon emissions in the North East region stand at around 7.5 MtCO₂ today. The reduction from 14 MtCO₂ in 2005 has been significant, but mainly driven by factors external to the region.

These include the decarbonisation of the grid at a national level, closure of energy intensive industry and the improved energy efficiency of domestic and industrial appliances. Few of these developments have required significant levels of change at a regional, local and individual level.

The achievement of net zero – or close to net zero – scenarios represented in orange, yellow, grey and light blue (see below Figure 1) depend on tackling the continued use of fossil fuels for transport and heating. Achieving these trajectories will require significant levels of change at regional, local and individual levels.

Figure 1 - Annual carbon emissions in the North East¹



The challenge

According to the Committee on Climate Change², more than half of the emissions cuts needed to reach net zero rely on people and businesses taking up low-carbon solutions. In order to secure this take-up, local infrastructure and systems need to be in place across the North East.

Fuel poverty rates in the North East are consistently higher than the national average³, so there is a particular need to ensure that residents and local communities are not excluded from the energy system technological transitions that are required to reach net zero.

1 Element Energy, Regional and Sub-regional Mini Stern Review – A Low Carbon Strategy for the LA7 September 2019, p2.

2 An independent report for the Climate Change Committee, Sixth Carbon Budget.

3 North East LEP, Energy for Growth Strategy.

What is community energy?

Community energy can include things like wind turbines or solar farms that have been set up by local people or aim to benefit the community, community groups offering energy advice to people in their neighbourhood, householders opening their homes to showcase their eco-renovations, locally established retrofit projects, insulation giveaways, green tariff switches and car sharing clubs (see figure 2).

Today, there are thousands of different community energy projects in the UK, with different sizes, structures and aims, all unique in their own way, and all making a difference locally whilst being part of something bigger. At one end of the spectrum, there are groups that consist of just a few people meeting every few months and sharing information with their neighbours. At the other end of the spectrum, there are large social businesses with assets worth millions, generating enough profit to be able to run their own grant schemes.

What all of the projects above have in common is an emphasis on being led and controlled by active community members, whilst also engaging and benefitting the wider community⁴. Benefits like addressing poverty, improving draughty and damp homes, reducing energy bills, improving local buildings, bringing people together, raising income for local facilities, generating jobs and - crucially - making it possible for 'ordinary people' to play a more active role in creating an equitable and low carbon society.

Smaller projects can respond very nimbly to local needs and opportunities that are specific to a given community or set of conditions. Larger projects can provide jobs and infrastructure. At all scales there is an undeniable 'people and place' element of community energy projects which taps into a grassroots connection with communities that is simply not possible from a top-down level.

It's also striking that without exception, local community energy projects bring people along with them, which is another reason why they are so important in the North East – along with the rest of the country – as it seeks to adopt radical decarbonisation plans which don't leave anyone behind.

Figure 2 - Examples of community energy project 'types'

Community energy projects might include:
<p>Community owned generation assets: Establishing community ownership of energy generation assets (e.g. wind farm, roof-top solar).</p>
<p>Awareness raising and education: General awareness raising and education about energy and climate change (e.g. with public, local community, schools, youth groups, etc).</p>
<p>Tackling fuel poverty: Helping people living in fuel poverty (e.g. providing advice and support to help people manage their bills and make low cost energy improvements to their homes).</p>
<p>Improving community buildings: Improving the energy efficiency of community facilities (e.g. installing more efficient heating, LED lighting, insulation or solar panels on village and community halls, religious buildings or sports clubs).</p>
<p>Establishing low carbon transport options: Improving low carbon transport options, infrastructure and take-up (e.g. through a community car club, active travel schemes, or installation of EV charging points).</p>
<p>Home energy improvements: Improving the energy performance of homes through retrofitting improvements (e.g. community bulk buying schemes or advice on domestic retrofit). Generally targeted towards the 'afford-to-pay market' as opposed to those living in fuel poverty.</p>
<p>Energy storage and flexibility: Providing energy storage and flexibility assets, systems and services (e.g. managing excess generation and reducing peak demand or providing flexible supply and demand to the District Network Operator).</p>
<p>Planning: Owning and leading the development of neighbourhood planning processes, contributing to the development of ambitious and forward-thinking local plans and local area energy planning processes.</p>

What role could community energy play in the North East?

Community energy has the potential to help achieve a very rapid uptake of energy efficiency measures, technologies and behaviours. It offers different models for organisation and collaboration with a greater focus on community asset building, local agency and public engagement.

It represents a potentially very powerful opportunity to form partnerships across the VCSE sector, business, and research and academia to help the North East achieve the unprecedented scale and pace of change that is required to tackle climate change and ensure local communities are not excluded from the transition to net zero.

Key opportunities include:

- 1 Developing plans and ambitions for decarbonisation that are locally responsive and take into account the vastly differing needs, capabilities and opportunities of different communities across the region.
- 2 Empowering communities to lead, shape and own change within their community and to benefit from their drive, desire, wisdom and creativity.
- 3 Bringing people together around common concerns and generating belief, confidence and momentum in solutions for change.
- 4 Creating vehicles for making-things-happen and ensuring that a full range of local opportunities are identified and seized upon.
- 5 Building and strengthening community identities, assets and capabilities through cooperation, sharing knowledge, skills and collective ownership.
- 6 Ensuring that value from the transition in various different forms – skills, jobs, reduced energy costs, options and opportunities, return on investment etc – are captured regionally and locally.

What is required for community energy to be successful?

In this report we have reviewed the opportunities for community energy in the North East in relation to five critical success factors (see figure 3 below). This is in order to address the core research question: *'What structure, mechanisms, models and support would enable the successful development and delivery of community energy projects in the North East LEP area?'*

Figure 3 - Community Energy Success Factors



Community energy provides three main sources of value:

For more on this https://communityenergyengland.org/files/document/484/1615989181_CommunityEnergy-StateoftheSector2020Report.pdf

1. Economic value

Community energy produces economic value through community benefit funds, external funding and project income. This value may be distributed directly – via grants and loans – or indirectly, through development or purchase of community assets, cost savings, job creation and ethical investment options for community members. In the North East LEP area, in 2019, community energy organisations had a total community benefit fund value of £2.5m across 96 separate organisations. Community benefit fund spending in 2019 totalled £720,000, with funding provided to community organisations such as energy advice services, sports clubs and environmental conservation charities. Further cost savings to local people and businesses totalled £1.9m, most often generated by energy efficiency projects and cheaper electricity provided by community solar panels.

2. Social Value

The social value of community energy is more challenging to measure. Social value encompasses non-economic benefits such as education, awareness-raising, stimulating behaviour change, community cohesion, improvements to local environments, and both individual and collective health and wellbeing.

Community energy groups report wide-ranging activities, focusing primarily on supporting and developing a low carbon community. Education initiatives are core to many community energy organisations, including providing school workshops, energy advice clinics to help vulnerable people, energy efficiency clinics and project site visits. Further to this, many communities also support local services, including health centres, events to improve social cohesion and supporting sports clubs and initiatives. These highly valuable activities help to encourage, enable and improve local low carbon action and reduce the economic burden placed on many public services and charities.

3. Environmental value

Community energy has an environmental impact on a global scale, reducing greenhouse gas emissions through low carbon energy generation and demand reduction, and contributes to national carbon emissions targets. The work of community energy organisations also supports local environmental improvement and conservation. This is particularly true of pollution reduction through energy efficiency, heating system improvements, low carbon transport initiatives, and habitat improvements on land used by solar and wind farms.

In 2019, community energy organisations prevented 65,200 tCO₂e of greenhouse gas emissions across energy generation projects. Through energy efficiency and low carbon transport projects, and behaviour change as a result of awareness raising and educational projects, this figure is likely to be much higher.

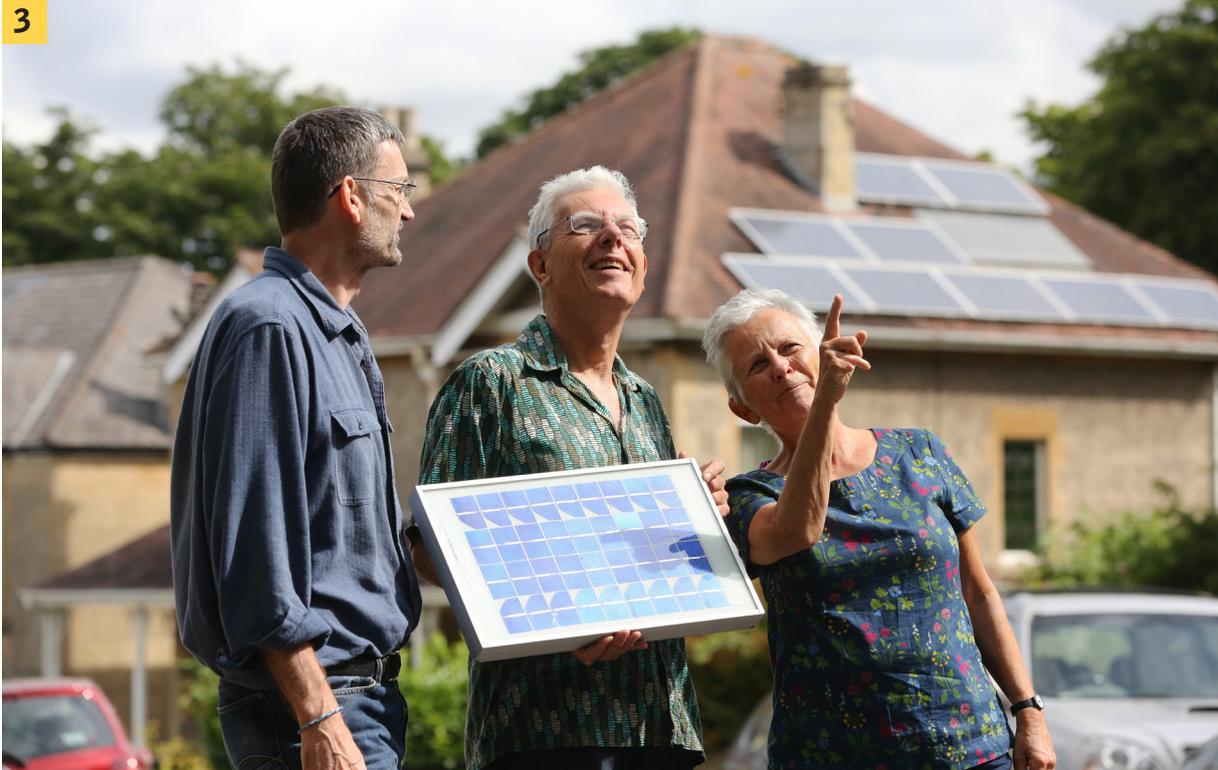
Community energy vs commercial energy

There have been a number of studies into the benefits of community ownership. Most recently, in a review of a 900 kW community wind project on the Scottish island of Shapinsay, Esther C. van der Waal notes that: "Local ownership is much more beneficial to communities than hosting a commercial equivalent as it leads to more local and collective benefits, which is proven by several economic impact studies (see e.g. Allan et al., 2008; Slee, 2015). In concrete terms, a commercial windfarm would bring in a community benefit fund of around £3,000-4,000 per megawatt to compensate the local community for negative externalities and about £10,000 per megawatt rent for the landowner, whereas a community scheme can generate over £100,000-£150,000 a year (Slee and Harnmeijer, 2017, p.16)."

This already vast disparity gets even larger when taking into account that local ownership creates revenue spendings in the local economy, while external ownership results in a high share of the revenues leaking away. Such investment can take place in a broad range of areas including health and social care, local regeneration, culture and heritage, local services and amenities, poverty mitigation, social inclusion, sport and recreation, energy and recycling (HIE, 2015b).

For more on this see www.sciencedirect.com/science/article/pii/S0301421519307785





Community energy in action ► **1** Many residents of the WHG Housing Association in Walsall have challenges paying for their energy use. The community explored the use of local substation data to plan future improvements to the building's heating system and a low-carbon retrofit. **2** Burnham and Weston Energy generates electricity from the sun and income to support local community projects that support the net zero transition and help local households struggling with fuel poverty. **3** Bath & West Community Energy is developing local demand-management options including the greater take up of battery storage and solar PV. **4** Rooftop Housing Group tested an app that gave residents access to their community's real-time electricity demand and carbon emissions, with the intention of raising awareness and changing behaviour around energy use.



1. Highly motivated civil society (VCSE sector)

Without the drive, commitment and motivation of the VCSE (voluntary, community and social enterprise) sector, community energy does not happen.

It is important therefore that any support for community energy is responsive to local needs, builds on existing knowledge, skills and experience and is embedded in local visions, priorities, and aspirations.

The first success factor we reviewed therefore was 'Highly motivated civil society'. We have addressed three questions:

- 1 How active is the VCSE sector in the North East in Community energy today?
- 2 What type of organisations are active or interested in Community energy?
- 3 What motivations do VCSE actors in the region have for community energy?

How active is the VCSE sector in the North East in Community Energy today?

The North East has been described as an area of the country "Buzzing with initiatives aimed at improving the environment, protecting threatened species, increasing recycling, generating sustainable energy, planting trees"⁵.

However, community energy in the North East has not evolved in the same way as it has in many other parts of the country. Community Energy England's State of the Sector Report (2020) suggests that there were just four community energy organisations in the North East in 2019 (out of a total of 300 organisations)⁶. This was the fewest of any region in the country.

As highlighted below (figure 4), over the past four years there have been fewer than ten respondents to the state of the sector report from the North East, and only two organisations that have consistently participated.

As a result, many actors and potential supporters of community energy in the region have struggled to engage with the VCSE sector on community energy.

In the development of Northern Power Grid's more regional Community Energy Engagement Strategy 2020-2023, only two organisations (out of 17) were identified and consulted from the North East region (Northern Community Power based in Newcastle and the Future Homes Project).

5 VONNE, 'Climate change is the defining issue of our time' see www.vonne.org.uk/climate-change-defining-issue-our-time.

6 See <https://communityenergyengland.org/pages/cee-publications>

Figure 4, Respondents to Community Energy England's State of the Sector Report (2017-2020)

Respondents to community Energy England's State of the Sector Report from the North East region:	
2020	Green Community Buildings, Future Homes Alliance, Bishop Auckland Climate Action, Stanley Town Council, Greening Sheraton Park
2019	Green Community Buildings, Future Homes Alliance, Earth Doctors Ltd
2018	Green Community Buildings, Future Homes Alliance
2017	Green Community Buildings, Future Homes Alliance, County Durham Community Energy CIC, Hexham Community Partnership

The two organisations that have consistently responded to the State of the Sector report are the Future Homes Alliance and Green Community buildings. The Future Homes Alliance⁷, is dedicated to the design and build of a community of 66 homes as an exemplar of sustainable urban housing in Newcastle city centre. Green Community Buildings⁸ was established to provide community building energy efficiency surveys and appraisals, to promote and disseminate knowledge and to advise community organisation on the viability of different options.

Focussing exclusively on the North East region and targeting a broader range of organisations, our survey⁹ of the VCSE sector has highlighted wider interest, activity and experience of community energy in the region¹⁰. Key findings are outlined in Figure 5.

7 See www.futurehomesalliance.com/

8 Dissolved June 2021. Companies House, Company No. 08133707 Accessed 25.06.21 at <https://find-and-update.company-information.service.gov.uk/company/08133707/filing-history>

9 See www.vonne.org.uk/energising-tackle-climate-change-and-build-fairer-more-resilient-communities

10 A full list of community energy examples from North East identified through this project is provided in Annex I.

Figure 5 summary of findings from VCSE consultation

Key findings from the ‘Energise your community’ VCSE consultation in the North East
Across the period December 2020 to January 2021 we received 75 responses to our community energy survey of VCSE organisations in the North East.
The survey identified 75 organisations and individuals with an interest in community energy.
43 respondents reported that they had experience of community energy. These included organisations like the Stocksfield Community Association and the Bishop Auckland Churches Sustainable Energy Scheme – see responses 33 and 34 below.
32 reported that they had no prior experience of community energy but were interested in pursuing community energy projects. These were often smaller and more informal place-based groups like the Slaley, Healey and Hexhamshire Environmental Group – see response #31 below.
32 responses came from individuals who were interested in supporting community initiatives but were not part of an active organisation – such as response #24, below.
43 responses came from organisations. This included 36 social enterprises or charities, seven town and parish councils and two from local businesses. Of these, the response rate and subsequent engagement of volunteers through three focus groups suggests that the motivation, support and interest of the VCSE sector in community energy represents a key opportunity for the region in tackling the climate emergency.

Examples of VCSE organisations and individuals from the North East who are active or interested in Community Energy:

Response #34 Stocksfield Community Association

“We have fitted 32 PV panels to the Community Centre roof. LED lighting throughout, additional roof insulation and double-glazing. We are hoping to secure funding for a battery to enable more efficient use of the electricity generated by our PV panels. Our trading arm (SCATA Ltd) has in partnership with a local Housing Association, built 7 affordable homes for rent in the village all to a high level of energy efficiency. SCATA is also planning a Community Transport Scheme - which would ideally use an electric vehicle, based at the community centre, and would include the provision of an EV charging point.”

Response #33 The Bishop Auckland Churches Sustainable Energy Scheme

“The Bishop Auckland Churches Sustainable Energy Scheme is at the beginning (two months in) of a community project that is bringing five Churches together in the Bishop Auckland area to investigate how we can develop a more sustainable model for the management of the town’s Churches. This includes the best way we can use our buildings to incorporate Solar Photo Voltaic energy, Solar Thermal energy, Insulation, Heat Pumps (Air and Ground Source) and Electric Vehicle Charging Points. We intend on using a Multi-technology approach so are open to all suggestions as may be appropriate. We are currently applying to the Rural Community Energy Fund (RCEF) for a Grant to fund the services of an Energy Consultant to study and disseminate the model across the five Churches and produce a report that will take us to the next stage”.

Response #28 Slaley, Healey and Hexhamshire Environmental Group

“Our environmental group is a newly formed group representing interest in three very rural communities on the Northumberland/ Durham border. Focus at present is on more limited goals such as recycling schemes etc but community energy is something we aspire to”.

Response #31 Responding in a Personal Capacity (loose agglomeration)

“I represent a loose agglomeration of people from a village which is interested in community energy on two fronts: 1. Conventional renewable electricity generation, either for our village hall or for the wider village as well. 2. A mine-water heat district-heating scheme from the coal mine our village was founded on”.

Response #24 Responding in a Personal Capacity

“Community energy projects would seem to be a very practical way forward, generating energy from local resources for local consumption, thus reducing the big energy losses from transportation. I am just retired with plenty of time and energy and would be prepared to devote some of those energies into such useful and important sorts of projects”.

What type of organisations are active or interested in Community Energy?

The majority of the 43 organisations that responded to the survey were from the community sector. This included:

- 36 registered charitable organisations.
- 7 town and parish councils
- 2 private sector organisations.

Around half of all respondents had small annual turnovers under £50,000 (50%) and no paid staff (41%).

Amongst the other half of respondents there was greater diversity: 36% have 1-4 members of staff and 23% 5+ members of staff, with most turnovers ranging between £50,000 and £100,000 but some over £1m.

Range of annual turnover for 50% of respondents (50k + p/a)

£50,000-£100,000	9%
£100,000-£0.5m	26%
£500,000-£1m	6%
Over £1m	9%

Most notably, 32 of the 75 responses came from individuals who were interested in supporting community initiatives but were not part of an active organisation.

The survey also highlighted that the appetite for community energy is broadly shared by VCSE sector organisations across all local authority areas of the North East.

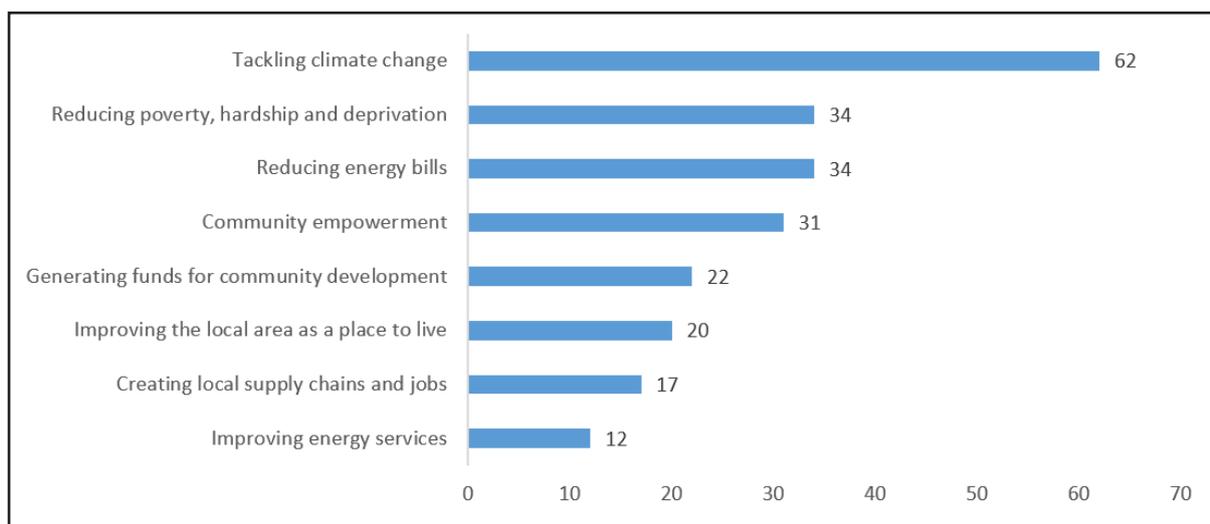
	Number of responses
Northumberland	35
Durham	32
Newcastle	16
Gateshead	11
South Tyneside	6
North Tyneside	7
Sunderland	9

And that most respondents were interested in either rural and urban areas, or rural areas.

