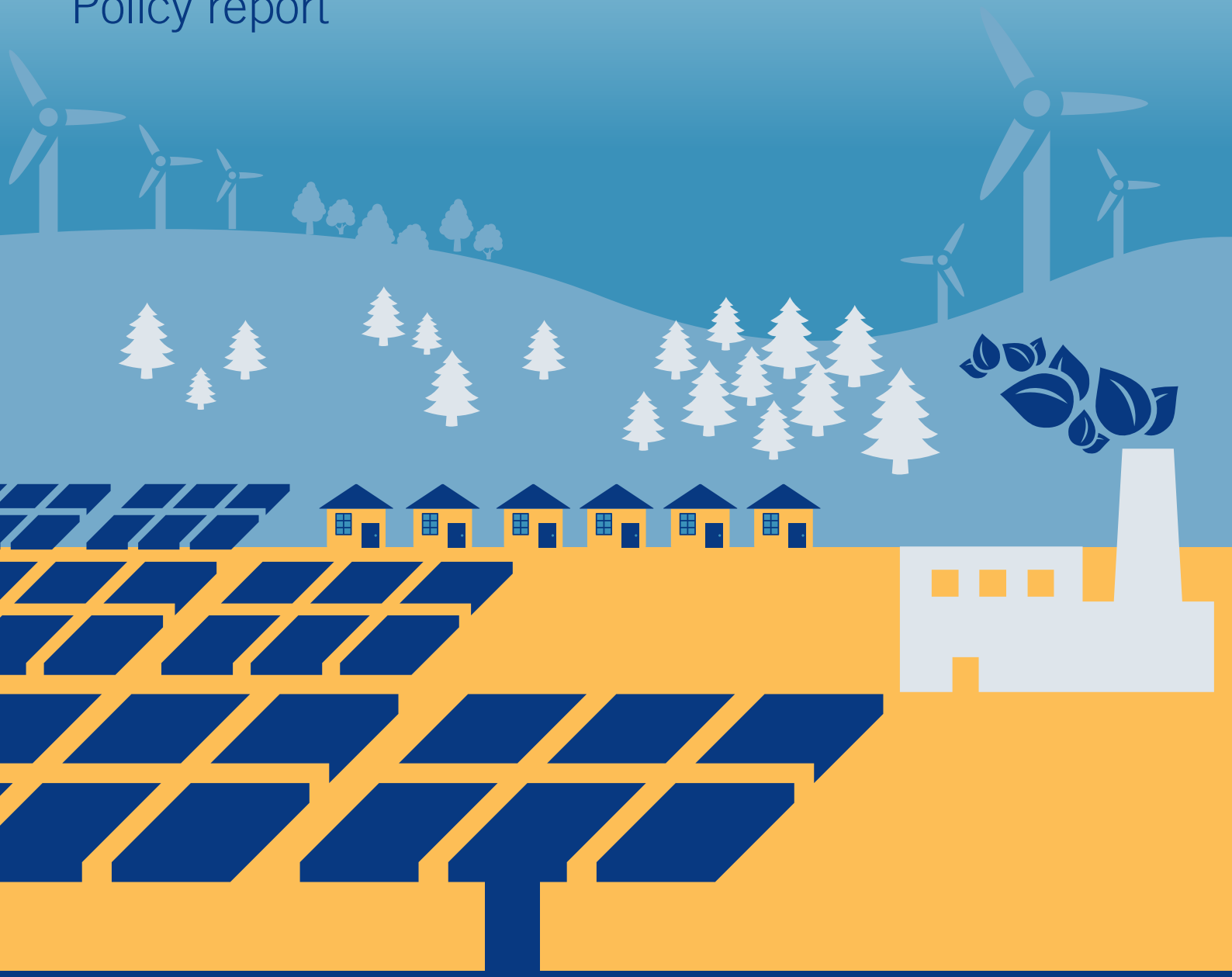
Cultures of Community Energy

Policy report



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Foreword

Providing affordable, reliable and low carbon energy is proving to be a formidable challenge for every nation. Yet global energy demand is variable in the face of economic recession though seems slowly to be recovering as energy prices remain low. Fossil fuel supplies are in surplus, supported by continuing subsidies.

In Great Britain, generation capacity margins are becoming tighter. This poses a challenge of ensuring enough new investment while managing the closure of old fossil fuel plants. The Paris Agreement, signed by all 192 nations of the planet, commits all governments to a pathway of zero net carbon related emissions by around 2075. The stakes in all of the energy domains are high. This is a troublesome policy landscape but one which has to be faced.