	Percentage	Number of responses
Rural areas	42%	31
Urban areas	11%	8
Both rural and urban areas	47%	35

What are the motivations of VCSE actors for community energy?

We found that, like the majority of respondents to the community energy State of the Sector report, the most important community energy outcome for the VCSE sector in the North East is 'Tackling climate change' (#1, 62%).



The majority of community energy *organisations* that responded to the survey described community energy as either an 'enabler' (35%) or 'key' to delivering their goals.

1 Crucial to our organisation's mission (this is what we are about)	5%
2 Key to delivering our goals (but not the only thing we are about)	37%
3 Not a focus but relevant to our goals (it is an enabler)	35%
4 A driver for me as an individual (responding in a personal capacity)	23%

In the North East, community energy tends to be one among many objectives for VCSE organisations (other responses included: advice/advocacy/benefits (12%), arts/culture/heritage (9%), neighbourhood renewal (9%), skills and training (9%), housing (7%), transport (7%), volunteering (7%)):

Community Development	65%
Environment	40%
Sustainable Development	37%
Rural issues	21%
Health and Wellbeing	16%

Implications for support required

Key Strengths

- There is a widespread interest in community energy across a range of different organisations in the region.
- There are a range of different community energy activities underway and a number of individuals and organisations with experience of community energy.
- Support for community energy is relatively consistent across the region – including all seven local authority areas and both rural and urban areas.
- There are a diverse range of community organisations who represent and engage with an even broader range of different constituencies who are interested in community energy.

Key weaknesses

- There are few dedicated community energy organisations with a track-record of delivering multiple community energy projects and the ambition to drive community energy forward across the whole region, as there are in other parts of the UK.
- Many respondents to our survey were from individuals rather than representatives of organisations.
- Around half of the organisations that responded were relatively small with limited staff and capacity.

Opportunities

- The potential to bring smaller organisations together so that they can work together as a greater force.
- Potential to help shape and form new community energy organisations.
- Opportunity to support the development of existing organisations in the community energy field – based on their significant existing reach, credibility and motivation.

Threats

- Lack of confidence, ambition and belief in what is possible amongst the VCSE sector.
- As well as locally responsive, and applicable business models; access to a broad range of skills and capacities; supportive legal, policy and regulatory frameworks; and investment and support mechanisms are required. These will be discussed in the following sections.

2. Locally responsive and applicable business models

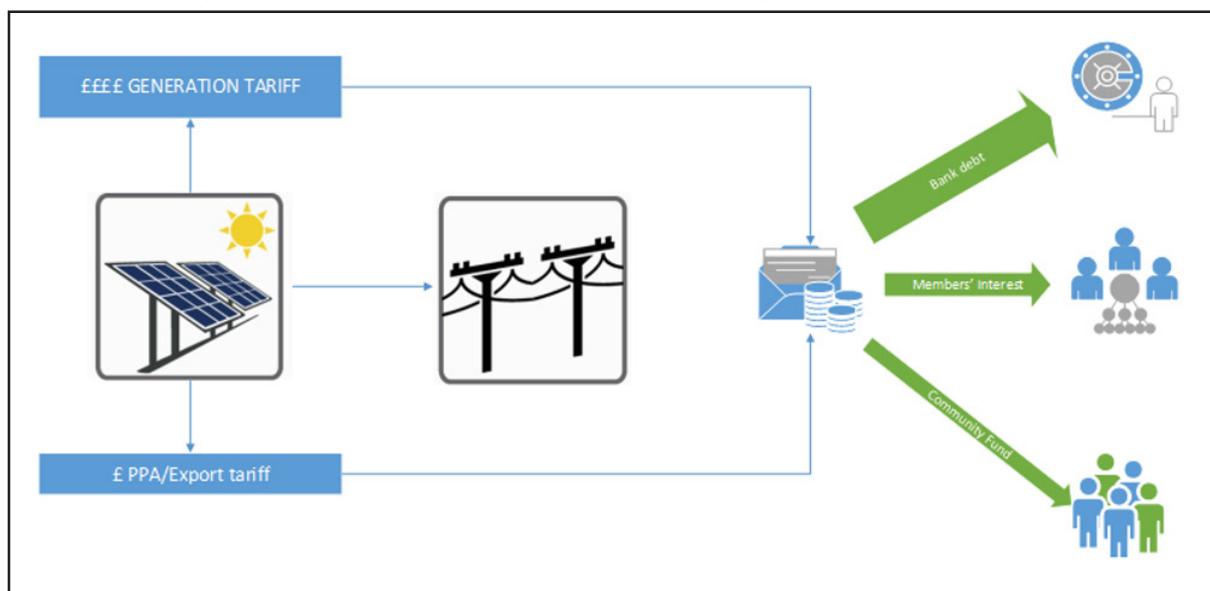
In this section we provide examples of approaches to community energy that could contribute to the North East rapidly transitioning to a low carbon society.

We have prioritised models based on their viability in the immediate-term, the priorities identified in the technical study by Element Energy for local authorities in the region, local authority (mainly) climate action plans, and the priorities identified by the VCSE sector in the North East.

The changing nature of community energy business models

Not all community energy projects are run as businesses or social enterprises. But where they are, community energy is often synonymous with solar farms (and other generation assets) that are locally owned and controlled and financed through community share offers. See below Figure 6.

Figure 6 - archetypal 'generation asset-based' model of community energy

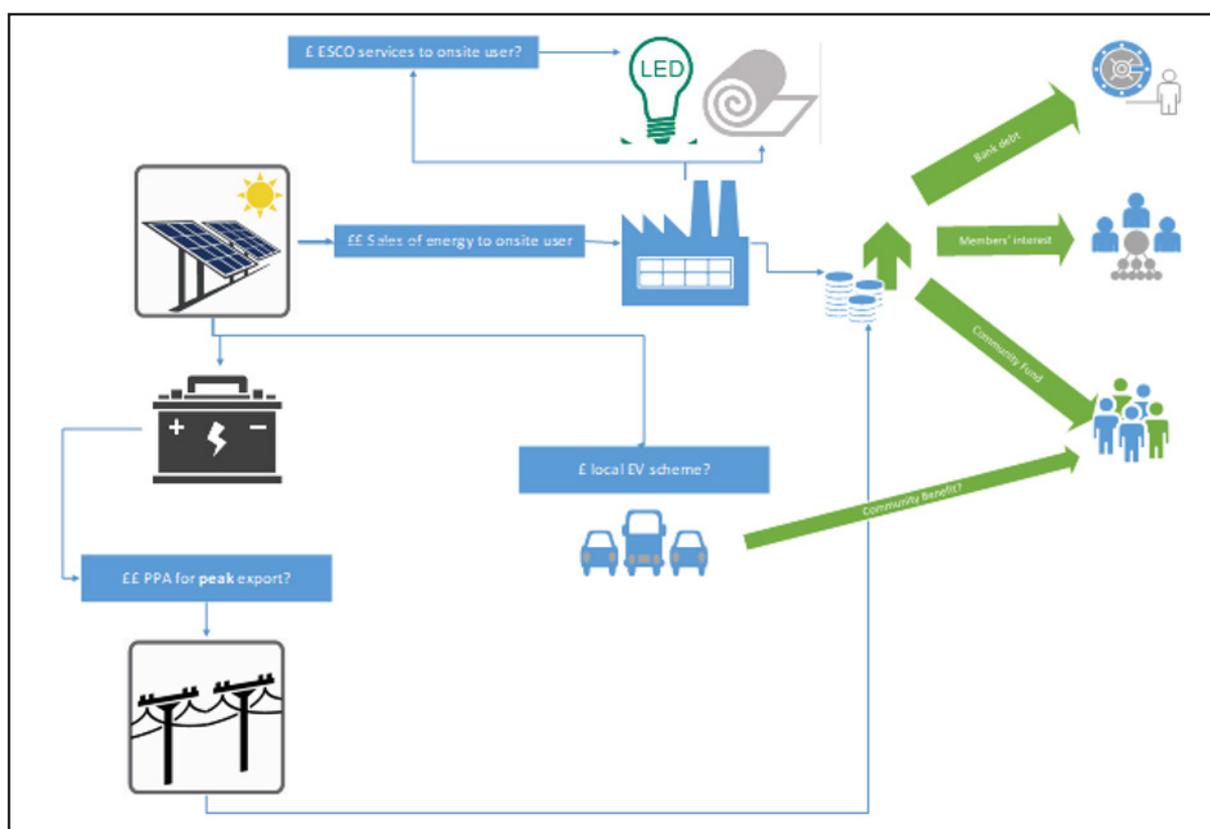


With the security and cushioning provided by the feed-in-tariff, this model has enabled communities in both urban and rural areas to collectively own something and generate interest for their members. It also allowed them to take action against climate change and establish a long-term and often sizeable local source of revenue for the community through a community benefit fund.

Today, with no feed-in-tariff, there far fewer new asset-based energy generation models and where they do exist they're often quite niche and financially complicated (see below niche models).

The evolution of the energy system technologies, reductions in costs and increasing recognition of the need for the decentralisation of energy are, however, opening-up new opportunities for communities. Today, there are an range of different community energy organisations who are pioneering new business models, participating in innovation schemes and in many ways driving forward a more ambitious and responsive community energy agenda than ever before (see below figure 7).

Figure 7 - New opportunities for community energy



Whilst many of the new models do not have sufficient margins to provide a community benefit fund, they enable communities to access products, services and opportunities that would otherwise not be available to them. And whereas asset-based models often focused on the management of an asset with relatively little need for prolonged or widespread local engagement, new models of community energy tend to be more focused on people and their evolving or possible future relationship with the energy system.

Typically new models are about designing and promoting new types of low-carbon energy services that, through the collective power of the community, help to address current failures in both 'demand' and 'supply'. They bring together potential customers for services like retrofit and electric vehicles, and provide effective, locally relevant responses that address the current failures in the pace, scope and accessibility of these products and services.

These models are often only made possible through partnership and collaboration. Many involve collaboration simultaneously 'within' and 'between' different communities to build economies of scale, to pool knowledge and resources and reduce the legal and administrative costs. Partnerships are often required with commercial organisations; new technology suppliers; energy network operators; local authorities and research institutions.

Three categories of business model

For the purpose of this study we have distinguished three different categories of project or business model:

1 Scale Models

These models are designed based on cooperation and collaboration between communities. They tend to address common problems like a lack of electric vehicle (EV) charge points, roof top solar, EV car clubs or solar on roof-tops or schools. They tend to use a cooperative form of governance rather than a community benefit society model. They typically have a pooled or centralised delivery hub which enables multiple communities to draw on knowledge and skills in diverse commercial and professional areas of the energy market. They tend to help to reduce the investment required by each individual community. Good examples of these models below include: Solar Streets, Big Solar co-op, Co-Wheels, Charge My Street, Retrofit Works. Further information about these models is included below.

2 Niche Models

'Niche' models of community energy are by their nature often quite bespoke to each community. They may be better in terms of mixing different technologies, drawing on all local resources and placing ownership and control at a community level. But they also take more work and expertise to develop. With the withdrawal of the feed-in-tariff they have become more challenging. They would typically be governed through a local Community Benefit Society. They will generally require more investment in feasibility and business development and be less immediately replicable. These models could include Riding Sunbeams (see below). Though, in general, are more typical of the types of project that have been supported through the Rural Community Energy Fund (see section 5 for examples).

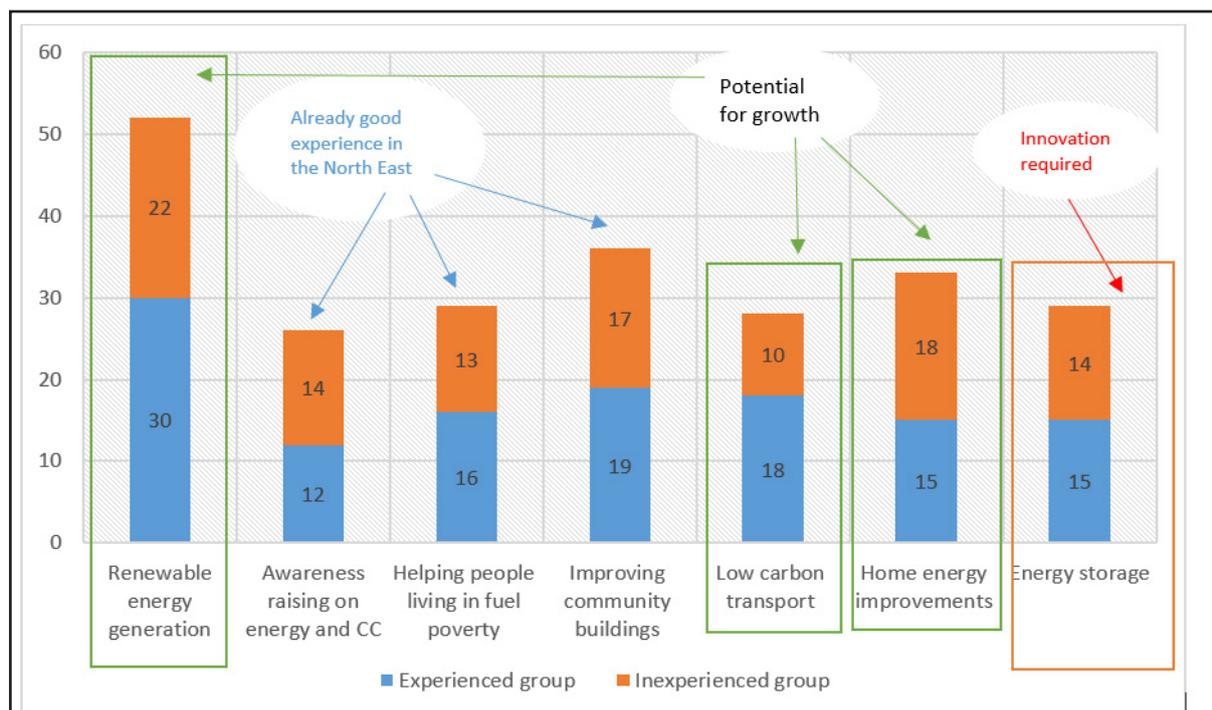
3 Innovation projects

These models are principally about exploring, modelling and demonstrating what a future local energy system could look like and the social, financial and system benefits of greater local and community engagement. Examples below include Project Leo and Bath and West Community Energy's Flex Community.

Thematic priorities for the VCSE sector in the North East

Regardless of their level of experience, our survey of the VCSE sector identified that the development and ownership of renewable generation assets (of multiple forms and scales) was the number one priority for the VCSE sector. See figure 8, below.

Figure 8 - VCSE sector thematic priorities for community energy in the North East



In the remainder of this section we have focussed on a shortlist of examples of community projects and business models. These correspond broadly to four thematic categories where we believe there is high potential for growth and innovation and where the community energy sector in particular has unique advantages. These include:

- A Renewable Energy Generation
- B Low Carbon Transport
- C Homes Energy Improvements (including heat)
- D Innovation

We haven't focussed on awareness raising, helping people living in fuel poverty and improving community buildings, although they're important, because there's greater experience in the region in these areas (see section 5).

Below is a summary table for the community energy examples which will be described in more detail in the following section. The summary table includes key goals for the different models, essential pre-conditions for uptake, type of group and the skills needed to take on these models and the readiness of the models for uptake in the North East.

Summary of high-potential community energy business models for the North East

A. Renewable Energy Generation

Community energy model example	Goals (What does the model achieve?)	Essential pre-conditions	Type of group (level of skill, expertise...)	Readiness for uptake in the North East
Solar Streets	Enable householders to afford installing domestic solar PV, and create a community fund to finance other local green initiatives and larger scale solar installations.	A collection of willing able-to-pay householders in a street or neighbourhood to take part, lead local group or local council to coordinate.	Local councils or local environmental or community groups, no need for previous expertise in energy projects or specific skills.	Model is existing and easy for any community to tap into.
Future Energy Landscapes	Community engaged in planning for a low carbon future in a local area, helping outline an energy plan, in a truly deliberative and meaningful way.	Willing members of the community to run the workshops and to take part in them.	Members of the community can be trained up by CSE or CPRE to run these workshops. No previous skills or expertise in energy needed, but might be helpful.	The full methodology and materials are available online for anyone to use. Easy for communities to run these workshops in the NE, but recommendation is to receive training from CSE or CPRE first.
Riding Sunbeams	Local rail transport is powered by local, community-owned, renewable energy.	A supportive transport partner with high-level electricity demand, investment and funding.	Requires a high level of commercial and technical expertise – relevant for experienced community energy groups or local authorities.	The model can be replicated but requires investment and funding, and local expertise and capacity to take on the project, as well as a suitable local transport partner.
Big Solar Co-op	Make more large scale rooftop solar generation projects viable on non-domestic buildings (commercial or community buildings).	Local buildings which have: high energy demand, suitable roof space.	Local individual or group to help identify a suitable site and support the project (no previous expertise or skills needed as training is provided).	Existing model is good to go and ready to tap into. Any community can take part by identifying a suitable site and joining the co-op.

B. Low Carbon Transport

Community energy model example	Goals (What does the model achieve?)	Essential pre-conditions	Type of group (level of skill, expertise...)	Readiness for uptake in the North East
Derwent Valley Car Club and Nadder Community Energy	Communities have access to an electric bike and car club powered by locally owned solar energy.	Existing car club enterprise to partner with (eg – Co-Wheels) and funding to set up the scheme and purchase the vehicles and bikes and install the renewable energy. Local support to make the scheme viable.	There needs to be capacity in the community to take on the work involved in setting this up – existing experienced community organisation would be best suited. They would not necessarily need any expertise in car clubs as community organisations have the option of partnering with a commercial partner to do a lot of the legal, administrative and financial work.	The model can be replicated but requires funding and investment, as well as local capacity to take on the project.
Charge My Street	Community electric vehicle and bike charge points are installed and financed through community shares.	Suitable spaces for charging points in the local area, local organisations, businesses or public sector to host sites.	Any community organisation, local council, business can host sites if they are suitable.	Easy existing model any community can tap into by applying to host a site.

C. Homes Energy Improvements (including heat)

Community energy model example	Goals (What does the model achieve?)	Essential pre-conditions	Type of group (level of skill, expertise...)	Readiness for uptake in the North East
RetrofitWorks	Develops a locally-led self-sustaining network of local skilled tradespeople and able to pay homeowners for increasing the energy efficiency and quality of homes in the UK.	The model needs local advocates to support and drive local retrofit activity.	Local advocates include local authorities, community groups, charities, contractors and other building professionals.	This is an existing model that communities can tap into by signing up to be Advocate Members.
Green Open Homes	Event for local homeowners to showcase energy efficiency improvements they've made to their homes, enabling peer-to-peer learning in the community.	Householders willing to take part.	Local group to coordinate event and promote it (no expertise or skill needed).	This is an easy existing model any community can tap into if they have enthusiasm in the community. Resources and Green Open Homes network platform for advertising events is accessible for anyone.
C.H.E.E.S.E project	Provides thermal imaging surveys at a low cost or free for people living in poor housing conditions with an aim of reducing domestic energy losses.	Local volunteers to do the surveys and local community organisation to run project, as well as households willing to take part.	Local volunteers are trained up so no expertise or skill needed. Local community organisation needed to run the project.	The model will be expanding as a franchise and will be looking for community organisations to take on the model in other parts of the country – currently not ready yet.
Swaffham Prior	Develop a low carbon heat network to heat homes in a village, powered by a ground source heat pump.	Funding to do feasibility studies, local capacity to manage project, enough homes to connect to the network to make it viable, a suitable site and heat source.	Local authority to get project off the ground and help with the finances, local community members with expertise or local organisation to set up a management group to run the network.	This is a more complex model which can be replicated but requires a lot of financial and technical support to get off the ground.

D. Innovation

Community energy model example	Goals (What does the model achieve?)	Essential pre-conditions	Type of group (level of skill, expertise...)	Readiness for uptake in the North East
Project LEO (Local Energy Oxfordshire)	Through trials and demonstrator projects, this aims to provide the evidence needed to support the policy changes and investment needed to create the technological, financial and social conditions for successful systemic change to a zero-carbon energy system.	A range of experienced and enthusiastic partners needed to develop and carry out the collaborative project. Funding and investment is required.	Local authorities, local energy suppliers, community energy groups, commercial organisations, DNOs, academics, transport providers.	This is a very complex project trialling pilots covering a range of flexibility and energy services. This requires a lot of funding and strong partnerships with a range of stakeholders to make a project like this possible.
Flex Community Project (Bath and West Community Energy)	Pilot to test a platform enabling households to provide electricity flexibility through automatic control of major electric-powered technologies.	Engaged and keen households willing to take part and commit to the installation of flex-enabled technology and monitoring equipment, and agree to automatic control of electricity consumption. Tech partner to work with (ie – Stemy Energy).	Experienced community energy group.	Development of the business model is starting and once complete will allow the team to understand and define the financial viability of a community benefit society to act as a community aggregator, and the potential to scale and replicate the model for other community groups. This model is not ready to be replicated yet.

Renewable Energy Generation¹¹

Decarbonisation Requirements

- Annual renewable electricity generation for the North East region at the end of 2017 was 1.5 TWh.
- An estimated 70% of this renewable electricity generation came from onshore wind in County Durham and Northumberland. However, it's estimated that there is great potential to increase this. In Northumberland alone it is estimated that just 1.1 TWh/yr of a potential of 45 TWh/yr of wind energy is utilised¹².
- The next most significant contributors were solar PV (9%), landfill gas (8%) and plant biomass (7%). The deployment of these other sources of renewable generation are assessed to be 'well below the national average'¹³.

Review of Local Authority Climate Action Plan and Local Plan

The table below summarises the emphasis on wind and solar generation in the key local strategic plans for the North East authorities that were reviewed for this study.

Solar	Local authority prioritisation
<p>Increasing domestic rooftop Solar PV coverage is a priority for both urban and rural communities both for decarbonisation, and also importantly (in the case of rural communities) to improve energy resilience (e.g. in locations where grid connections are less available).</p> <p>The reviewed documents also support roll out of rooftop solar PV on schools and other public buildings.</p> <p>Community led or commercial ground mounted solar PV arrays were less clearly discussed or prioritised in the documents reviewed.</p>	<p>Rooftop Solar PV: Newcastle, North Tyneside, South Tyneside, Sunderland, Gateshead.</p> <p>Ground mounted array: Durham.</p> <p>Roof top Solar PV: across all areas.</p> <p>Ground mounted array: Northumberland.</p>
Wind	
<p>Offshore wind and associated industries and engineering are highlighted as a key priority for economic growth and skilled jobs creation.</p> <p>Onshore wind developments were less clearly discussed. Such developments may be less relevant for more urban areas but could present a potential opportunity for community owned or led projects in more rural areas.</p>	<p>Offshore Wind: NE LEP, NTCA.</p> <p>Onshore Wind: Northumberland, Durham.</p>

11, 12, 13 Not Public: Regional and sub-regional Mini Stern review – A low Carbon Strategy for the LA7

Community Energy USPs

- Retention of local economic gains from decarbonising the grid and the electrification of heat and transport (for example, see below Riding Sunbeams).
- Increasing consent and support for the development of renewable energy assets locally (for example see below Future Energy Landscapes).
- Improving the affordability and accessibility of local generation assets (for the example of roof top solar see below Solar Streets).
- Making small renewable generation assets viable at scale (see below Big Solar co-op).

Project example: Solar Streets¹⁴

Solar Streets is an initiative that an increasing number of communities across the UK are getting involved in to install more domestic rooftop solar. Solar PV panels are installed in bulk at discounted prices for householders in a single neighbourhood or street. For every installation, £50 is donated by the installers into a Community Fund (a minimum of £100 for a commercial solar installation) used to help communities better afford green projects. It works as a partnership between interested councils or local green action groups, IDDEA (solar PV installers) and the Green Group UK Ltd (green marketing and PR company).

For example, Frome Solar Streets is a partnership between Frome Renewable Energy Co-op (FRECo) and Frome Town Council working with the installers IDDEA to offer discounted solar panels. With 10 households signed up, IDDEA are able to offer householders a 4kW system for £3,700 plus a £50 donation to FRECo compared to a usual price of £6000 per installation.

Project example: Solar Together (by iChoosr)¹⁵

Solar Together is another bulk buying scheme for domestic solar operating in the UK. All residents living in one of the participating council areas and who own their own house (or have permission from the landlord to install a solar PV system) can register for the scheme. iChoosr then leverage a better price for multiple households who have registered through a reverse auction, meaning the lowest bid wins. Installers are then pre-vetted and recommended to the households who have registered. iChoosr then get a commission if the installation goes ahead.

This scheme is similar to Solar Streets, however there is no Community Fund.

¹⁴ See <https://solarstreets.co.uk/>

¹⁵ See www.ichoosr.co.uk

Project example: Future Energy Landscapes (FEL)¹⁶

FEL is a deliberative community engagement methodology with the potential to pave the way for a variety of community energy business models, particularly related to renewable energy generation.

The FEL project is based on the premise that there needs to be meaningful and deliberative engagement on energy futures within communities if a transition to a low-carbon future is to be achieved in a way that is both timely and socially just.

In the absence of threat from imminent planning applications, the methodology – which has been utilised in Congresbury (Somerset) and Moreton in Marsh, (Gloucestershire) – enables a community to develop an outline energy plan based on factual information and insightful, detailed and mature locally-driven discussion about low carbon energy infrastructure.

The full methodology is available on an open-source basis with delivery being led by CPRE and CSE.



¹⁶ See - www.cse.org.uk/projects/view/1315

Project example: Riding Sunbeams¹⁷

Led by Community Energy South and Possible (formerly 10:10), Riding Sunbeams is demonstrating the technical, social and financial viability of supplying local, community-owned, energy generation to electrified railway track to provide traction power for trains. The vision for the project is to work with commuters and communities that are located close to the railway lines to develop and finance renewable generation assets. Electricity from the local generation asset is then sold directly to the railway and used to cover operational costs and to provide a return to the community and investors.

Key strengths

- The project offers an opportunity to local communities and commuters to benefit from the electrification of transport.
- It is financially viable in the post FIT era because it bypasses the national grid and supplies electricity directly to the consumer, in this case the railways, through a private-wire and long-term power purchase agreement¹⁸
- It therefore provides a new way to finance unsubsidised solar in the UK, and offers a way to circumvent grid capacity constraints.
- It also gives rail operators a chance to reduce traction electricity bills, cut carbon emissions and potentially to deliver completely new kinds of social benefits to lineside neighbours.

Potential limitations

Riding Sunbeams has required: (1) a high-level of commercial and technical expertise; (2) significant investment and funding; (3) a supportive transport partner with a high level of electricity demand.

Application in the North East

At its heart the Riding Sunbeams model is a fairly straightforward example of how pairing community owned solar generation directly with a high electricity user can both facilitate renewable uptake and benefit the user and local people. The model could also be applied to different forms of energy generation (wind, hydro, solar) and with the right support the electrification of multiple forms of transport (motorway truck lanes, metro or electric buses etc) all of which are likely to use a significant amount of electricity.

¹⁷ See – www.ridingsunbeams.org

¹⁸ See section for further discussion of Power Purchase Agreements.

Project example: Big Solar Coop¹⁹

The Big Solar co-op, led by Sharenergy Co-operative Ltd, is a post-FiT model for increasing low carbon generation through the deployment of non-domestic rooftop solar on mainly commercial or community buildings. The project works with trained volunteers to identify viable solar rooftops across the UK. It forms agreements with building owners to install, and operate solar rooftop arrays. The building operators benefit from cheaper electricity costs and pay an agreed rate that is used to cover operational costs and repay the capital raised to fund the installation through a community share offer. Any profit goes back into the Big Solar Co-op to install more rooftop solar.

Key strengths

- By creating efficiencies and removing duplication of effort in each community, it makes it possible to install rooftop solar on buildings where it might not otherwise be financially viable in the post-FiT era.
- It also works with community networks to proactively identify buildings and develop proposals for roof-top solar that would be unlikely to happen without active engagement.
- It enables communities with little or no solar technical expertise and experience to get involved, as services (including feasibility assessments, engaging with site owners and setting up legal agreements, design and installation, maintenance, cleaning, monitoring and optimisation) are pooled between communities and training is provided to volunteers.

Limitations

- Big Solar Coop will not work for those whose primary focus is the creation of an income stream for other projects as it does not allow for community benefit funding - this does not however mean that as finance flows out of the area, the benefit to the community and other buildings of cheaper electricity will remain local as will the returns on capital to any local members.
- Solar assets are owned by a national body, not a locally based one, and this means a loss of control for local organisations. Whether that's a problem depends on the priorities of local activists. Big Solar Co-op argue that many small solar societies have a democratic structure which doesn't in practice need or want to make contentious decisions which can burden volunteers who already put in many hours on board meetings, AGMs etc.

Application in the North East

Big Solar Co-op is looking for partnerships with groups across the UK, with a special focus on the North of England where there is less community solar power and historically the cooperative movement was very strong. An alternative could be for regional actors to develop their own model, based on similar principles, for the North East region.

¹⁹ www.bigsolar.coop

Low-carbon transport models

Decarbonisation Requirements

- Road transport accounts for 37% of CO₂ emissions in the region.
- Reducing vehicle emissions by accelerating the shift to low carbon transport is integral to decarbonisation and improving air quality.
- Decarbonising road transport is a national ambition, with the Government recently reiterating its intention to end the sale of new conventional petrol and diesel cars and vans by 2040 in the Road to Zero strategy.
- However, local level intervention will remain necessary to coordinate this transition, and to address the specific needs of different communities.
- The Transport Plan for the North East (draft for consultation, January 2021) aims to contribute towards making travel in the North East net carbon zero by 2035.

Review of Local Authority Climate Action Plan and Local Plan Priorities

The table below summarises the emphases on low-carbon transport in the key local strategic plans for the North East authorities that were reviewed for this study.

Low-carbon transport	Local authority prioritisation
<p>Low carbon transport investment is a key priority. There is a focus on facilitating roll out of EV usage. This includes supporting car club development and also updating council owned vehicle fleets to reduce carbon emissions.</p> <p>Many documents also discussed improving public transport options - and the sustainability and accessibility of these.</p>	<p>Explicit prioritisation: NE LEP, Newcastle, Northumberland, Durham, Gateshead, South Tyneside, Sunderland North Tyneside JTC/Transport North East NTCA Energy, Green Growth and Climate Change</p>

Community Energy USPs

- Drawing on social connections to stimulate and fulfil demand for the uptake of EVs.
- Reducing barriers to uptake, including the challenge of high-upfront costs and making decisions around new and evolving technology.
- Services are available where they're needed rather than where they're most commercially viable, and value is captured locally.

Community car club options

Community car clubs are member-based organisations that provide access to pay-as-you-drive vehicles. Vehicles are usually owned or leased by the car club. The club covers all the costs of owning and operating the vehicles, including insurance, tax, fuel, parking permits, cleaning and servicing. To use a vehicle, members usually pay an annual membership fee, and/or an hourly or mileage rate.

At one end of the scale, a community organisation could partner with a commercial or social franchise to 'bring a car club to their community'. At the other end of the spectrum, a community may wish to form their own agreements with insurers and telematics providers (managing of bookings and key-free access to cars) and to develop, own and manage their car club as a community enterprise.

Co-Wheels²⁰, are one example of a potential partner for a community organisation. Trading as a social enterprise they have helped to establish a number of locally managed community-based car club schemes across the UK. Like the Derwent Valley Club – see below.

At the other end of the spectrum, the model being developed by Nadder Community Energy is much more involved and requires long term local leadership - see below.

Potential EV switchers face the challenge of high-upfront costs and making decisions around new and evolving technology. Electric vehicle car clubs reduce upfront costs and provide the opportunity to build trust and familiarity with new technology, overcoming common concerns such as range anxiety.

Community car clubs are better placed to take advantage of the density of social connections, relationships, trust and support within individual communities or localities. Whereas Commercial car clubs are generally dependent on population density for success. Hence most rural locations are extremely poorly served.

Using a car club car is often a lot cheaper, and car expenses like insurance, MOT costs, tax, servicing and roadside assistance are all covered by the membership fees and hire costs. Hook Norton Community car club in Oxfordshire estimate that the average person in the UK spends £284 a month to run their car; that figure goes up to £480 with some form of finance²¹. Whereas on average their users pay around £100 a month.

²⁰ See - www.co-wheels.org.uk

²¹ See – www.hookycarclub.org.uk

Project example: Derwent Valley Car Club²²

Derwent Valley Car Club was formed in June 2013. It is run in collaboration with Co-Wheels and was set up with a National Lottery grant which allowed the car club to purchase a Nissan Leaf electric vehicle, three electric bikes and a set of photovoltaic cells. These solar panels were installed on the roof of the Village Hall and can supply enough power that charging the car and the bikes is effectively free²³.

The Club submitted a bid for funding to run a consultation to establish the feasibility of expanding into the surrounding areas. Once the bid was funded, the group delivered a survey flyer to 21,700 local homes. In addition to this they ran an online survey and advertising campaign on Facebook and attended local events.

The response to their activities was very positive – not just people who wanted to join the car club, but also new volunteer drivers to help elderly people access the mobility the offered by the club and a local business offering to provide a parking and charge point space.



²² <https://como.org.uk/project/derwent-valley-car-club/>

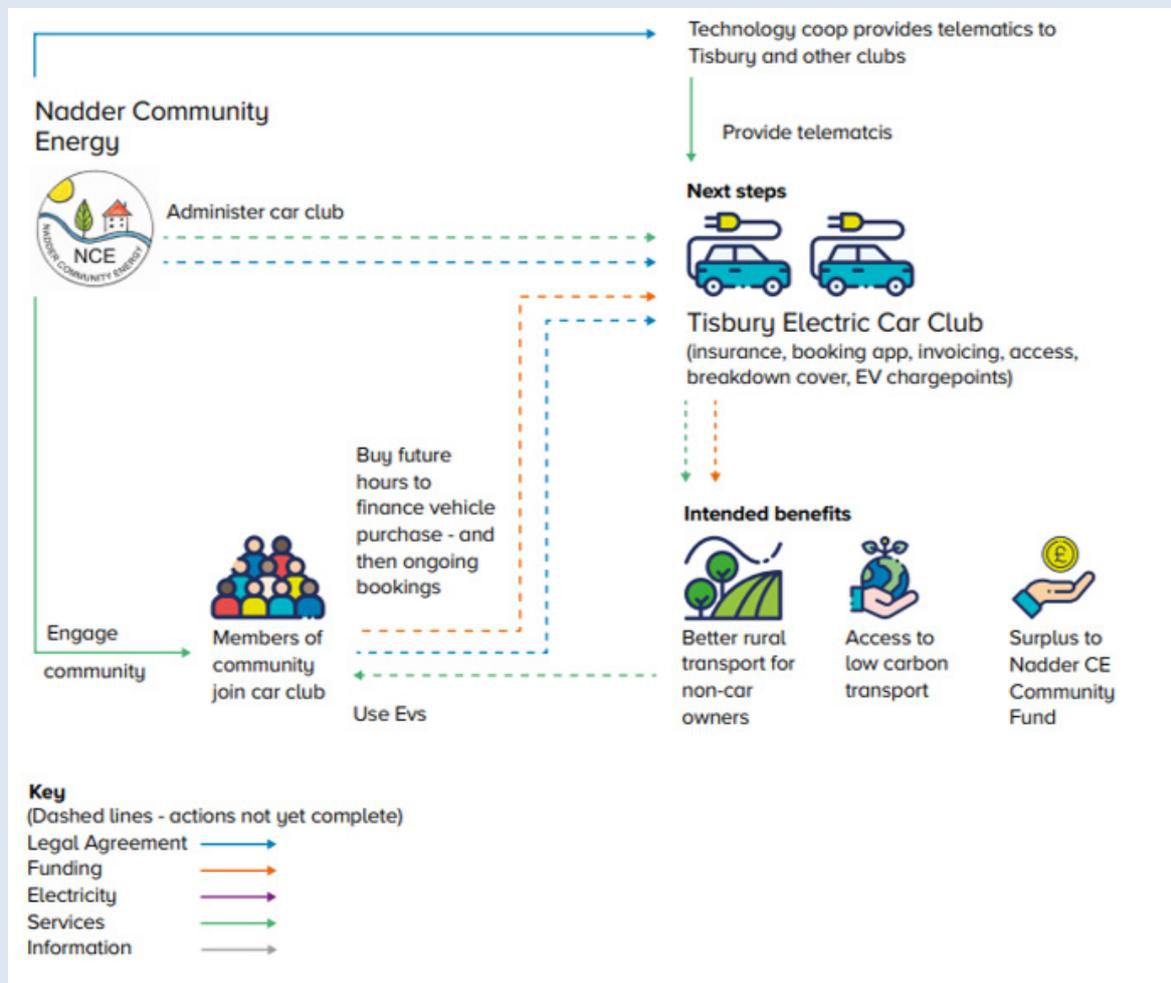
²³ <https://m.facebook.com/derwentvalleycarclub/>

Project example: Tisbury Car Club²⁴

Nadder Community Energy, based in Wiltshire, are developing an energy business model that will improve the lives of local residents facing isolation and create returns for investors, whilst pioneering an approach that will drive adoption of sustainable transport in rural areas.

Working closely with the local community, the group are exploring possibilities for an electric community transport business model based on a membership scheme and the use of locally generated solar for charging.

Business model for the Tisbury car club²⁵.



24 www.tisburyelectriccarclub.com

25 www.next-generation.org.uk/innovation

Project example: Charge My Street (EV Charging)²⁶

Charge My Street are a community benefit society which installs and operates community chargepoints, raising money through community shares.

Currently focused on Lancaster and Cumbria, Charge My Street:

- Help communities to identify and assess the viability of potential EV charge points.
- Give people the tools to locally finance a community chargepoint and join as members (reducing their costs of charging).
- Help to build a network of charge points so that members can get access to multiple charging points.
- Help maintain and operate the booking and management of charge points.

They draw on the density of social connections and solidarity within communities to enable the installation of chargepoints in areas where people don't tend to have their own driveway, and in rural areas that commercial chargepoint providers might not reach.

(Below) Through Charge My Street, Eden Housing Association have just installed two chargepoints and the facility to charge two E-Bikes in their car park at the Blain House site, Penrith²⁷.



²⁶ www.chargemystreet.co.uk

²⁷ www.youtube.com/watch?v=QHW2ioJLhZw

Heat and Retrofit

Decarbonisation Requirements

- In total, annual gas and electricity consumption in homes accounts for a third of all carbon emissions in the North East region.
- Over 70% of current domestic carbon emissions result from heating. 93% of domestic properties are being heated using gas boilers, with the remaining 7% made up of direct electric resistive, oil and solid fuel heaters.
- In the North East over 80% of homes likely to be standing in 2050 are already built. As such, retrofitting existing homes with energy efficiency is an important part of decarbonising domestic energy.

Review of Local Authority Climate Action Plan and Local Plan Priorities

The table below summarises the emphases on wind and solar generation in the key local strategic plans for the North East authorities that were reviewed for this study.

Solar	Local authority prioritisation
<p>Supporting and providing a strategic role in delivering District Heat Networks is a priority highlighted across numerous geographical areas. There is also a clear strategic interest in developing mine water or geothermal based renewable energy systems.</p> <p>Delivering other forms of low carbon heating systems (e.g. heat pumps) are also highlighted as being of strategic importance.</p>	<p>Explicit prioritisation: District Heat Networks: NE LEP, North Tyneside, Newcastle, Northumberland, Durham Geothermal: Durham, NE LEP, Heatpumps: Newcastle, NTCA District Heat Networks: across all areas Geothermal: Northumberland Heatpumps: across all areas (in the context of retrofit). NTCA</p>
Energy Efficiency / Retrofit	Local authority prioritisation
<p>Fuel poverty is seen as a key issue to address across many of the geographical areas reviewed. Linked to this is a priority to retrofit existing housing stock to make them warmer, more affordable to heat and also reduce carbon emissions.</p>	<p>Explicit prioritisation: Across all areas</p>

Community Energy USPs

- Building understanding and awareness of the relationship between domestic energy usage and building performance – e.g. the C.H.E.E.S.E. thermo-imaging project below.
- Building consent and support for municipal schemes – as for example in the Swaffham Prior project described below.
- Addressing critical challenges in the demand and local supply chains and building trust - as for example in the Retrofitworks project described below.
- Ensuring optimal uptake of or access to national schemes like the Green Homes Grant.

Project example: RetrofitWorks

RetrofitWorks²⁸ is a not-for-profit cooperative. It aims to develop locally-led self-sustaining markets and supply chains for increasing the energy efficiency and quality of homes in the UK. It works by bringing together local skilled tradespeople (such as contractors and suppliers) with the correct skills to deliver low carbon retrofitting projects who have been vetted for quality with customers (home owners) who would like to find an appropriate practitioner to improve energy efficiency and quality of their homes and reduce their associated carbon emissions.

The RetrofitWorks cooperative is owned by two distinct sets of members who are shareholders: advocates such as community groups and local representatives (e.g. local authorities, charities, community energy groups); and practitioners (contractors and other building professionals).

RetrofitWorks collects membership fees (£50/year membership). It manages different schemes in partnership with different Local Advocates. Each scheme is funded from a different source. These include: The Green Homes Grant (GHG), GHG Local Authority Delivery Scheme, the England European Regional Development Fund, OVO Energy Heat Pump Programme, Warm East Sussex.

Key strengths:

- It creates efficiencies in the supply chain therefore increasing affordability for customers and increasing business viability for practitioners.
- It enables customers with little or no knowledge to access high quality workmanship at a low risk.
- It promotes growth in local business, employment, and skills.