The British Academy embarked on a programme of public debates and engagement, commissioned research projects, and workshops in order to grapple with these energy dilemmas. As part of this programme the Academy has carried out a stream of work on community energy, including research on the underlying cultures which are creating schemes focusing on shared ownership models.

Community energy currently forms a small part of the overall energy mix of the UK. But its contribution could be much more important if policies focus more on local low carbon economies and social enterprise. In any case there is still an enormous amount to be tackled in the broad swathes of energy efficiency and wastage reduction. But community energy does provide power and heat – and can bestow a sense of pride. It has the potential to create a common purpose around affordability, social justice, and low carbon living. It opens up possibilities for more active community engagement in shaping spaces of meaning and interaction and mobility. It provides templates for other ways of creating enterprise and enabling those who want to be cooperative with their neighbours to find expression and excitement.

There may also be democratic advantages. A mobilised and enthusiastic community with a capacity to innovate forms the basis for more local autonomy over the delivery of various services and schemes which bestow wellbeing and betterment for all in the community. There is the glimmer of emergence for even more autonomy in local governance and social economies. So it is worth considering whether community based energy schemes, meeting the very real needs of affordability, reliability and renewability, can be enabled to flourish.

The British Academy offers this report, and the accompanying full set of case studies, to make suggestions about how a better understanding of the cultural and communities aspects of local energy projects can help shape policies and business models that lead to successful projects. If community energy is to grow in the UK, offering benefits in terms of low carbon power and community engagement, the findings here can contribute to ensuring that their growth is sustainable and achieves the benefits that are hoped for.

Professor Tim O'Riordan FBA
Chair of Working Group

Introduction

Culture: the aspects of culture we explore are national and institutional cultures; cultures of social entrepreneurship; and project-specific local cultures

Community energy: energy generation and supply projects, characterised by local ownership, local participation and benefit sharing

Objectives and Rationale

This report looks at the cultural factors which shape the success of community energy projects, and the cultural enablers and barriers to community energy becoming mainstream. The report forms part of a programme of British Academy public debates and engagement, research and workshops looking at key issues relating to energy and the environment at local, national and global levels. In recent years, much energy policy research has focused on attempting to influence choices of individual actors, firms, and nation states. Improving the understanding of what influences human behaviour remains of interest in the energy policy sphere – from behavioural economics looking at individuals' motivations, to social practice theory looking at broad patterns of energy using behaviour, connected to culture and norms. The British Academy identified an opportunity for evidence for policy that sets out to analyse behaviour at a different scale – groups, communities, and localities – scales of behaviour where the British Academy has significant expertise.

The aim of the project was to identify opportunities that promote, and barriers that inhibit, community energy projects in the UK. Our interest is in community energy generation and supply projects, characterised by local ownership, participation and benefit sharing. The approach used was to incorporate comparative institutional analysis with other countries where cooperatives and shared ownership of local energy infrastructure are more common. Barriers to widespread take-up of shared energy generation in the UK may be economic, regulatory, technical, constitutional or political. But there may also be cultural barriers that need to be better understood.

Community-owned renewable energy is currently a very small element of the UK's energy mix, and it was not the assumption of the working group that community energy will make a major contribution either to energy security or to tackling carbon emissions. However, this does not mean that it is of little benefit, and the value of community energy can be felt by communities in a variety of ways, as the case studies collected here show. Indeed, according to DECC's Community Energy Strategy Paper (2014), published shortly before this project was initiated, "Community-led action can often tackle challenges more effectively than government alone, developing solutions to meet local needs, and involving local people. Putting communities in control of the energy they use can help maintain energy security and tackle climate change; help people save money on their energy bills; and have wider social and economic benefits." Given these potential benefits of community energy, the British Academy sought to tackle the evidence gap on how culture affects the uptake and success of community energy projects.