Potential limitations:

- Finding the contractors to do the work: RetrofitWorks note that in many areas of the country there are not enough skilled contractors to do the work. Therefore, this needs to be considered in tandem with skills development.
- Addresses limitations in the afford-to-pay market but challenging to find suitable funding to allow schemes to operate in an affordable manner for all customers.

Potential application in the North East:

RetrofitWorks designs, implements and manages energy efficiency and retrofit schemes most often in a defined geographical area. This is done in partnership with local organisations who want to support or drive local retrofit activity).

28 www.retrofitworks.co.uk

Project example: Green Open Homes²⁹

Green Open Homes events involve householders who have made low carbon improvements to make their homes more comfortable, cheaper to heat and kinder to the environment.

They open their homes to visitors who are shown around and given explanations of the improvements made and the process involved in making them. These events are a great opportunity for people to see homes similar to their own and hear from people who have already gone through the process.

The Green Open Homes network provides a platform and resources for Green Open Homes events across the UK.



²⁹ www.greenopenhomes.net/

Project example: CHEESE' (Cold Homes Energy Efficiency Survey Experts)³⁰

The CHEESE project is a not-for-profit CIC that aims to reduce domestic energy losses, that are low cost, or free to people living in poor housing conditions and in fuel poverty.

The aim of CHEESE is to reduce domestic heat losses. They do this by performing detailed surveys of homes using low-cost thermal imaging equipment to identify areas where simple but effective remedial action can be taken. It is estimated that 30% of heating losses are due to drafts, which can be fixed cheaply and easily when they have been identified.

The thermal-imaging surveys identify where your home is losing heat and suggest remedies to give the information needed to make low-cost impactful remedies to save money, improve comfort and wellbeing, and reduce energy consumption and carbon footprint.

CHEESE has just been awarded a grant to permit expansion of the project and the establishing of a new company to social-franchise the Energy Tracers survey system.

Project example: Swaffham Prior³¹

Swaffham Prior Community Land Trust and Cambridgeshire County Council are collaborating to deliver a project to bring renewable energy to Swaffham Prior. Following a series of technical studies, it was decided that a Ground Source Heat Pump could provide thermal energy to be pumped through a network, into homes within the village. Through a three step process:

1. A ground source heat pump provides energy from underground.
2. Heat is distributed by a water and antifreeze mixture that flows through pipes underground.
3. Heat is then transferred from the liquid to water by a 'Heat Interface Unit' in your home.

Swaffham Prior will be one of the first villages in the UK to retrofit a heating network into an existing community. The project has been three years in the making, since it was first brought forward by a group of residents in the village and has been supported by many villagers over the last couple of years.

These residents got Cambridgeshire council involved to unlock grant funding and make the idea a reality. Funding, planning and all legal permissions are in place to make the project happen. And through Green Homes Grants, additional funding has been made available

³⁰ <https://cheeseproject.co.uk>

³¹ www.heatingswaffhamprior.co.uk

to support extra upgrades to the poorest quality homes in the village - for those living in a home with EPC of D, E, F, or G, or who do not have a 'wet' radiator system.

Around 170 homes are required to join to make the scheme viable. It is intended that the Community Heating Network in Swaffham Prior is funded through grants, loans and investments provided by Cambridgeshire County Council and the Department of Business, Energy and Industrial Strategy. When the project is fully delivered, heating bills paid by residents will contribute to the ongoing operational costs, and paying back of the loans. Following this pay-back period, bills may be further reduced, or surplus income could be reinvested into the village. This will be determined by a management group set up to run the community heating network.

Local Impact:

- The scheme will result in about one third less carbon per annum to heat homes. This means that by 2050, Swaffham Prior will save nearly 30,000 tonnes of carbon emissions.
- Reduced noise pollution from household boilers and fuel deliveries.
- Improved local air quality in the village by removing the oil boiler emissions; Reduced disruption to village life from oil deliveries.
- An opportunity to lay other services at the same time such as high-speed broadband.
- Energy equity and democracy with a locally owned and managed heat and an investment opportunity in the co-operative set up to deliver the heat network.
- Reduced exposure to oil price rises.

Innovation

Smart Local Energy Systems

The decarbonisation of transport and heat, and increased local energy generation pose a number of challenges – and opportunities - for the management of the energy system. These include³²:

- Intermittent supply: Renewable energy sources are intermittent (weather dependent) and cannot be guaranteed to meet demand, especially at peak times.
- Increased demand: Switching from oil or gas to electric transport and electric home heating will put more pressure on our electricity grid.
- Ensuring responsiveness: the switch to renewables is creating a more decentralised energy system with many small, scattered generators. This makes it harder to turn generation up or down when required.
- Reducing demand spikes: Currently energy consumed in the evening peak is significantly more carbon intensive than other times of the day.

Whereas the UK energy system has previously been very centralised, energy assets (such as electric vehicles, solar, local batteries, heat networks, heat pumps) today and in the future are likely to become much more widely distributed. Without SMARTer local energy systems (see below, project Leo) and improved local coordination, we will need wires big enough to cope with everything operating at once, meaning hugely expensive upgrades. By putting everything together intelligently, we can make best use of existing infrastructure - and reward users for flexing their demand to help balance the system³³.

There are a number of community energy organisation across the UK piloting schemes looking at how local solutions including behaviour change, battery storage, pricing mechanisms and smart technology can help to address these challenges.

32 www.bwce.coop/energy-demand/

33 <https://innovateuk.blog.gov.uk/2021/01/25/smart-local-energy-systems-for-net-zero-carbon/>

Project example: LEO (Local Energy Oxfordshire)³⁴

Project LEO (Local Energy Oxfordshire) is an ambitious, wide-ranging and innovative trial, seeking to accelerate the UK's transition to a zero-carbon energy system. It seeks to create the conditions that replicate the electricity system of the future and grow an evidence base that can inform how we manage the transition to a smarter electricity system.

Crucially the project recognises that the energy system is more than just the wires and switches that make up its physical infrastructure. It's a social system, developed by people, for people. Through trials and demonstrator projects, it is building up a bank of valuable data and insights that can be used to support policy changes in the UK's energy transition. This includes:

1. Testing new market and flexibility models – exploring new products and services that create new opportunities to benefit from the way we generate, store and use energy in our homes, organisations and communities
2. Advancing the capabilities of networks to manage smart, renewable and storage technologies – learning what needs to happen to our electricity networks to make them ready for a change to a local energy system.
3. Facilitating local participation in the energy system – ensuring that individuals, households and organisations are part of the energy transition

Project LEO is a collaboration between: Scottish & Southern Electricity Networks, Low Carbon Hub, University of Oxford, Oxford Brookes University, EDF Energy, Piclo, Oxfordshire County Council, Nuvve, Oxford City Council and Origami. Funded by the government's Industrial Strategy.

Through the project, community energy group Low Carbon Hub³⁵ are carrying out real world pilots across Oxfordshire that will cover a range of different flexibility and energy services, relating to power, transport and heat projects and that will:

- Increase local renewable energy generation.
- Develop opportunities to better match our local energy supply to demand through increased storage capacity, or shifting demand.
- Demonstrate different ways to manage network constraints in tandem with the transition from a distribution network operator (DNO) to distribution system operator (DSO) model.
- Free up capacity within existing electricity infrastructure through smarter and more efficient use of the energy we generate, facilitating the shift to low carbon transport and heating.

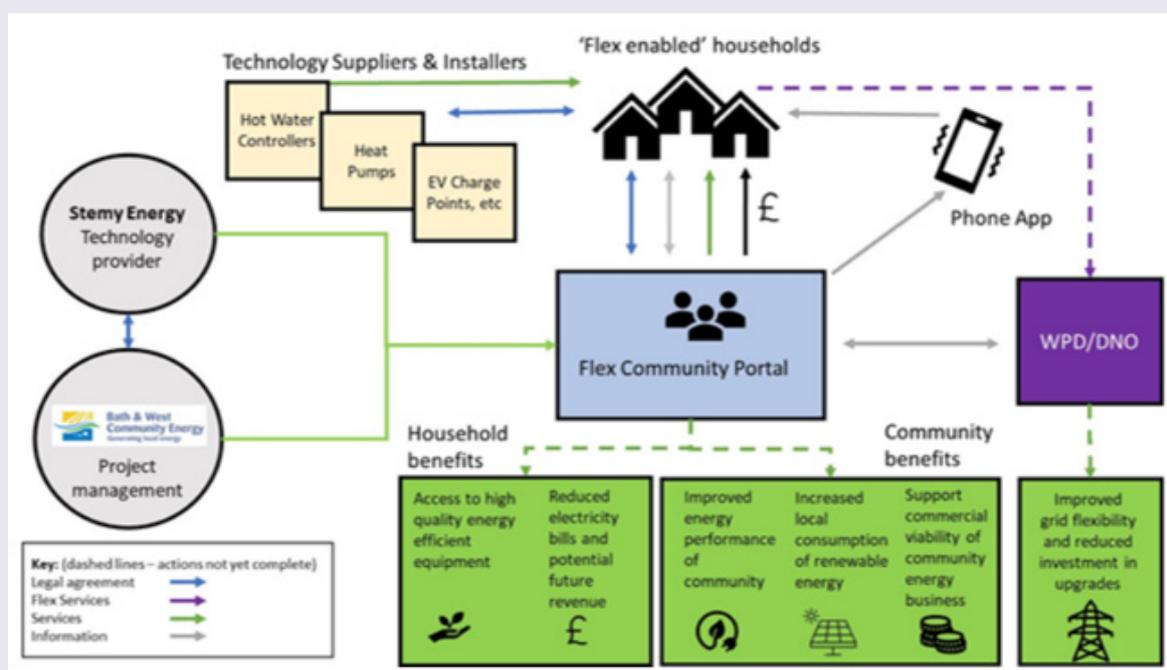
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³⁴ <https://project-leo.co.uk>

³⁵ www.lowcarbonhub.org/p/programmes/project-leo

- Propose and test new business models that allow people to make active choices about how they buy and use energy.
- Work with local communities to identify the social benefits of higher engagement with energy and ensure that access to energy is equitable.

Project example: Flex Community



The Flex Community project³⁶, led by Bath & West Community Energy, is designed to test and pilot the Stemy Energy cloud-based platform through 50 households who will allow the automatic control of their main electric appliance - such as EV charge posts and heat pumps - within householder-defined comfort constraints.

The project is working with Western Power Distribution to simulate real-time flexibility requests to test the platform and householder response, and validate the business model for scaling and replication. It is free to join the Flex Community, but households are required to commit to the installation of appropriate flex-enabled technology plus specific Stemy Energy monitoring equipment.

They also need to agree to the automatic control of their energy technology's electricity consumption, but within pre-agreed comfort levels. Initially the project is focusing on the installation of hot water controllers, heat pumps and household EV charging points, as well as looking to engage with households with existing PV or battery technologies.

Cont.

³⁶ www.bwce.coop/flex-community

Participants will receive an annual flexibility payment, but once the platform can actively trade aggregated electricity within grid constrained areas, the participating households will receive direct flexibility revenue from the network operator.

To date, 16 households are actively participating. BWCE has also recruited over 40 interested parties to commence their customer journey through the Portal to see if they are eligible to join the Flex Community.

Development of the business model is starting and once complete will allow the team to understand and define the financial viability of a community benefit society to act as a community aggregator, and the potential to scale and replicate the model for other community groups.

Implications for support required

Strengths

- The transition of the energy system has potential to create new opportunities for local and community energy.
- There are already many well established models, tools and project ideas – relevant to all areas of the UK.

Weaknesses

- Today's community energy business models are unlikely to yield a community benefit fund.
- They're focussed on markets that are generally immature and therefore likely to require creativity and perseverance.
- Markets and technologies are evolving rapidly, making some models more complicated.

Opportunities

- There are many potential business models that correspond to the priorities of the VCSE sector.
- There is know-how and expertise to be shared and gained by working with 'scale models' that facilitate cooperation between communities.
- Community energy has the potential to support local and regional level energy research and innovation.

Challenges

- Identifying models: matching local needs with financially viable models and opportunities.
- Aligning interests and ways of working across the commercial, public and voluntary sectors.

3. Access to a broad range of skills and capacities

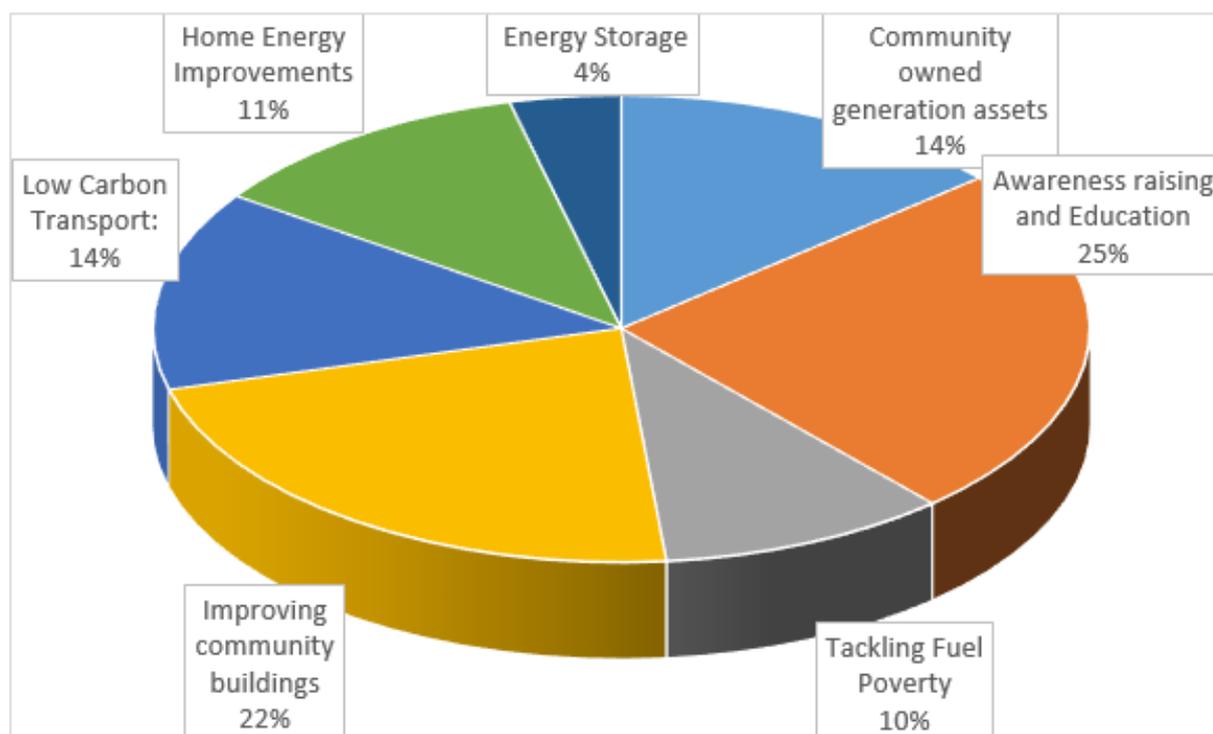
In this section we consider (a) the existing knowledge, skills and capacities of the VCSE Sector; and (b) the key gaps and capacity support needs for community energy.

Knowledge, skills and capacities in the North East VCSE Sector

Of the 75 respondents to our VCSE survey, over half (43), reported having experience of community energy. A breakdown of this is provided in Figure 9 below.

The results suggest that a strength for community energy in the North East is the existing experience of awareness raising, education and improving community buildings. More support is likely to be required in the areas of low carbon transport, homes energy improvements, tackling fuel poverty, energy storage and the development of home-owned assets and opportunities.

Figure 9 - Areas of Community experience (North East VCSE sector)



We also asked VCSE survey respondents about where they felt their greatest strengths and weakness lie.

Areas of consistent high confidence:

Strengths and weaknesses overall	Strength	Weaknesses	Net score
Ability to delivering local projects	87%	12%	75%
Experience of project planning	86%	13%	73%
Experience of community engagement	83%	16%	67%

Areas where there is good general confidence:

Strengths and weaknesses overall	Strength	Weaknesses	Net score
Delivering local services	66%	33%	33%
Knowledge about fuel poverty	60%	40%	20%
Running community businesses or social enterprises	57%	42%	15%

Areas where there was generally less confidence:

Strengths and weaknesses overall	Strength	Weaknesses	Net score
Knowledge of the energy system	44%	55%	-11%
Experience of working with people in fuel poverty	44%	56%	-12%
Knowledge about specific energy technologies	41%	58%	-17%
Experience navigating the planning system	37%	62%	-25%

Areas where there was very little confidence:

Strengths and weaknesses overall	Strength	Weaknesses	Net score
Legal, financial and business modelling skills	21%	78%	-57%
Marketing and PR skills	21%	78%	-57%
Understanding the energy market and opportunities	9%	90%	-81%

Strengths for community energy in the North East therefore include the strong confidence of the VCSE sector to engage communities and deliver local projects as well as the reasonable abundance of confidence in running social enterprise organisations, understanding fuel poverty and in delivering local services.

The VCSE sector is least confident in its knowledge of the evolving energy system, in its actual experience of working with people in fuel poverty, its knowledge about specific energy technologies and its experience of navigating the planning system.

Gaps and capacity support needs

Every community will have some capacity for community energy. This might be in the form of knowledge, skills and abilities. Or, it might simply be in the form of a local understanding of place and identity and the potential to use local relationships, networks and influence to stimulate discussions and conversations. Few, if any, community energy organisations though have begun with all the knowledge skills and experience they needed.

This means that although professional backgrounds and skill sets are useful, and some prior knowledge is always helpful, not all members of a community energy organisation have to be engineers, lawyers and financiers! Most are not. What is important, particularly to begin with, is the agency created by the cooperation of local people working together with a common purpose. This is one of the key characteristics that distinguishes community energy from public and private sector led endeavours.

Early-stage support

In order to capitalise on the motivation and underlying capacities (to engage communities, lead and deliver local projects and services), VCSE sector organisations in the North East need support to help understand the evolving energy market and opportunities for community level action.

This support is required at the early stages of a community project development process in order to identify and translate local priorities and opportunities into high-potential projects. Put simply, many community actors have reported an awareness and interest in community energy but aren't sure what to do or where to begin.

Access to specialist energy skillsets

The potential range and diversity of community energy projects makes it impossible to be prescriptive about the technical and specialist skills sets that might be required for community projects. Specialist support however is likely to be required in areas such as low carbon transport, deep retrofit, storage and flexibility.

This might include detailed and commercial support with specific energy technologies, marketing and PR, legal or planning process guidance. This support could potentially be made available to community organisations through partnerships (where there is mutual benefit) or through the procurement of services.

It could involve:

1. Local knowledge and research centres, like Durham and Newcastle universities as well as technical colleges and institutions.
2. Partnership with technology providers and supply chains (particularly new market entrants). See for example BWCE innovation example in section 2.
3. Professional consultancy organisations. Particularly those local with an interest in community energy, such as D3-associates and Narec Distributed Energy who could

work with community organisations on energy efficiency, energy monitoring, renewable energy feasibilities and support with bid writing.

D3-Associates are consultants and project managers, delivering projects in the built environment across the North of England. Their services span the full project life cycle, from feasibility and business planning through design, procurement and management, to final delivery on the ground.

Narec Distributed Energy is a spin-off company from the UK National Renewable Energy Centre. They are an organisation that carries out a wide range of work within the renewable energy, energy efficiency and energy storage sector. They help customers reduce carbon, alleviate fuel poverty, improve energy security, stimulate economic growth and educate energy users.

4. Collaborating with community organisation through scale models (see section 2).
5. Learning through resources and materials provided by national organisations such as: Community Energy England (<https://communityenergyengland.org>), Cooperatives UK (www.uk.coop) and Centre for Sustainable Energy (www.cse.org.uk)

Pooling learning

In three focus groups sessions we held with 15 experienced community energy practitioners and seven interested VCSE practitioners from the North East, two of the most dominant themes, when asked about 'ways forward' were about sharing existing skills and knowledge in the North East and building different partnerships and relationships.

1. The need for more networking and relationship and partnership brokering:
 - *"Speed dating, get people in the room together, creating the opportunity for conversations, exchange notes and contacts."*
 - *"Formalise support by having a regional level (or county level) umbrella group/organisation, set up a mentoring or training programme."*
2. Learning, knowledge and information sharing:
 - *"All (six of the main) barriers are about knowledge and understanding, and learning from another rather than replicating things."*
 - *"Open-source technical reports (RCEF applications), sharing knowledge that was publicly funded."*

Implications for support required

Strengths	Weaknesses	Opportunities	Challenges
<p>Transferable skills and experience in community engagement; participatory project planning and local delivery.</p> <p>Local universities and research institutions e.g. Centre for Energy at Newcastle University and Durham Energy Institute.</p> <p>Local commercial support actors like, D3-Associates and Narec distributed energy.</p>	<p>Understanding of the emerging energy system, market and opportunities for community energy (VCSE sector).</p> <p>Resources (time and capacity) to develop and write funding proposals.</p> <p>Disconnect between local technical and commercial expertise and the VCSE sector.</p> <p>Limited access to general professional services: legal, financial modelling, marketing.</p> <p>Limited access to highly-specialist technical expertise e.g. around heat, EV infrastructure and retrofit.</p> <p>Lack of sharing of feasibility reports, data and plans.</p>	<p>Understanding and identifying the common needs and gaps across the region.</p> <p>Connect and develop training schemes and build the supply chains that are fundamental to achieving net zero.</p> <p>Bring new skills and expertise to the region e.g. by building on LocoGen relationship being established, see below, Section 5, RCEF.</p> <p>New relationships and partnerships are likely to lead to more pro-bono and voluntary support.</p> <p>Help to develop, build and localise free resources provided by Community Energy England, CSE, Co-Ops UK and many others ...</p>	<p>Needs coordination. Coordination takes time and requires investment.</p> <p>There are quite different and diverse needs – not all common. Some are necessarily bespoke.</p> <p>Some of these skillsets and capacity could come with a price tag and can be commercially sensitive – thereby difficult to pool/share.</p>

4. Supportive legal, policy and regulatory context

In this section we consider (a) the national level legal, policy and regulatory context and (b) the regional level policy context.

National level policy³⁷

Challenges

The potential of community energy has been recognised at a national level on a number of occasions in recent years. However, despite the pressing and ever-growing ambition for achieving net-zero, actual support has waned.

Recent policy announcements – including The Ten Point Plan for a Green Industrial Revolution (Nov, 2020), the Energy White Paper: Powering our Net Zero Future (Dec, 2020) and The National Infrastructure strategy (25 Nov, 2020) – make limited reference to the role of communities.

The dominant model within the community energy sector is based on on energy generation and therefore has been negatively affected by wider changes across the sector as a whole. These changes include: the removal of the feed-in and export tariffs; the loss of tax relief; an increase in business rates related to rooftop solar; increased planning constraints applied to onshore wind and; the increase of VAT on solar panels, batteries and ‘energy saving measures’ from 5% to 20%.

The government recently re-committed to supporting onshore renewables under the Contracts for Difference (CfD) scheme but this excludes most local and community energy as they tend to be projects below 5 MW. The government refused a request for a ‘Community Energy CfD’ which would have helped create certainty for investors by providing a guaranteed revenue for electricity sold to the grid through to 2035.

Whilst the government renewed its support for the Rural Community Energy Fund (RCEF) in 2019, support for its sister fund, the Urban Community Energy Fund (UCEF), came to an end in 2016. RCEF today is a £10m programme set to run to 2022 which supports rural communities in England to develop renewable energy projects that provide economic and social benefits to the community.

Opportunities

Nevertheless, the policy support for environmental activity remains dynamic. It is reported that BEIS had recently prepared proposals for a multi-year support package which had been signed off by the previous Secretary of State, Alok Sharma, for inclusion in the Comprehensive

³⁷ For an up-to-date analysis please see: <https://communityenergyengland.org/pages/policy-advocacy-overview>

Spending Review in autumn 2020. It was deleted when the remit of the spending review was reduced to an 'Emergency Spending Review' with a 1-2 year scope.

The Local Electricity Bill³⁸ is a Private Members Bill that has been introduced to the House of Commons with the objective of enabling local generators to supply electricity locally. Its aim is to give community-scale renewable energy a massive boost by empowering communities to sell their energy directly to local people. It is supported by 237 MPs, and a growing number (hundreds) of national and local groups and local authorities. The community energy sector recognises that energy supply is complicated, low-margin and risky and is not a silver bullet. But enabling hyperlocal supply or extending the current 'behind the meter' model to the immediate low-voltage neighbourhood would be a huge help to community energy.

Most recently the Environmental Audit Committee has written to Secretary of State for Business Energy and Industrial Strategy (BEIS), Kwasi Kwarteng MP, following an inquiry into community energy, calling upon him to remove the barriers to the development of community energy. Proposals include recognising the importance of community energy in the Net Zero Strategy, the removal of regulatory barriers to local supply of energy, and the provision of specific financial supports for community energy such as is available for commercial onshore renewable energy. These financial supports include: a Community Smart Export Guarantee, with a long-term floor price; an Urban Community Energy Fund; a replacement for the Renewable Heat Incentive for community energy; and funding for Local Area Energy Planning and local authority/community energy collaborations.

In terms of regulation, via Ofgem, changes are expected in particular to the way charges for connecting to and using the grid are calculated. Ofgem has been undertaking a review of their charging methodology for connecting to and using the grid which could have a significant impact on the business models for community energy. Ofgem's RIIO-ED2 framework sets the pricing controls for electricity transmission, electricity distribution and gas distribution. The network operators are currently developing their business plans to propose their priorities for this pricing period.

Regional level policy support

Climate emergency declarations

The need for urgent action to address the climate emergency is widely recognised across the North East region.

All seven local authorities have declared a Climate Emergency and committed to ambitious targets to cut carbon emissions (see figure 10) and have set targets ahead of the UK's Government goal of reducing emissions by 78% by 2035 compared to 1990 levels.

38 www.powerforpeople.org.uk/the-local-electricity-bill

Figure 10 climate emergency declarations in the North East

Durham County Council:

Pledged to reduce carbon emissions from Durham County Council's operations by 80% from 2008/09 levels by 2030 and to make County Durham Carbon Neutral by 2050³⁹.

Gateshead Council

Committed to achieving 100% clean energy across the full range of functions by 2030; ensuring that all strategic decisions, budgets and approaches to planning decisions are in line with a shift to zero carbon by 2030; and supporting and working with all relevant bodies towards making the entire area carbon neutral within the same timescale⁴⁰.

Newcastle City Council

Committed to making Newcastle carbon neutral by 2030.

North of Tyne Combined Authority⁴¹

Jamie Driscoll, the first ever mayor for the North of Tyne declared a climate emergency in his first day in charge of the newly formed combined authority (May 2019)⁴².

North Tyneside

Committed to being a carbon neutral Borough by 2050⁴³.

Northumberland County Council

Vowed to half their carbon footprint by 2025 and make the county carbon neutral by 2030⁴⁴.

South Tyneside

Committed to making the council carbon neutral by 2030 (25% reduction by March 2023, 50% reduction by March 2025).

Sunderland

Set the target of becoming carbon neutral by 2030⁴⁵.

Climate Action Plans and Community Engagement

Most local authorities in the region are in the processes of updating or have updated initial climate action plans to reflect this new ambition and many of these action plans recognise the need for close public and community engagement (see figure 11).

39 www.durham.gov.uk/climatechange

40 www.gateshead.gov.uk/article/14171/What-Gateshead-Council-is-doing

41 The North of Tyne Combined Authority is a partnership of three local authorities: Newcastle, North Tyneside, and Northumberland and a directly-elected Metro Mayor.

42 www.climateemergency.uk/blog/north-of-tyne/

43 <https://democracy.northtyneside.gov.uk/documents/s4552/Climate%20Emergency%20Update%20-%20North%20Tyneside%20Climate%20Emergency%20Action%20Plan-Appendix.pdf>

44 www.northumberland.gov.uk/Climate-Change/Climate-Change.aspx

45 www.climateemergency.uk/blog/sunderland/

Figure 11: Climate Action plans and community engagement

<p>Durham County Council: Climate Emergency Response Action Plan (2020) Promotion and support for community energy schemes through the Neighbourhood plan process.</p> <p>Gateshead Council: Climate Change Strategy (2010) Engage local people, local communities and businesses in debate and dialogue to raise awareness of climate change issues and encourage them to take action.</p> <p>Newcastle City Council: Net Zero Newcastle (2020) Programme of community engagement - including investigating climate summits and citizen assemblies.</p> <p>Produce a guidance document for property owners that sets out a summary of the key planning policies that enable sustainable development and a simple guide to streamlining an application for low carbon initiatives.</p> <p>North Tyneside: Climate Action Plan (2020) North Tyneside commits to supporting community groups on energy related projects. Including community energy programmes.</p> <p>Northumberland County Council: Climate Action Plan (2020) Implement proposals that will encourage residents and schools to become actively involved in tree planting activity through 'free tree' scheme.</p> <p>South Tyneside: Sustainable South Tyneside 2020-2025 The Council will play a key role championing a carbon neutral future by working with local communities, businesses, organisations and individuals to support reductions in carbon emissions and waste</p>
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Specific Policy support for Community Energy

While many climate action plans acknowledge the need to work with the public and civil society there are few explicit recognitions of the potential of community energy, and only one, County Durham's Climate Emergency, sets a target for community energy - in that case, to install at least 100 community-backed EV charge points in rural areas.

The North East LEP's Strategic Economic Plan identifies energy as one of four areas of strategic importance that could improve the North East's economic competitiveness. The Energy for Growth strategy builds on this and sets out specific strategic themes whereby the region can deliver on the UK's energy policy while stimulating growth. Community energy is identified as one of the 13 key strategic themes highlighted in the Energy for Growth strategy. The strategy identifies community energy as an opportunity to deliver substantial social, economic and environmental benefits. Delivery priorities at a regional level include: sharing of best practice or exploration of how schemes could be aggregated, addressing skills gaps and accessing finance – all of which could unlock further implementation.

North of Tyne Combined Authority (NTCA) Energy, Green Growth and Climate Change blueprint approved £100k for further development work to establish an NTCA revolving Carbon Reduction Fund, and to set an ambition that this fund will leverage over £10m of projects. The development work will include establishing proposals for funding and delivery mechanisms to support bottom-up community energy generation proposals.

One of the strongest regional commitments to community energy comes from Northern Powergrid who have been a long-time supporter of community energy. In their 'Community Energy Engagement Strategy 2020-2023' Northern Powergrid make 26 commitments to strengthening community energy in the region, including:

- To keep communities informed via a targeted quarterly newsletter and an up-to-date website.
- More face-to-face engagement including a programme of two events a year designed with and for community energy organisations, and continuing to engage in regional and national events that community energy groups take part in.
- Facilitate greater collaboration to help communities build partnerships to deliver viable large-scale projects.
- Explore offering more technical support, training and resources to community energy organisations to develop their skills, build capacity, and support new community energy business models at scale.
- More innovation projects with communities, especially on voltage reduction and smart grids, helping communities find new business models at scale.
- Consider integrating weighting on social and environmental value in services procurement.
- Review their 'connections process' to explore offering greater technical and financial support for community energy organisations.
- Support communities to advocate and have a voice, using their industry position to feed back to the government and Ofgem what community energy organisations say they need to thrive.
- To provide financial support to the Community Partnering Fund, and review the process to ensure it encourages more community energy, energy efficiency, fuel poverty and climate change education activities.

Implications for support required

Strengths	Weaknesses	Opportunities	Challenges
<p>The need for urgent action to address the climate emergency is widely recognised across the North East.</p> <p>Level of interest and political support for community energy. Prioritisation by the LEP, NTCA and Northern Powergrid.</p>	<p>National policy does not prioritise community energy.</p> <p>Regional level policy is not yet specific about targets for community energy.</p>	<p>Local authority evolving climate action strategies and public engagement.</p> <p>For communities and local authorities to work together to access future investment schemes, like the Green Homes Grants and central government investment in things like EV infrastructure.</p> <p>Potential efficiencies in a wider regional approach.</p>	<p>Mainstreaming community energy across different policy areas and domains e.g. planning, transport, etc.</p>

5. Investment and support mechanisms

In this section we consider (a) the investment and support mechanisms that are already in place in the North East region for community energy, (b) the strengths, weaknesses, challenges and opportunities of the investment and support available in the North East, and (c) examples of good practice at a regional and local level from elsewhere in the UK that have been proven to strengthen community energy.

Investment and support mechanisms already in place in the North East

Currently, within the North East region, there are two main sources of support for community energy: the Rural Community Energy Fund (RCEF) and the support provided by Northern Powergrid.

There are also a number of other opportunities emerging:

- Durham County Council are offering a revolving loan fund to support businesses in County Durham with a range of costs including adopting new technologies.
- North of Tyne Combined Authority are developing plans for a Carbon Reduction Fund.
- Northern Powergrid are currently reviewing the nature of their community support.

Rural Community Energy Fund (RCEF)

Relaunched in 2019, RCEF (www.gov.uk/guidance/rural-community-energy-fund) is a funding scheme to support rural communities across England wanting to set up renewable energy projects in their area. RCEF provides non-capital grant funding over two stages to help community organisations with the development of a renewable energy project. Stage 1 provides grants of up to £40,000 to cover consultancy and professional costs for producing an initial feasibility report in a standardised format. Stage 2 is for full business planning for projects with proven feasibility that can demonstrate a good chance of securing planning permission and being implemented. Up to £100,000 is available at Stage 2.

RCEF has had significant impact in the North East region with funding secured by 14 projects for feasibility studies, and full business development support for two of these. Examples of the types of project funded through RCEF are provided below. As well as funding, the programme is providing support to communities in the development of their applications and has partnered with commercial community support provider, Locogen (www.locogen.com), to help to facilitate the development, construction and operation of viable renewable energy schemes.

Challenges for RCEF have included:

- It does not support the establishment of 'scale models'.
- It has an exclusively rural focus.
- It doesn't help communities to understand their very early needs and priorities.

- Barriers associated with the limited capacity of volunteers within small organisations to develop proposals.
- Lack of capital funding to supportive innovative schemes.
- A number of community organisations are not eligible for funding due to their size and focus on their own operations.
- It is focussed on energy generation principally, so would exclude non-generation based schemes such as car clubs.
- Current funding is fully allocated.

Examples of RCEF supported projects include:

Tow Law

A former coal mining village situated in County Durham, Tow Law Community Association identified a plot of council owned land that could site a solar PV array. The land also happens to sit on an underground void that may be suitable for a mine water heating scheme. Through RCEF, Tow Law Community Association was awarded £30,100 in October 2019.

Durham Villages Community Power

This project was awarded £30,354 of RCEF funding for a feasibility study into a community PV installation at High Haswell, County Durham. The site is already currently being investigated for the potential to install a community wind turbine, following a Stage 2 RCEF grant awarded to Sherburn Hill Parish Council, working in partnership with Durham Villages Community Power CIC. This is a separate application for a PV system that would either integrate with the wind turbine or as a free-standing development if the turbine doesn't go ahead. Along with the PV system the feasibility of a linked battery storage system for the PV output will be assessed.

Amble Zero Carbon Harbour

Warkworth Harbour Commissioners have secured £23,652 to determine how they can decarbonise heat and power across the residential and commercial buildings they own and operate in Amble. The initial phase of the project will focus on the potential for roof mounted solar, onshore micro wind turbines, battery storage and heat pumps and then focus in on the most viable renewable technologies and sites.

Barningham Net Zero

Barningham village is off the gas grid, with most properties reliant on oil fired heating. This project has secured £38,400 to investigate moving to cleaner energy sources and generate surplus energy for export. It aims to complement existing biomass and solar installations with additional renewable generation sources extended to all buildings in the village. Utilising land owned by a supportive landlord, the study will evaluate the feasibility, cost effectiveness and funding approach for a community owned renewable energy generation and heating solution.

Humshaugh Net Zero CIC

The residents of Humshaugh, which is situated in rural West Northumberland, took part in a survey in May 2020 to establish the carbon footprint of the village. The survey enabled

an evidence base to be established for the community to begin working towards achieving both Government and Northumberland Net Zero targets. In addition to defining the carbon footprint, the survey identified local renewable energy generation as a favoured approach to reducing carbon emissions. RCEF funding of £37,000 has been awarded for a feasibility study to consider renewable energy technologies including solar PV, hydro, and a low carbon heat network on suitable sites within the village of Humshaugh.

Plants Based Valley

SCENE (Sustainable Community Enterprises North East) has successfully secured £35,000 of RCEF funding to explore the potential of a community owned solar array at Plant Based Valley (PBV). PBV is a 55-acre manufacturing and business site for plant-based businesses. PBV are planning on developing a 500KW solar array alongside a renewable energy developer but are keen to develop a community led solar project alongside this that will benefit the wider community.

Northern Powergrid Community Support

Northern Powergrid in collaboration with Northern Gas Works, run an annual Community Partnering Fund (www.northernpowergrid.com/community-energy). The fund is administered on their behalf by Leeds Community Foundation and is intended to support local community groups to deliver sustainable initiatives to educate and support their communities, providing long-term solutions to current problems.

Grants between £1,000 and £10,000 are available, with priority given to requests for less than £5,000. Northern Gas Networks and Northern Powergrid are also offering to support applicants in non-financial ways with training, information materials and networking opportunities related directly to carbon monoxide, energy efficiency, fuel poverty etc.

Northern Powergrid have been facilitating a regional stakeholder group and offering well-attended free training sessions on net zero and energy efficiency for community organisations.

Although as far as we are aware no organisations from the North East region have been successful in accessing Northern Powergrid's community fund, Northern Powergrid are going through a process of reviewing their community support – in tandem with this report.

Implications for support required

Strengths	Weaknesses	Opportunities	Challenges
<p>The Rural Community Energy Fund (RCEF).</p> <p>Northern Powergrid's Community support.</p>	<p>No organisations from the North East region have accessed Northern Powergrid's community fund.</p> <p>Lack of funding for urban projects.</p> <p>Lack of access to early funding.</p> <p>Lack of access to capital funding.</p>	<p>NTCA Green New Deal Fund. North of Tyne Combined Authority plans for a Carbon Reduction Fund.</p> <p>Linking to existing SME energy efficiency projects (where they exist) for energy audit, grants (e.g. Review of Northern Powergrid community support.</p> <p>Durham County Council revolving loan fund to support businesses in the area with a range of costs including adopting new technologies.</p>	<p>Improving feasibility of projects.</p> <p>Providing access to funding and support for scoping.</p> <p>Supporting communities to identify community energy needs and opportunities.</p> <p>Limited capacity to write funding applications.</p>

Examples of good practice at a regional and local level from elsewhere in the UK that have been proven to strengthen community energy.

Many of the success stories from the community energy sector have been enabled by the support and investment provided by local and regional actors.

There are many proven ways local authorities and regional actors can support and catalyse the development of community energy, and many advantages to be gained from doing so. These include: setting up partnerships and development networks; helping to facilitate the creation of community energy organisations; capacity building; leasing of roofs; or funding, supporting, and financing projects.

Case studies and examples (below) include:

1. The establishment of local forums, networks and partnerships like the Bristol Energy Network.
2. Barnsley Metropolitan Borough Council who have helped to establish Energise Barnsley.
3. The Greater London Authority has established and run four rounds of the London Community Energy Fund.
4. Several local authorities have engaged communities in (statutory) planning processes and explicitly supported community energy through planning policy.
5. Many local authorities are looking at how they may be able to use purchasing power to support the development of clean local energy generation.
6. Local Area Energy Planning as an opportunity to establish shared purpose, clear pathways and agency amongst local energy stakeholders.

Good Practice Case Study: Bristol Energy Network⁴⁶

Bristol Energy Network is an umbrella organisation for individuals and community groups with an interest in energy in Bristol and the surrounding area.

BEN was set up in 2010 to help community energy initiatives across the city share learning and ideas for a more sustainable energy future. For the first four years it was run by volunteers with support from the Bristol City Council's Sustainability team and other local actors including the Centre for Sustainable Energy and University of Bristol.

In January 2014, Bristol council provided a £10k grant in order to formalise the organisation and employ part-time staff. The network was set up as a Community Interest Company and began employing a coordinator and project development officer. Since 2014 the Network has secured project-based funding. Today BEN has a stable finance model, independent of the council, with a stream of grants and long-term funding secured which supports a staffing of (1-1.5 FTE) for roles including a Coordinator, a Project Development Officer, Partnership and Development Coordinator and a Communications Officer.

BEN has over 20 members (groups and individuals) involved in many different energy projects. Membership is free and open to non-profit organisations in and around Bristol that are running energy related projects or have an active interest in energy issues. BEN supports the community energy sector by:

1. Bringing people together through open meetings, workshops, newsletters and the website.
2. Doing things to stimulate new groups to emerge and join up, and helping individual member groups access support and resources to develop their activities.
3. Being the 'go-to' body and the visible face of Bristol community energy, presenting beyond community energy audiences, showing the value of community energy and representing Bristol community energy to external organisations.
4. Developing shared resources and opportunities for projects and partnerships.

The network has given rise to a large number of community initiatives across the city and works with Bristol council to ensure that community is at the heart of its emerging City Leap programme³⁶ which is seeking to deliver more than £1bn of investment towards Bristol becoming a zero-carbon, smart energy city by 2030. BEN has set up a steering group with other civil society organisations in the city to help shape the social value aspect of City Leap, which centres on engagement and participation.

BEN have also produced a toolkit for community groups and local authorities to help them understand each other better and to provide ideas for how to work together and harness the power of local energy³⁷.

⁴⁶ <https://bristolenergynetwork.org>

⁴⁷ www.energyservicebristol.co.uk/cityleap/

Good Practice Case Study: Energise Barnsley⁴⁸

Energise Barnsley is a community benefit society set up to deliver community-owned renewable energy, energy efficiency and energy supply projects. It was originally formed as part of a local authority-backed rooftop solar PV project that has successfully installed solar arrays on 321 council-owned homes and 16 non-domestic properties such as schools and community buildings. It was at the time the largest local authority and community energy rooftop solar PV and battery storage project in the UK by number of roofs.

The project came about when a community developer and asset manager, Generation Community Ventures, approached Barnsley Metropolitan Council with a proposal. They advised the council undertake a community energy solar scheme and deploy as much solar PV across their portfolio as the grid, rooftop survey and tenant consent would permit.