21%

of the 1,000 surveyed showed some interest in investing in community schemes having not done so before

Context, methodology and engagement

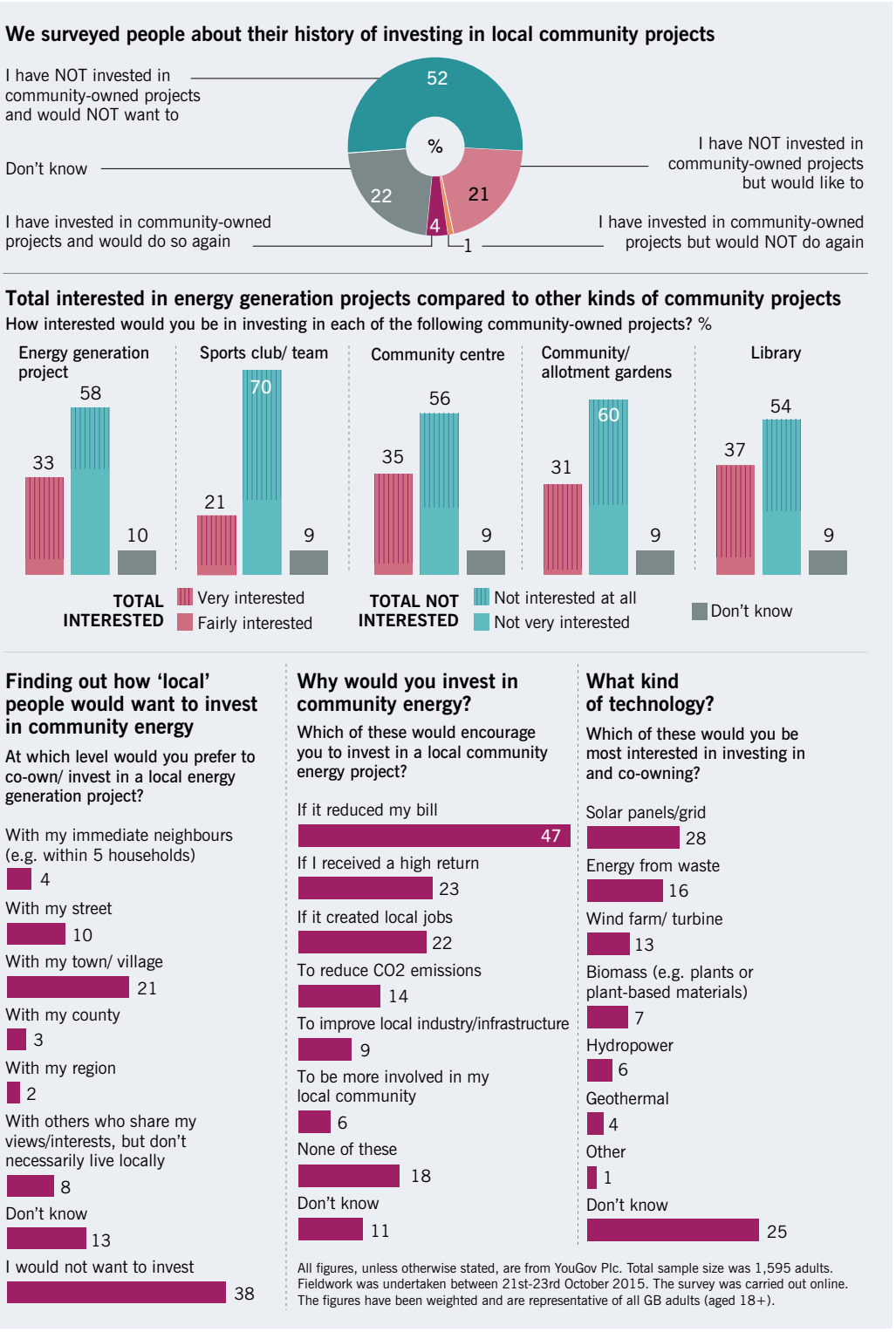
Context: survey and public debates

As part of its season on Energy and Environment in autumn of 2015, the Academy held four public debates – in London Swansea, and Edinburgh – to share with interested parties how relevant energy matters are being handled in the nation and wider afield. As part of these public engagement activities the Academy carried out a YouGov survey of public attitudes to social and community activities generally and community energy projects in particular. The aim here was to get a sense of the level of uptake and interest in community energy in the UK, and more generally the level of interest in cooperative projects and community cohesion.

Of the 1000 surveyed participants across Great Britain, only 5% had ever invested in community owned projects, with 4% saying they would invest again, and 1% saying they had invested but would not do so again. However, 21% showed some interest in investing in community schemes having not done so before. Respondents showed similar levels of interest in community energy schemes in comparison to community centres or allotments, though there was more interest in libraries. Respondents were most likely to give reduction of bills as a motivator for investing such projects, ranking this higher than return on investment, and significantly higher than promoting community involvement. A summary of the findings is given in box 1.

This small-scale survey was useful in capturing the level of interest in cooperative projects and community owned energy in Britain. It provided a background to a set of case studies that compare community energy projects internationally, focusing on cultural issues such as levels of social entrepreneurship and broad energy policy frameworks.