The project costs of £2m were raised by Energise Barnsley, who own the solar panels, through a community bond of £800,000 and a £1.2m loan from ethical lender Charity Bank. This five-year bond has allowed people to invest and become members of Energise Barnsley for a fair financial return while making a meaningful social and environmental impact in the area. The council is landlord and the residents, who have the solar panels on their roofs, benefit from the lower costs of electricity and surpluses are used for a community benefit fund.

Barnsley council is the custodian trustee, meaning it is not involved in the day-to-day running of the society although has seats on the board and a right of veto given that the society's assets are on council property. As a community benefit society, Energise Barnsley is owned and controlled by members – of which over half are local – who are actively involved in decision making at board level and AGMs on the basis of one member one vote (irrespective of the amount invested). This structure gives community bondholders ownership and control of the CBS. It's proved to be the ideal springboard to work with a collaboration of commercial, academic and government partners in a series of innovation and social impact projects.

Barnsley council has fully invested in the concept of community energy. Energise Barnsley features in the council's 10-year energy plan and is being seen as a key mechanism through which the council can help alleviate fuel poverty within the borough (which affects 9,000 homes).

Andy Heald from GVC stressed the importance of council involvement: "You need an anchor man or woman at the council, who can pull lots of levers – finance, asset management, legal...someone who has an understanding of the community benefit model...You need that engagement, and also from the top as well. It's important to get that support so you can build momentum behind it ... to have stakeholders who are in it from the long-term'.

48 www.energisebarnsley.co.uk

Good Practice Case Study: London Community Energy Fund⁴⁹

Launched in October 2017, LCEF aims to increase the number of community energy projects and the positive impact they bring for Londoners. It supports projects that save carbon, increase the amount of renewable energy generation in London, reduce energy demand and help with the Green Recovery. The fund is particularly targeted at small organisations with charitable aims and welcomes applications from community groups who have not been involved in energy projects.

LCEF has now allocated over £1m across four rounds since 2017 to support 86 projects across London. The last Round of funding (2020-21), generated the largest yet number of applications (45). Over £0.5m of grant funding was awarded to 38 projects across 23 boroughs. Overall, this has included 28 solar panel projects, 20 school-based projects, six church-based projects, two projects in children's centres, and two heat pump projects.

LCEF provides support through two categories:

1. Feasibility and business case development grants of up to £15,000 which could be used to support the development stages of community projects with the aim of getting projects to a stage of 'investment readiness'. For example, to carry out preliminary viability and feasibility studies or develop a financial business case.
2. Project implementation and delivery grants of up to a third of the capital value of the project, capped at a maximum of £50,000. To help get projects over the line and completed this funding can be used towards capital expenses.

Notably LCEF introduced Stream B for the first time in 2020-21 to help to accelerate the delivery of projects and make projects financially viable by meeting any funding gap (such as any funding shortfall due to the removal of the Feed-In Tariff). This has enabled a number of previously scoped projects to go ahead.

LCEF has had a significant impact in fostering the development of community energy in London over the past four years. Prior to the 2020-21 round, the fund has supported 48 community energy projects, across 81 different buildings, and is estimated to save at least 1,500 tonnes of carbon per year.

Importantly the fund has helped develop new community groups, often nurtured by Community Energy London as an umbrella organisation. This has provided opportunities for new green skills and experience whilst supporting local jobs.

⁴⁹ www.london.gov.uk/what-we-do/environment/energy/london-community-energy-fund

Good Practice Case Study: Planning Processes and Policies

Support for neighbourhood planning

Cornwall County Council⁵⁰ provide support and guidance to neighbourhood planning groups including policies which support a range of renewable energy and energy efficiency technologies which are appropriate for the area, promote community ownership and encourage associated jobs. Its 2016-2030 Local Plan's section on renewable and low-carbon energy states that "support will be given to renewable and low carbon energy generation developments that [...] are led by, or meet the needs of local communities

In Cornwall, the positive benefits achieved by community energy schemes have been defined as a material consideration in decisions about renewable energy developments (see Cornwall Council policy 14, p54), creating a more favourable environment for proposed community schemes⁵¹.

Local Area Energy Planning (LAEP)⁵²

LAEP provides a framework for enabling local government, energy networks and other key local stakeholders to work together on planning at scale that (i) reflects the technical realities of the energy system, renewable generation opportunities and heat and transport decarbonisation options, and; (ii) the social realities of how stakeholders and decision-makers define their geographical allegiances and governance arrangements.

Done well, the LAEP process recognises the need to involve a wide range of local stakeholders to ensure its output – a local area energy plan – has been shaped by, and reflects, informed local perspectives and their shared priorities.

It also has the advantage of facilitating a whole systems approach by considering the entire energy system across vectors, (heat, electricity, transport) supply chains (from energy generation to how it reaches people's homes) and systems (physical, digital, market and policy systems). Thereby, the foundations are provided for effective and sustained local action to cut carbon emissions – taken by well-informed local leaders and initiative-takers. It will enable these actors – from local authorities and other public sector bodies to businesses, charities and community groups – to establish an explicit shared purpose and to work with the consent and involvement of a range of stakeholders and the wider public.

On the completion of an LAEP, stakeholders will have a clear pathway setting out the changes needed over time to achieve local commitments on net zero carbon emissions. They will also understand what others – such as national government, regulators and energy networks – need to do (and when) alongside them to establish the conditions for success.

50 www.cornwall.gov.uk/media/ajshlyq0/energy-efficiency-and-renewable-energy-advice-for-neighbourhood-plans-a-community-led-approach.pdf

51 www.cornwall.gov.uk/media/22936789/adopted-local-plan-strategic-policies-2016.pdf

52 www.cse.org.uk/projects/view/1369

Local Authority Good Practice Case Study: Exploration of Purchasing Power⁵³

Bristol City Council, Devon County Council and the South West Energy Hub have been exploring options, strengths and weaknesses of a variety of different mechanisms for purchasing energy directly from community renewables projects.

Potential advantages include:

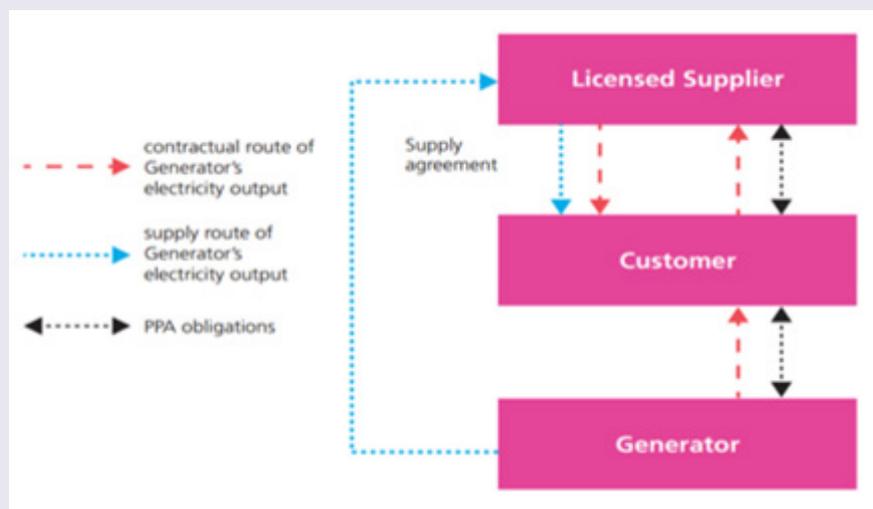
- Increased financial viability of renewable energy projects.
- Long-term security of supply from green energy.
- An ability to ensure social value is maximised.
- An ability to ensure contribution to local area plans.
- Greater governance over ownership and management of the renewable asset.

How? A power purchase agreement is required. It is a contractual agreement between a buyer and a generator for the purchase of electricity which confirms the specific arrangements agreed between both parties such as any minimum volumes, the price to be paid and the period of time the agreement shall run for.

Option 1 – Direct PPA

Direct PPAs are fairly simple and commonly found on rooftop solar schemes where the power is used by the building upon which the panels are installed. It involves running a cable from the equipment generating the power to the location where the power will be used and thereby avoids using the National Grid or the local distribution network.

Option 2 – Sleeved PPA

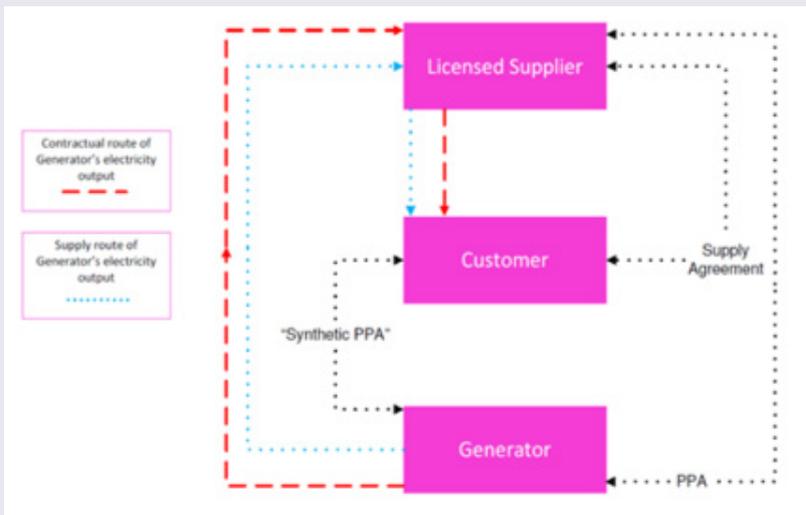


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53 Synthetic PPA Toolkit for Local Authorities, Bristol City council, March 2021

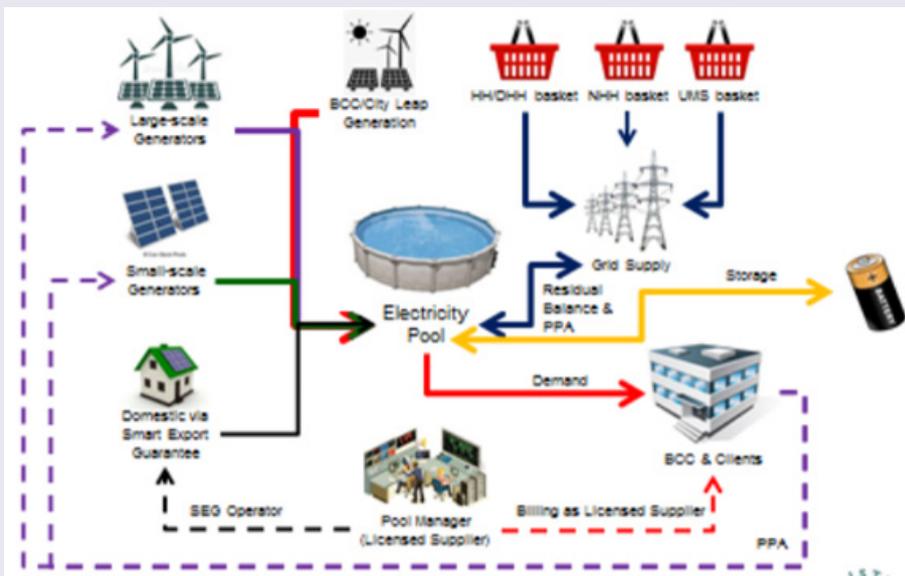
Sleeved PPA's require the involvement of a third-party licenced supplier to deal with the transfer of the power generated by the generator via the local distribution network to the customer. The licenced supplier will also deal with payments and any additional power the customer requires that the generator is unable to supply. Sleeved PPAs are also common but come with the need for the customer and generator to engage a licensed supplier and potentially a bank or finance institution.

Option 3 – Synthetic PPA



Synthetic PPAs involve no power at all and are purely a financial instrument that provide a mechanism for payments between the parties based on the difference between an agreed strike price and that which would be available on the wholesale power market.

Option 4 – Sleeved PPA (Pool)



Cont.

This could involve buyers joining a Dynamic Purchasing System (DPS) or procurement framework to access renewable energy generation from a pool of renewable energy generators (a 'Sleeving Pool'). To run alongside their DPS, Bristol council are trialling a new PPA model to be provided to generators which differs because the structure allows demand customers, such as a local authority, to sign Power Purchase Agreements directly with multiple generators and pay them for all electricity generated. Any remaining power from these sources of generation is then assigned to a Sleeving Pool that demand sites can draw from.

Annexes

Annex I: Community energy organisations and projects identified in the North East

Annex II: Long list of potential Community Energy business models

Annex III: Terms of Reference

Annex I: Community energy organisations and projects identified in the North East

Name of organisation	Project description	Type of project	Stage of project
Transition West Gateshead	Education and awareness raising activities on energy issues and climate change.	Education and awareness raising	Ongoing
Community and Voluntary Action Blyth Valley	Together with SCENE (Sustainable Community Enterprises North East), are interested in 2MW PV Solar Project in Blyth Valley. Received RCEF funding for feasibility.	Renewable energy generation	Feasibility stage – RCEF grant
Clara Vale Village Hall Association	Mine water heating project to heat houses in Clara Vale. Two reports have been done. Several people in the village are keen and have formed a working group. The Council are enthusiastic.	Low carbon heat generation & housing retrofit	Development stage
Sustainable Community Enterprises North East	Energy efficiency measures in community centres and village halls and exploring opportunities for community owned renewables. Currently tendering for feasibility of solar community energy project with RCEF funding.	Renewable energy generation & improving community buildings	Early stages –
The Bishop Auckland Churches Sustainable Energy Scheme	Community project bringing five Churches together in the Bishop Auckland area to investigate how they can develop a more sustainable model for the management of the town's churches. This includes, best ways to incorporate renewable energy generation, low carbon heat and EV charging points. Currently applying for RCEF funding to employ a consultant to run feasibility studies and disseminate the model across the churches.	Renewable energy generation, improving community buildings, low carbon heat generation, EV charging infrastructure	Early stages – Awarded funding
Stocksfield Community Association	Solar PV project on community centre roof (32 PV panels installed). Other improvements made: LED lighting throughout, additional roof space insulation and double glazing. Looking to secure funding to get battery storage.	Improving community buildings, renewable energy generation	Completed

Name of organisation	Project description	Type of project	Stage of project
SCATA Ltd.	<p>Planning a community transport scheme - which would ideally use an electric vehicle, based at the community centre in Stocksfield, including provision of an EV charging point.</p> <p>Another project is looking to secure RCEF funding to support the decarbonisation of 9 schools and 4 Community Centres in East Tynedale.</p>	Community transport provision, improving community buildings	Early stages – planning and applied for RCEF funding
Haydon Parish Council (in partnership with the Haydon Parish Development Trust)	<p>Parish has already installed solar panels on the community centre, and started working on raising awareness on energy and climate change in the community, and run an oil buying group.</p> <p>Council is currently developing a Neighbourhood Plan with an emphasis on Sustainability and Climate Change and looking at options for community energy projects.</p>	Improving community buildings, education and raising awareness, neighbourhood planning	Ongoing
Haltwhistle Partnership	<p>Project in Haltwhistle to provide heat for the town's swimming pool, using heat pumps and water in abandoned coal workings (RCEF phase 1 funding).</p> <p>Potential to install PV on leisure centre roof, and nearby factory roof.</p> <p>Future plans for RCEF phase 2 funding for the swimming pool project and another phase 1 application for further community energy schemes and EV/alternative fuels station next to the A69 at Haltwhistle.</p>	Low carbon heat generation, renewable energy generation, EV scheme	Early stages – RCEF funding
The Northumberland Log Bank	The scheme provides dry and seasoned wood for elderly, isolated, disabled or fuel poor people in rural Northumberland.	Fuel poverty alleviation	Ongoing

Name of organisation	Project description	Type of project	Stage of project
Sedgefield Development Trust Ltd.	<p>Working with iChoosr to run a community switching project to get lower energy prices for the whole community.</p> <p>Also been looking at options for wind energy in the area, and installing turbines in cooperation with NETPark, a Durham County Council development. They've come into issues around not having enough finance and local opposition.</p>	Bulk-buying, renewable energy generation.	Ongoing
Tow Law	<p>A former coal mining village situated in County Durham, Tow Law Community Association identified a plot of council owned land that could site a solar PV array. The land also happens to sit on an underground void that may be suitable for a mine water heating scheme. Through RCEF Tow Law Community Association was awarded £30,100 in October 2019.</p>	Renewable energy generation, low carbon heat generation	– RCEF feasibility complete
Durham Villages Community Power	<p>This project was awarded £30,354 of RCEF funding for a feasibility study into a community PV installation at High Haswell, County Durham. The site is currently being investigated for a community wind turbine following a Stage 2 RCEF grant awarded to Sherburn Hill Parish Council, working in partnership with Durham Villages Community Power CIC. This is a separate application for a PV system that would either integrate with the wind turbine, should this option proceed, or as a free-standing development if the turbine was not possible. Along with the PV system the feasibility of a linked battery storage system for the PV output will be assessed.</p>	Renewable energy generation	Early stages – RCEF Stage 2
Amble Zero Carbon Harbour	<p>Warkworth Harbour Commissioners have secured £23,652 to determine how they can decarbonise heat and power across the residential and commercial buildings they own and operate in Amble. The initial phase of the project will focus on the potential for roof mounted solar, onshore micro wind turbines, battery storage and heat pumps and then focus in on the most viable renewable technologies and sites.</p>	Renewable energy generation, battery storage, low carbon heat generation	Early stages - RCEF

Name of organisation	Project description	Type of project	Stage of project
Barningham Net Zero	Barningham village is off the gas grid, with most properties reliant on oil fired heating. This project has secured £38,400 to investigate moving to cleaner energy sources and generate surplus energy for export. It aims to complement existing biomass and solar installations with additional renewable generation sources extended to all buildings in the village. Utilising land owned by a supportive landlord, the study will evaluate the feasibility, cost effectiveness and funding approach for a community owned renewable energy generation and heating solution.	Renewable energy generation, low carbon heat generation	Early stages - RCEF
Humshaugh Net Zero CIC	RCEF funding of £37,000 has been awarded for a feasibility study to consider renewable energy technologies including solar PV, hydro, and a low carbon heat network on suitable sites within the village of Humshaugh.	Renewable energy generation, low carbon heat generation	Early stages - RCEF
Plants Based Valley	SCENE (Sustainable Community Enterprises North East) are exploring the potential of a community owned solar array.	Renewable energy generation	Early stages - RCEF
Berwick Community Trust	Installed PV panels to six local schools and a sports centre, developed a 500kW wind turbine project and commissioned the turbine in 2014. The turbine generates an income for the CoRE Legacy fund which funds community renewable and energy reduction projects in North Northumberland.	Renewable energy generation	Completed
Derwent Valley Car Club	Description of this project in main body of the report	Community transport	Ongoing

Name of organisation	Project description	Type of project	Stage of project
Bishop Auckland Town Council	Bishop Auckland Town Council secured £33,670 of funding to investigate how solar PV might reduce their carbon footprint. The feasibility study will identify which of the buildings in the town are suitable for the installation of roof-mounted solar PV systems. Those under consideration will include schools, hospitals, leisure centres, community centres and council buildings. The project supports Bishop Auckland Town Council's aim to be 60% carbon neutral by 2030 and 100% by 2050.	Renewable energy generation	Early stages - RCEF
Norham Development Trust	Norham Development Trust received funding from RCEF to explore renewable energy opportunities in the village of Norham, Northumberland.	Renewable energy generation	Early stages – RCEF
Sustainable Oakenshaw	Sustainable Oakenshaw successfully erected a 70m wind turbine. Whilst not community owned, the landowner who owns the turbine will provide 20 annual donations to Oakenshaw Community Association.	Renewable energy generation	Completed
Auckland Project	Community Action Northumberland working with the Rural Design Centre and Northumberland based village halls and community buildings have secured RCEF funding. Fourteen community buildings across rural Northumberland will explore what they can do to lower their heating and maintenance costs and become more sustainable by having on-site renewable energy.	Renewable energy generation	Early stages – RCEF stage 2
Rural Design Centre/ Community Action Northumberland	Community Action Northumberland working with the Rural Design Centre and Northumberland based village halls and community buildings have secured RCEF funding. Fourteen community buildings across rural Northumberland will explore what they can do to lower their heating and maintenance costs and become more sustainable by having on-site renewable energy.	Renewable energy generation	Early stages – RCEF
Greening Sheraton Park	Responded to State of sector report 2020. Not further details found.		

Annex II - Long list of potential Community Energy business models

Key area of opportunity	Potential business models	Example from elsewhere in the UK
Transport	EV car clubs	<p>Nadder Community Energy are developing plans for a community-owned electric car club called Tisbury Electric Car Club.</p> <p>Talybont on Usk Energy operate a community eco car share scheme with one electric van and a car running on recycled vegetable oil.</p> <p>Hook Norton Car Club operate a community owned EV car club and bike share scheme in Oxfordshire</p> <p>REV Cymru is an EV car club in Pembrokeshire aimed at mobilising rural communities and reducing the need for car ownership</p> <p>HartlePower set up a car club in partnership with enterprise using a hybrid and a petrol vehicle</p>
	Charging infrastructure	<p>Brighton Community Energy are investigating connecting (EV) charge points at six of their existing roof top solar arrays</p> <p>Charge My Street is a community benefit society which installs and operates community charge points, raising money through community shares.</p>
	Public transport	<p>Riding Sunbeams, a project to install community owned solar and potentially wind connected into the rail network to power it with renewable energy.</p>
Wind	Onshore	<p>Ambition Lawrence Weston is a community owned wind turbine in development near Bristol.</p> <p>Bro Dyfi Community Renewables is a co-operative which owns two wind turbines in the Dulas Valley.</p>

Key area of opportunity	Potential business models	Example from elsewhere in the UK
Solar	Solar rooftop	<p>Frome Solar Streets is a partnership between Frome Renewable Energy Co-op, the town council and an installer to install solar on domestic roofs and larger buildings</p> <p>Big Solar Coop –Shareenergy initiative to join together several smaller projects under a large umbrella organisation to reduce development costs</p> <p>Solar for Schools bring together installers, funders, partners, schools and students to develop a solar project at no risk or cost to the school.</p> <p>Bath & West Community Energy have several solar projects in development such as Solar streets, Community solar and the Solar roof spotter scheme</p> <p>Energise Barnsley installing free solar pv on council homes in Barnsley.</p> <p>Lockleaze Loves Solar Project currently in development to provide solar panels to householders in Lockleaze Bristol with no upfront costs.</p>
Heat	District heat	<p>BHESCo Developing low carbon heat networks for rural villages in Sussex and Kent</p>
	Heat pumps	<p>CREW Energy, a London based community group installing heat pumps in residential blocks of flats and civic centres.</p> <p>Gloucestershire Community Energy Co-op, a project to install heat pumps into council owned sheltered housing- in development through The Next Generation Innovation Fund.</p> <p>MaidEnergy- developing a business plan for a ground source heat pump at Thames Valley Athletics Centre.</p>
Hydro	Community scale hydro	<p>Bethesda Energy, a local hydro scheme run through energy local to create a direct PPA with local people to purchase the renewable energy produced in their landscape. Currently switching over to a new partnership with Octopus Energy.</p> <p>Sandford and Osney Lock Hydro, schemes in Oxfordshire owned and operated by Low Carbon Hub.</p>

Key area of opportunity	Potential business models	Example from elsewhere in the UK
Energy efficiency in housing	Retrofit	<p>Futureproof, BEIS trial run by CSE to offer homeowners and builders much needed independent, impartial advice and support to help them carry out energy saving home improvements and retrofit.</p> <p>Carbon Co-op based in Manchester runs several retrofit and home energy advice projects such as People Powered Retrofit.</p> <p>Chester Community Energy investigating the possibility of retrofitting lighting to LEDs in Community centres through a loan scheme which pays back at the rate of the electricity savings.</p> <p>Cosy Homes Oxfordshire is a home eco-retrofit project that launched in early 2019 to help make homes across Oxfordshire more energy efficient by reducing their energy demand, and at the same time improving the comfort and health of residents. It is a partnership project delivered by the Low Carbon Hub, National Energy Foundation and RetrofitWorks.</p>
	New Housing	<p>Plymouth Energy Community is developing community housing and modelling on site zero carbon energy generation and flexibility services.</p> <p>Burnside Community Energy is working with Igloo and the local landowner to model low carbon solutions for planned new housing.</p> <p>Hook Norton Community Housing is a new low carbon, affordable housing development designed in partnership with local residents which received planning permission in 2020.</p>
	Potential collaborations	<p>Energiesprong is a system of designing affordable quick retrofit to create net zero housing.</p>

Key area of opportunity	Potential business models	Example from elsewhere in the UK
Community Energy and Empowerment	<p>Fuel poverty</p> <p>(Most community energy groups will engage with fuel poverty in some way. They may apply for grant funding or use the profits of their other schemes ie wind and solar to fund this</p>	<p>BHESCo- working towards alleviating fuel poverty in Brighton and Hove</p> <p>Exeter Community Energy Projects such as Healthy Homes for Wellbeing, provides free energy and money saving advice in Exeter, Mid Devon, East Devon, Teignbridge and Torbay.</p> <p>CREW Energy operates in South West London to reduce carbon emissions and energy costs, aiming to make switching to a low carbon future as easy and simple as possible.</p> <p>HartlePower alongside many other projects, offer an energy advice service</p>
	<p>Skills and training</p>	<p>Repowering London empowers communities to fund, manage and install renewable energy project which benefit the community through increasing skills and providing funding for fuel poverty projects</p> <p>Futureproof- BEIS trial run by CSE to offer homeowners and builders much needed independent, impartial advice and support to help them carry out energy saving home improvements and retrofit.</p>
Other	PPAs	Energy Local scheme for householders to directly purchase locally generated renewable energy.
	Flexibility	<p>Bath and West Community Energy (Flex Community) In partnership with Stemy Energy to install assets such as heat pumps and EV chargers that can be controlled by the Stemy platform in order to participate in flexibility services</p> <p>Project LEO (Low Carbon Hub) aims to improve our understanding of how opportunities can be maximised and unlocked from the transition to a smarter, flexible electricity system and how households, businesses and communities can realise its benefits.</p>
	Data Co-op	Carbon Co-op Working on establishing a trusted Community Energy Data Co-operative for their members in Greater Manchester, featuring services enabled by the analysis and processing of large amounts of members' home energy and behavioural data.
	School ESCo models	Green Fox Community Energy Working with four primary schools in one academy trust to create a model for zero carbon schools

Annex III - Terms of Reference

1. Specification

1.1. Scope of the contract

The North East Local Enterprise Partnership (North East LEP) is looking to appoint a contractor who will work alongside the North East LEP, North of Tyne Combined Authority, Durham County Council and South Tyneside Council. The appointed contractor will carry out in-depth research on what structure, mechanisms, models and support would enable the successful development and delivery of community energy projects in the North East LEP area. This report will inform the approach and actions taken by regional stakeholders including but not limited to the combined authority, local authorities, and community groups.

1.2. Background and context

Community energy

Community energy projects are initiatives led by local communities, with an emphasis on community ownership, leadership or control, where the community benefits. They are usually focused on reducing energy use, better managing energy, and generating or purchasing energy. Community Energy England's 'state of the sector' 2020 report notes that in 2019 there were 300 community energy organisations identified across England, Wales and Northern Ireland operating a variety of energy projects [\[Link\]](#). Community energy groups have traditionally led delivery of community projects, and have focused on supply-side projects such as renewable energy generation, however there is now an additional focus on demand-side projects such as offering advice on how to save energy or installing energy efficiency technologies.

The development of community energy in the UK has enabled citizens to participate in, benefit from, and organise energy projects. Community energy projects were initially developed in response to climate change concerns and groups set out to reduce carbon emissions. However, reducing emissions is just one of the benefits that motivates community organisations to develop energy projects. Community energy projects have been used to generate income for social and environmental focused community development projects, raise awareness around energy use and climate change, improve local economic resilience, create community cohesion and tackle fuel poverty. In the first few weeks of the covid-19 lockdown four community energy organisations associated with Communities for Renewables CIC mobilised £100,000 to support community aid networks [\[Link\]](#). For the purposes of this work, community energy is understood to fit the above definition, but may also include projects which are not specifically led by the community, but where the community is an enabler and can be considered a primary beneficiary.

Role in the future energy system

Community energy groups operate in an increasingly important niche of a highly centralised energy market. The way that we produce, store and consume energy is changing in the UK as a result of technological innovation, an impetus to decarbonise, and new end-user demands and behaviours. A significant change is the move away from centralised energy generation to growth in decentralised, digitised and flexible supply, in which communities can play a central role.

Communities are essential stakeholders to the success and acceptance of local schemes. A low carbon energy system transition should be a just transition that promotes inclusion and ensures the benefits of decarbonisation are shared.

Community energy in the UK has traditionally centred around the decentralised generation of electricity, providing enough electricity to power 100,000 homes [\[Link\]](#). This has been driven by attractive and well-understood delivery models, made possible through financial incentives e.g. feed-in tariffs supporting solar PV and small-scale onshore wind. Most community energy projects still focus on the generation of power and there are likely to be untapped power generation projects in the North East. However, the decarbonisation of power is only one aspect on the pathway to net zero, and only one area of possibility for community energy projects. Communities can have a key role to play in the development of, and offering a route to delivery for, solutions in the following areas:

- Heat – improving energy efficiency, heat networks and moving to low carbon heat sources

- Retrofit – improving older housing stock
- Storage – managing excess generation and reducing peak demand
- EV infrastructure and uptake
- Local generation and consumption – matching supply to demand, microgrids
- Flexibility – providing flexible supply and demand to the Distribution System Operator (DSO)
- Off-grid – services for those not connected to the gas and electricity networks

Increased engagement with and support for communities to develop their own energy projects should lead to increased acceptance, support and ownership of the transition to net zero.

Community energy in the North East

The North East region has the lowest concentration of community energy projects in Great Britain. There are a number of community organisations involved in energy initiatives but few dedicated community energy groups. A similar situation is found in neighbouring regions such as Yorkshire and the Humber where there are 9 active community energy groups [\[Link\]](#). There are various anecdotal reasons stakeholders believe that the success of community energy in regions such as the South West has not been replicated in the North East, including:

- Lower levels of irradiance which has led to fewer large-scale solar developments
- There has been a focus on private sector led large scale renewables deployment, primarily onshore and offshore wind.
- Fewer retired professionals with general technical, legal and financial skills in the North East are involved in the community energy sector.
- Lower number of Voluntary Community and Social Enterprise organisations per 1000 people. There are 1.7 in the North East compared to 3.2 in the South West [\[Link\]](#).
- Economic disadvantage and austerity
- Relatively high population density in rural areas in the South compared to sparsely populated rural areas in the North
- Various technical, financial and legal support has been provided by local authorities and network operators however, support is not always joined up and they often lack the capacity to support projects from conception to delivery.

Having a clear approach to supporting delivery of community led energy projects in the North East, and ensuring wider successful involvement of communities in projects, could enable the following:

- Benefits arising from schemes (CO₂ emissions reductions, financial, environmental, social) are realised locally supporting community resilience
- Communities are more open to, and able to participate in the energy system transition
- Helping to meet climate change emergency declaration targets for the 7 local authorities
- Change in consumer energy behaviour is more easily affected
- Energy planning that is reflective of local concerns and needs
- Finance raised for local project delivery
- Identification and delivery of small/community scale schemes which will have a large aggregated impact
- Tackling fuel poverty
- Creating local supply chains and jobs

Current community energy support in the North East

Regional and local policy context

The North East LEP's Strategic Economic Plan identifies Energy as one of four areas of strategic importance that could improve the North East's economic competitiveness. The Energy for Growth strategy builds on this and sets out specific strategic themes whereby the region can deliver on the UK's energy policy whilst stimulating growth. Community energy is identified as one of the 13 key strategic themes highlighted in the Energy for Growth strategy [\[Link\]](#). Creating a community owned green energy company is part of the North of Tyne Mayor's Manifesto. Whilst the national policy context is also crucial in delivery of community led energy schemes, regional policy makers such as the North East LEP, combined authorities, and local authorities, wish to

understand what actions can be taken and supported regionally to further support community energy groups and projects.

National policy support

Changes in national policy support in recent years have reduced viability of traditional community energy models in the North East. For example, reductions in the Feed-in-Tariff (FiT) scheme rate of payment before its eventual removal in 2019, and removal of Social Investment Tax Relief for investors in community energy in 2015. As mentioned previously, community energy is perceived to work within a niche of the energy market, with current regulations and policy mechanisms focussing more on enabling delivery of larger scale schemes across the energy market which are not applicable at community scale. As an example, at present community energy projects are unable to act as a supplier and sell locally generated energy to local domestic and commercial users, this is due to regulations within the energy system. Without national change through the passing of initiatives such as the Local Electricity Bill this will remain the same. Certain policy changes at a national level would better enable community energy projects to operate effectively within the North East and other regions, and local stakeholders wish to understand what issues are unable to be directly influenced regionally.

Financial support

The Rural Community Energy Fund (RCEF) was relaunched nationally in 2019, with a regional allocation via the North East Yorkshire and Humber Energy Hub being available in the North East. RCEF funds feasibility studies for rural communities interested in setting up renewable and low carbon energy generation projects. The fund has so far supported three projects in the North East LEP area. A significant number of enquiries to the fund have come from the North East LEP region and feature a diverse collection of organisations including parish councils, churches, community groups and village halls. RCEF provides funding for feasibility studies and project development support for potentially viable projects. However, there are a number of community organisations that are not eligible for funding due to their size (village halls, churches) and location (urban).

There is some additional support for community energy projects in the North East LEP area. Northern Powergrid offer a Community Partnering Fund and Durham County Council have announced a £500,000 revolving loan fund. The North of Tyne Combined Authority has allocated £100k for further development work to establish an NTCA revolving Carbon Reduction Fund which will include establishing proposals for funding and delivery mechanisms to support bottom-up community energy generation proposals. Regional stakeholders wish to understand how best to utilise existing funding, position and structure emerging regional funding, and what further support might be needed for early-stage projects.

Project development support

Community energy groups often start as small localised 'bottom-up' groups of interested individuals looking to develop projects, often in their spare time, that would benefit their local area. Some of these groups have since widened their activity to cover neighbouring areas. Organisations like this still exist and will continue to operate, however changes to financial incentives have meant the delivery models that were relied on are no longer viable and in some cases these organisations have reverted to providing energy efficiency advice rather than promoting energy generation.

In recent years professionalised, intermediary organisations have arisen as another delivery model. These non-profit, social enterprises employ expert knowledge and technical expertise to deliver local energy schemes. These regional support hubs or networks have helped deliver scalability to community energy. The North East LEP area has a lack of 'bottom up' groups and intermediary groups working within the region.

Those organisations that do come forward such as community groups, parish councils and sports clubs often do not have the necessary project development skills and expertise to deliver a community energy project, particularly as many are volunteers. They need support developing various aspects of their projects including; defining their business case, technical advice on low carbon technologies, legal assistance, issuing community shares, negotiating power purchase agreements (PPA) and maintaining their project after delivery. Underpinning the funding and delivery of these projects there must be a viable business model and route to financing.

Regional stakeholders wish to better understand options to enable project development support for community energy, which also ensure that the potential benefits of community energy projects do not by exclude residents based on any socio-economic factors such as their age, socio-economic background, disability, race, religion, gender, gender identity, sexual orientation, marital status or whether they are pregnant or on maternity leave.

Community energy environment of support

In certain areas where community energy has been successful there has been some form of regional or sub regional support. For example, Energise Barnsley is a partnership set up with Barnsley Metropolitan Borough Council and Plymouth City Council helped set up Plymouth Energy Community (PEC), with council staff employed at PEC. Even in places where there has been no direct support from local government there are hubs and networks set up on a local-regional scale. The Low Carbon Hub in Oxford develops renewable energy projects across Oxfordshire with partners and supports local community groups to develop projects.

Regional stakeholders wish to understand how these initiatives have been enacted and the challenges they faced setting up. Whilst also wanting to understand the socioeconomic benefits associated with these models and the role they play in the decarbonisation of their respective localities.

1.3. Scope of the work

The North East LEP is seeking to appoint a suitable contractor who will work alongside the North East LEP, North of Tyne Combined Authority, Durham County Council, South Tyneside Council and other stakeholders including the electricity and gas network operators, the NEYH Energy Hub, and community energy representatives, to produce an evidence-based report which answers 'What structure, mechanisms, models and support would enable the successful development and delivery of community energy projects in the North East?'. Particular attention should be given to less developed sectors such as heat, storage and electric vehicle charging alongside the more established power generation sector.

The work commissioned here is expected to consider, as a minimum:

Regional and local policy context

- The policy changes or initiatives that local and regional stakeholders can introduce or support to create a supportive environment for community energy projects. For example, planning and land use. The 2018 National Planning Policy Framework noted that local planning authorities should encourage community led initiatives for renewable and low carbon energy. Other areas to explore may include but not be limited to procurement of community energy or designation of sites for energy generation.
- To what extent community energy projects could contribute to decarbonisation policy in the North East.

National policy

- Identify Policy changes or issues at a national level which present barriers to community energy delivery, but which are outside the immediate influence of policymakers in the North East but would enable the North East to develop and deliver more community energy projects.

Financial support

- The potential structures of funding mechanisms or models to support early stage development of community energy projects across the North East. This will directly inform the community energy element of NTCA's carbon reduction fund
- The financial models available to community energy organisations for delivery of schemes of different types, given the known incentive and market landscape.

Project development support

- How local and regional stakeholders encourage more community energy projects to come forward through existing community groups (both energy and non-energy) and new community energy groups or interested individuals.

- Example structures, mechanisms, models and support which would assist individuals and organisations that do come forward with projects to develop them. This includes what support may be required to ensure community energy projects contributes as far as possible to an inclusive economy, reducing inequalities and socio-economic disadvantage locally.
- How regional and local stakeholders include communities more directly in energy planning and projects.

Community energy models of delivery

- The strengths and weaknesses of current community energy models across the UK and their applicability to the North East.
- Support required for innovative projects around heat, storage, electric vehicle infrastructure, storage and grid services.

Indicative Approach

The research should be conducted using a mixed methods approach that draws on qualitative in-depth interviews, quantitative data analysis and secondary document reviews.

In order to deliver this research, we expect the following requirements to be met as a minimum:

- Review of the current North East community energy sector. This should reference and build upon a review of existing literature, including Northern Powergrid's Community Energy strategy, Northern Powergrid's North East and Yorkshire State of the Sector report and Community Energy England's State of the Sector 2020 report.
- Consultation with local and regional stakeholders within the North East community energy community. This should include failed or stalled projects.
- Consultation with the wider North East community and voluntary sector including the emerging North East Climate Coalition.
- Consultation with various departments in local government such as planning and procurement.
- Case studies of successful community energy groups and projects across the UK. Deep dives to understand successes and challenges and their applicability to the North East. This would include direct consultation with these groups.
- Workshop with stakeholders to test potential recommendations.

Outputs

The project is expected to result in a final report that covers:

- Review of the current North East community energy sector and context
- Current local authority support for local and community energy schemes
- Local barriers to the development of the North East's community energy sector particularly around project delivery and developing new groups or projects.
- Analysis of mechanisms (e.g. funding) for early stage development of community energy projects – including specific recommendations for the potential NTCA carbon reduction fund.
- Two in depth case studies of regionally or locally supported community energy initiatives from the UK. The case studies should focus on the process of setting up the organisation/project, the challenges faced, what socioeconomic benefits have been realised and innovative projects developed.
- Recommended approaches for project development support – technical, legal, financial advice and support.
- Actionable recommendations that regional stakeholders including specifically the combined authorities and local authorities can take within their current powers in planning, procurement and any other areas identified during the study.
- Breakdown recommendations for other organisations such as the North East LEP, Northern Powergrid, VONNE, parish and town councils and community organisations.

- A timeline for developing the recommended model/initiatives within the region over the next 5 years.

The final report will only be made available to the steering group and other recognised stakeholders. An executive summary of the final report will be made publicly available.

All reports produced should be written in an accessible format, providing useful and insightful information, and tailored with specific audiences in mind. The North East LEP, where appropriate, may publish reports or analysis on reports will be the North East Data Hub. Any data or intelligence gathered should also be made available to the North East LEP in Excel or Word format.

1.4. Contract management

To deliver this commission the appointed contractor will be expected to work closely with the North East LEP team to undertake a kick-off meeting in the North East and provide regular updates on progress, including emerging findings, key questions and any challenges faces in delivery.

The key contacts from the North East LEP will be:

- Project manager – Josh Sawyer
- Project director – Andrew Clark

The appointed contractor shall nominate and provide details of the person who will be the main point of contact and project manager responsible for contract delivery. This should be clearly set out in submissions.

A Steering Group will be set up by the North East LEP consisting of local and regional stakeholders including representatives from the consortium. The Steering Group will help to oversee this contract, review outputs and act as a critical friend at key stages. They will also support in identifying appropriate stakeholders to be engaged with as part of this contract.

The appointed contractor must work closely with the North East LEP and its partners including:

- Attending an inception meeting – we anticipate that this will be conducted virtually
- Providing regular updates on progress to the project manager, including highlighting any challenges faced in delivery
- Working in a collaborative and iterative way
- Agreeing in advance the methods to be pursued and individuals to be consulted

The North East LEP will provide the following information relating to this activity in order to assist with this contract:

- North East Strategic Economic Plan (2019)
- Energy for Growth Strategy
- Data from Northern Powergrid's Community Energy strategy and their State of the Sector report.
- Contact with community energy stakeholders including Rural Community Energy Fund applicants.
- Evidence of existing and current community energy projects.
- Visibility of project pipelines or sites e.g. mine water heating and hydro potential.

1.5. Skills, knowledge and expertise of the contracted team

Tenders will be expected to set out how they will undertake the task effectively and efficiently and show the following skills and experience:

- Understanding of the North East LEP area including our key sectors
- Research experience of the community energy sector

- Delivery of stakeholder consultations and engagement virtually to obtain relevant insights and information.
- Experience of providing comprehensive, usable reports summarising complex findings and recommendations on this basis for a range of audiences
- Proven project and risk management acumen, with the ability to meet key milestones within a short timeframe.
- Working closely and flexibly with the commissioning organisation

The contract will be awarded to one contractor but we welcome partners to work together to deliver the contract, ensuring the best mix of skills, expertise and experience is brought to the project team.

1.6. Budget

The maximum budget for this contract is £27,500 including all expenses and excluding VAT, over a maximum four-month contract. This will be aligned to key milestones and competition of outputs and agreed at the inception meeting.

Tenders exceeding the maximum budget will not be considered further in the evaluation process.

1.7. Contract Timescales and reporting

It is the appointed contractor's responsibility to ensure full compliance with key contract dates. Key contract dates will be agreed with the appointed contractor at the inception meeting.

1.8. Procurement Timeline

The key dates for this procurement are currently anticipated to be as follows:

Stage	Date(s) and Time(s)
Issue of Invitation to Tender	Friday 4 th September 2020
Deadline for receipt of clarifications	Monday 14 th September 2020
Deadline for submission of Tenders	12:00 Noon on Monday 21 st September 2020
Evaluation of Tenders	W/C 21 st September 2020
Notify Tenderers of Presentation Stage	Friday 25 th September 2020
Presentations	12 th October 2020
Final Evaluation	13 th October 2020
Expected date of Contract Award	W/C 19 th October 2020
Contract start date	W/C 26 th October 2020
Contract end date	End February 2021

The Contracting Authority reserves the right to change the timeline set out above at its discretion. Any changes to the timeline shall be notified to all Tenderers as soon as practicable.

Annex iV

b. Approach & Methodology

Approach

Our approach to answering the research question of 'what structures, mechanisms, models and support would enable the successful development and delivery of CE projects in the North East LEP area' is based on collaboration and engagement with local authority actors, local VCSE organisations (particularly through VONNE) and other key stakeholders in the NE region. It is also based on CSE and CEE's collective experience over decades of working on energy projects with communities and local authorities, our nuanced understanding of the current CE landscape and the innovative business models that are currently being piloted elsewhere in the UK.

For this methodology, we have summarised our understanding of the key terms as follows:

<p>Support – the types of financial (grant, loan and investment) and non-financial (knowledge, information, advice, data, training and learning opportunities) support that regional and local stakeholders can provide.</p>	<p>Mechanisms – (i) the processes by which regional stakeholders can make support available and (ii) the policy changes and initiatives that can be introduced to create a stronger enabling environment.</p>
<p>Structure – the framework of different types of support and support mechanisms that are or could be provided by regional and local stakeholders, and the cohesiveness between those mechanisms.</p>	<p>Models – a summary of the legal/ownership structure; energy activities; revenue streams; economic, social and environmental value exchanges; and the funding/financial structure of projects – including joint initiatives (with communities) and those led by community actors.</p>

Our recommendations in each of these areas will be based on research and analysis in five key interrelated topics (listed below 1-5) and 10 main outputs (listed below A-K).

Figure i: Key areas of research and analysis and key outputs



Research Methods

We propose to conduct this research using a mixed methods approach that draws on qualitative in-depth interviews, quantitative data analysis and secondary document reviews. We will also include focus groups and a quantitative survey to optimise our VCSE reach and follow-up focus groups (rather than in-depth interviews) to help build consensus around recommendations. We have included a kick-off meeting with the Steering Group to inform stakeholder identification/prioritisation and enable the early identification of any specific issues or pointers that the Steering Group would like us to take into account; and two follow-up workshops with the Steering Group to share and explore the emergent findings.

Table i summarises the research methods we will employ to deliver each of the 10 outputs.

Research outputs	Research methods
i. VCSE aspirations, needs and priorities	Quantitative survey: 1,500 local-level community, town and ward level actors.
ii. Barriers and enablers to community energy	Qualitative analysis: 3 focus groups with approximately 30 local community energy and VCSE practitioners.
iii. Key business opportunities for community energy	Desk research: review of existing studies, plans, policies and other literature.
iv. Strengths and weaknesses of potential business models for CE	Analysis: compare findings from stages i - iii and develop indicative long list.
v. In-depth case studies of supported CE initiatives from elsewhere in the UK	Desk research and interviews: compile data, 2-3 key informant interviews and draw on existing knowledge.
vi. Summary of the national policy context for CE	Policy analysis: led by Community Energy England.
vii. Outline of innovative responses to the policy context from elsewhere in the UK.	Desk research and analysis: of CE literature and Government reports.

viii. Review of current local and regional policy and practice.	Desk research and 10-15 interviews: with local authority officers in NE.
ix. Review of good practice from elsewhere in the UK.	Desk research and up to 5 interviews: with local authority officers across the UK.
x. Financial and non-financial support gap analysis	Analysis: gap analysis of support mechanisms and finalise recommendations.

1. VCSE context

The VCSE (voluntary, community and social enterprise sector) is the means for CE. In order to be successful, it is imperative therefore that initiatives are responsive to local needs, build on existing knowledge, skills and experience and are embedded in local visions, priorities, and aspirations. We will therefore begin by reviewing Northern Powergrid's and CEE's reports on CE in the North East and engaging with VONNE, existing CE practitioners and the wider VCSE in the region.

The Voluntary Networks North East (VONNE) is a key organisation working to strengthen the VCSE and acting as a 'connector'; bringing people and organisations together to make things happen. As such we are delighted that they have agreed to be a formal partner on our delivery team, helping us make sure we are reaching all the right organisations across the VCSE with our survey. Similarly, our partnership with Community Energy England (CEE) who are the pre-eminent voice of and support to the CE sector nationally will ensure the research draws on the most current and key issues facing the sector, as well as their specific knowledge of the sector in the NE drawn from the engagement they have done in the region over recent years.

i. VCSE aspirations, needs and priorities

We will assess VCSE aspirations, needs and priorities through a quantitative survey. The survey will help to assess levels of interest, motivation and capacity (as summarised in the table below) and provide a foundation for ensuring that that our recommended models, mechanisms, support and structures are responsive to local needs.

In collaboration with VONNE, we will distribute the survey to approximately 1,500 local-level actors (1,000 VONNE members + 500 parish/town councils) in the wider North East community and voluntary sector using tried and tested software.

Our analysis will provide insights into the appetite and scale of interest in CE; the number of organisations currently active in the energy space; the types of project that VCSE are most interested in bringing forward; their existing capacities for CE; and the support the sector needs to bring forward new CE projects.

Table ii below summarises the key factors that the survey will seek to understand:

Key Factors to understand	Indicative typology
Level of interest in CE	High (pivotal to mission and vision). Medium (key to delivering their goals). Low (something they'd like to pursue if possible).
Readiness	High (have clear and costed plan for a defined project and actively seeking grant, loan or investment to implement).

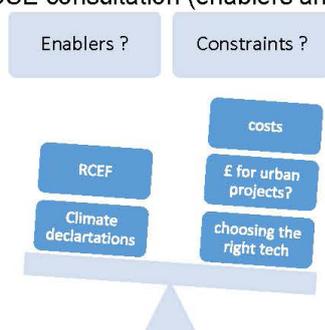
	Medium (are actively seeking support to test the feasibility of a defined local project). Low (have an idea in mind but need help/time to develop it).
Motivations	Tackling climate change; Income generation for community development; Awareness raising; Reducing energy bills; Tackling fuel poverty; Supporting community services; Improving energy services; Community empowerment; Other
Organisational Type	Community Interest Company (CIC); Community Benefit Society; Charity; Cooperative; Government (e.g. Parish or Town Council); Unregistered / Unincorporated; Other
Scale	Parish, District, County, Regional
Areas of interest and/or knowledge	Electricity Generation, Heat Generation, Energy Storage, Low Carbon Transport, Energy Efficiency, Flexibility; Other
Location	Rural/Urban
Capacity	# volunteers, # paid staff, # members/stakeholders
Types of support required for (medium and high readiness projects)	Financial barriers / support required: <ul style="list-style-type: none"> • Types: Grant/Loan/Equity. • Purposes: capital investment or project development. Non-financial support required / support required: <ul style="list-style-type: none"> • Legal, financial and business modelling. • Engagement: communication, etc. • Understanding specific energy technologies. • Understanding the energy market and opportunities. • Project financing options and strategies. • Cooperative governance and community share raising.

ii. Constraints and enablers to CE

In consultation with local VCSE representatives we will conduct three focus group sessions with approximately 30 (15 novice and 15 experienced) CE stakeholders (final list to be agreed with the Steering Group).

The focus groups will examine the extent to which aspects such as the local/national policy environment, knowledge, skills and experience and current support mechanisms currently enable or constrain CE in the NE. They will help to examine in more detail the results of the survey including the reasons for failed or stalled projects, and the actions that regional actors could establish to mitigate or optimise these factors.

Figure ii: VCSE consultation (enablers and constraints on community in the North East)



Where data is made available we will review the successful and unsuccessful applications and enquiries to Northern Power Grid and RCEF grant schemes as well as any other CE expressions of interests that may have been received by regional actors in the NE.

We will share and validate our findings on the VCSE context and develop the implications for our recommendations with the LEP and reference group through our first short presentation and feedback workshop.

2. Models and opportunities for CE in the North East

In order to be successful, it is imperative that CE initiatives also correspond to the political, economic, socio-cultural and technological context. One of the biggest challenges, whether or not the projects are led by the community or other actors with community involvement, is identifying and developing viable business models.

We will therefore provide i) a thematic key opportunities assessment for CE in the NE, ii) an assessment of strengths and weaknesses of up to 10 of the most relevant current CE models from across the UK and iii) two in-depth case studies of regionally or locally supported CE initiatives from the UK.

iii. Key business opportunities for CE

Our preliminary assessment will be informed by a review of existing key local and regional stakeholder's studies, plans and policies. This will include as a minimum a review of Northern Power Grid's network plans; the North East Strategic Economic Plan; the LEP's Energy for Growth Strategy; insights into project pipelines or sites (e.g. mine water heating and hydro potential) provided by the LEP; local authority's local plans (including those adopted and under development), climate emergency declarations and zero-carbon strategies.

Our review will seek to identify the most socially, financially and politically fertile opportunities for new CE initiatives in areas such as electricity generation, low carbon transport, storage, heat, retrofit, flexibility services and off-grid low carbon energy solutions. Particular attention will be given to less developed sectors such as heat, storage and EV charging alongside the more established power generation sector. We will share and validate our findings and develop the implications for our recommendations through our first short presentation and feedback workshop with the Steering Group and LEP.

iv. Strengths and weaknesses of potential business models for CE

Across the UK there are now a diverse range of CE business models. Utilising CSE and Community Energy England's comprehensive knowledge and understanding of successful (and emergent) models across the UK (including consultation with Community Energy Scotland and Wales) we will produce a long-list of 15-20 relevant and applicable CE modules for the NE, as well as highlighting gaps where there aren't models presently in existence but we think there is high-potential for in the NE.

In our long-listing, we will cross-reference the key areas of opportunity in the NE (identified above: 2iii) and the priorities for VCSE in the NE (identified above: 1i).

Table iii demonstrates our indicative approach to setting out our long list of potential opportunities:

Key area of opportunity	Potential bus. models	Example from elsewhere in the UK
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Local low carbon transport	EV car clubs:	Nadder Community Energy are developing plans for a community-owned electric car club called Tisbury Electric Car Club. Talybont on Usk Energy operate a community eco car share scheme with one electric van and a car running on recycled vegetable oil.
	Charging infrastructure:	Brighton Community Energy are investigating connecting (EV) charge points at six of their existing roof top solar arrays.
	Potential collaborations	Charge My Street is a community benefit society which installs and operates community charge points, raising money through community shares.
(cont ...)		

In collaboration with the LEP and Steering Group (at the first review session) we propose to narrow the list down to the most relevant and applicable models to the NE (up to 10). We will then review their strengths and weaknesses (as well as the key knowledge and skills required, the levels of risk and capital investment required and associated social and environmental benefits) in more detail. We principally expect this process to be informed by our current understanding and publicly available information. However, we have allowed time in our budget for up to 10 key informant interviews with experienced CE practitioners elsewhere in the UK to address any knowledge gaps and test accuracy.

v. In-depth case studies of supported CE initiatives from elsewhere in the UK

We will carry out two in-depth case studies of regionally or locally supported CE initiatives from the UK. We propose to agree with the LEP and Steering Group, at our first review workshop, the two most applicable examples of locally or regionally supported CE initiatives – taking into account the preliminary findings from the engagement with VCSE and the clarification of the key opportunities.

CSE already works closely with the Low Carbon Hub in Oxfordshire and Plymouth Energy Community and has a detailed understanding of their models and experiences (through our staff and current projects). We also have good knowledge of Energise Barnsley. As such we can provide detailed case studies on the processes involved in their establishment, the challenges faced, socio-economic benefits realised and innovative projects they have developed.

Alternatively, since each of those three initiatives required high-levels of up-front investment, we would like to discuss with the LEP and Steering Group whether there could be value in focussing one of the case studies on either:

- a. The potential of local and/or regional stakeholders to sponsor the establishment and development of a stronger regional CE network for the NE based on examples such as Community Energy Scotland, Community Energy South or the Bristol, Wessex or Devon CE Networks. We believe this investment may help to tackle the known lack of ‘bottom up’ and intermediary groups in the region. Or,
- b. Examples of emerging partnerships between CE groups and local authorities such as Gloucester Community Energy (who are working with Stroud District Council to improve optimise heat/energy potential of the council’s sheltered housing estate) or CREW Community Energy (in South West London), who are exploring heat network options for council owned multi-occupancy buildings.

We will develop the chosen case studies using a template pre-agreed with the LEP, through 2-3 in-depth key informant interviews (per case study) drawing on the insights of current personnel of the organisations and the local authority representatives who were involved at the outset.

3. The national policy context and innovative responses

There are a variety of legal, policy and regulatory barriers, at national level, which present barriers to CE delivery (as well as some innovative responses and sandbox opportunities).

vi. Summary of the national policy context for CE

Community Energy England will lead a desk-based analysis of the main policy constraints which are outside the immediate influence of policymakers in the NE. This will be informed by Community Energy England's most up-to-date understanding, consultation and engagement with UK Government departments, ministers and CE practitioners across the country.

vii. Outline of innovative responses to the policy context from elsewhere in the UK.

We will also provide examples of instances where exemptions have been obtained for pilot projects and some of the innovative initiatives that are currently being explored to mitigate national policy constraints.

For example, as a result of the loss of FiTs, one of the barriers to renewable energy deployment at present is securing a decent power purchase agreement (PPA) or Smart Export Guarantee (SEG) that will make the upfront investment attractive. We are aware that several local authorities are exploring the possibility of a partnership with a licensed supplier to develop their own electricity tariff to address this problem.

There are also regulatory, policy and legal considerations specific to different types of business model. For example, one of the main challenges for small CE organisations in developing pay-as-you-save retrofit models is obtaining a consumer credit license. We will highlight these considerations when we consider the strengths and weaknesses of the most applicable potential business modules for the NE.

4. The enabling environment: local policy and practice for CE

CE requires a conducive local context in order to flourish. From the project specification and our knowledge and experience of the region, we are very aware that there is a lot of good-will and existing, planned and emergent initiatives to support CE in the NE from VCSE, public bodies, and Northern Powergrid – as evidenced by their Community Energy Engagement Strategy. Our aim here will be to amplify these existing initiatives and inspire and guide the development of new approaches.

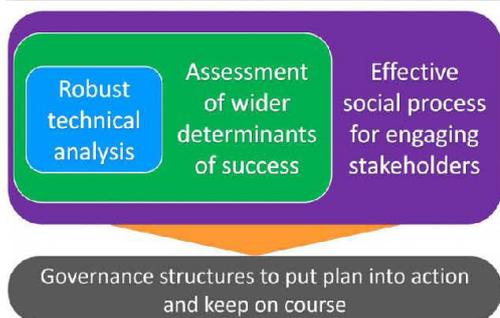
viii. Review of current local and regional policy and practice

Our review will focus on local and regional policies and practices related to procurement; planning and inclusive community engagement in energy initiatives.

The review will be conducted through a desk-based research and close consultation with various departments in local government (such as planning, procurement and others, such as economic development) and Northern Powergrid through 10-15 key informant interviews to identify current policy and practices in the NE.

The review will be informed by CSE's recently published work for Ofgem on Local Area Energy Planning (see case study), our practical experience of planning policy and support to local authorities (both in relation to neighbourhood planning and local plans) and Community Energy England's current work for (Department for Business, Energy & Industrial Strategy) BEIS on how regional network structures could help with mentoring/sharing expertise across the CE sector.

Figure iii shows the four key elements of local area energy planning



It will also draw on our experience of working with communities to develop energy plans through methodologies such as '[Future Energy Landscapes](#)' (a methodology that can produce an outline energy plan for a given community from insightful, detailed and mature discussion on low carbon energy infrastructure, in the absence of the threat of imminent planning applications).

ix. Review of good practice from elsewhere in the UK.

We will consult, elsewhere in the UK, with various departments in local government through (up to five) key informant interviews with local authority personnel elsewhere in the UK. This will enable us, if we need to, to drill-down on specific options and solutions to challenges raised by local authority and/or VCSE actors in NE that arise during our consultations.

We expect these to include for instance, examples such as in Cornwall where the positive benefits achieved by CE schemes has been defined as a material consideration in decisions about renewable energy developments (see [Cornwall Council](#) policy 14, page 54). Or, the provision of supplementary planning guidance providing advice to developers, architects, surveyors or owners of historic buildings on the types of efficiency and generation projects that are accepted where a building is listed (see [Bath and North East Somerset](#)).

We would also expect to include recommendations relating strategies for CE which define approaches for the private and public sector to work together to accelerate the growth of community owned or led schemes. Like for instance in [Project LEO](#) in Oxfordshire, and exemplar examples of inclusive initiatives such as the [Ambition Lawrence Weston](#) wind turbine and [Repowering London's](#) work.

We will present a long-list of stakeholder specific recommendations to the LEP and Steering Group through our second short feedback workshop. We will work with the Steering Group to prioritise and sequence the policy recommendations based on potential impact and deliverability.

5. CE support needs in the North East

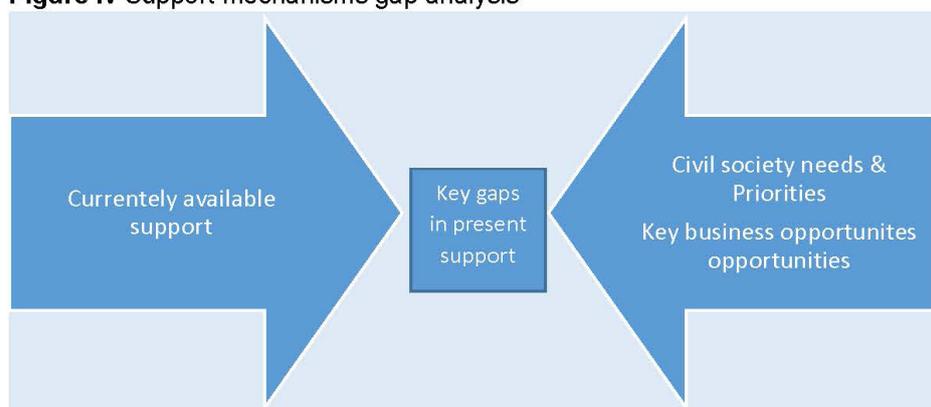
All CE projects need support from within the community. They also need support (financial and non-financial) from outside the community. But, these support requirements vary widely from group to

group and project and project. Through this final research area, we will provide recommendations that could include mechanisms, structures and support that respond to the needs of the VCSE and the key opportunities for CE in the NE.

X. Financial and non-financial support gap analysis

Through a gap analysis we will compare the nature (grant, loan, and equity) and the scale of financing needs with the needs of VCSE stakeholders and the key areas of opportunity and potential models for CE (identified above).

Figure iv Support mechanisms gap analysis



Existing avenues of support open to CE in the NE will be assessed such as Northern Powergrid's Community Partnering Fund; and Durham County Council's (recently announced) revolving loan fund. As well as other funding that may be accessible to the NE through national schemes such as Co-op UK's Community Shares Booster programme (that provides development grants and equity investments) and the National Lottery's Climate Action Fund.

Our analysis will draw out the main gaps to inform the CE element of NTCA's carbon reduction fund as well the broader array of structures and mechanisms required to deliver the support. We will also look at what schemes are working well in the UK, e.g. the [London Community Energy Fund](#).

We are acutely aware that CE development is not just about the money. Technical skill deficits, even where funding/financial support is available, often mean that CE organisations abandon projects at an early stage, or overlook some of the key considerations.

Drawing on our capacity assessment of the VCSE for CE and the specific skills required to respond to the key opportunities and develop the models, we will make prioritised recommendations for the non-financial capacity support required in the NE and the sort of organisations that can offer this (including those that already exist and those that are currently lacking).

We will also outline at a high level how other regions of the UK have responded to the technical deficits. For example, Cambridgeshire County Council are offering free energy audits for community buildings to address local technical capacity gaps. And, we will include a summary and sign-posting to the open-access resources that are available nationally through the likes of CEE, CSE and other actors in areas ranging from governance to stakeholder engagement and share-raising.

We will present our draft recommendations on project finance and project development support to the LEP and reference group through the second short presentation and feedback workshop. We will then bring together this chapter with all the other draft chapters (which will already have been presented to the Steering Group at the feedback workshops) and finalise the report and executive summary based.



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