Box 1: Attitudes to investment in community projects, first reproduced in *Energy and the Environment*, published by Prospect for the British Academy, February 2016



Methodology: using a case study approach

With a view to bridging the evidence gap on energy at local levels, and to understand community energy from a fresh angle, the British Academy issued a competitive tender which invited the selection and exploration of case studies of community energy projects across the world, to understand better the cultural contexts of those projects. Through this process the Academy commissioned Rebecca Willis, Peter Capener and Neil Simcock (Independent Researchers working in collaboration with Lancaster University and advised by Patrick Devine-Wright and Gordon Walker) to produce a set of eleven international case studies under the theme "Cultures of Community Energy".

The case studies prepared by the research team were selected from three broad groups:

- *Community energy leaders*: Two projects from Denmark and one from Germany were identified, as these countries have a high uptake of community energy, and supportive regulatory frameworks – longstanding in the case of Denmark, and more recent in Germany's case.
- *The UK*: Reflecting the British Academy's wish to examine the challenges and opportunities facing the UK in particular, four case studies from the UK were chosen: two from England, and one each from Scotland and Wales.
- *Wild cards (international experience):* In order to learn from very different cultural and institutional settings, five 'wild card' case studies from other countries were selected, with projects from Belgium, South Korea, Brazil and Chile.

Three aspects of culture are considered:

- *National institutional and political cultures*, including the assumptions and norms governing regulatory structures, which are often implicit rather than explicit in government statements and policies.
- *Cultures of social enterprise*: Social enterprises are businesses trading for social or environmental purposes. The study examines the extent to which social enterprises (as distinct from the commercial or public sector) are recognised and valued within the economy and society of a region.
- *Local cultures*, referring to the cultural milieu within which community energy groups operate – such as the degree of trust and social cohesion; the influence of religious or social motivations, and so on.

The rationale here was to look carefully at the underlying cultures that promote and reinforce community energy projects, and to assess how these cultures can be fostered or are being impeded. Of the three cultures mentioned, one is economic and regulatory. This embraces the overall policy setting together with supportive and inhibiting features. At one level it is essentially a variant of a business model, but requires a wider interpretation. This takes us to the second cultural element. This applies to social enterprise, the motivation of collective and community action, and drive to small-scale locally owned businesses and services. It also spreads to a more community supportive approach where the business approach is set in the context of overall wellbeing and social justice. The third relates to local community identity and common purpose, driven by enthusiasm, concern for viable energy futures, broad based social values, and faith.

The rationale was to look carefully at the underlying cultures that promote and reinforce community energy projects

The purpose of the research was to set examples from the UK in an international context to see how these three cultures manifest themselves in different communities internationally. The case studies help to highlight what aspects of regulation, pricing and energy politics (all part of cultures) either reinforce or thwart community energy projects.

The study revealed the many aspects of community energy schemes and drivers that vary widely from place to place and society to society. Some were enabled by national policies such as the incentives provided by Feed-in Tariffs or investment tax incentives. Others projects were promoted by protest over commercial projects, carbon dependency, a wish for freedom from the 'grip' of large energy companies, or local leadership and community spirit.

Discussion between the research team and the project working group of the case studies and the conclusions drawn from them led to the development of a series of suggestions for actions that could support community energy in the UK, as set out in chapter 4.

The aim was to facilitate a collective discussion on what is required for local energy projects to thrive

Engaging stakeholders

The case studies, initial findings and suggestions for actions were discussed during a stakeholder workshop hosted by the British Academy in March 2016. This workshop brought together a wide range of stakeholders involved in community energy, including community energy practitioners, policy makers, industry representatives, finance providers, not-for profit organisations and academics. The aim was to facilitate a collective discussion on what is required for local energy projects to thrive in the context of a changing policy and fiscal environment, and to identify actions for policy makers and communities.

The workshop consisted of a presentation of the report, a critical reflection on the report's findings, a presentation on the impacts of the recent changes in policy for community energy, and four breakout discussions around the following areas:

- Developing a long-term policy framework supporting community energy
- Incentivising local energy economies and supporting local communities
- Diversifying the community energy sector
- Developing a social enterprise approach

Discussions by the stakeholder group within these areas are set out in part two of this report: Next steps on community energy. They are presented as a useful resource for those engaged in shaping the future of community energy.

Part one: Cultures of community energy

Case studies summary

These case studies are summaries from the accompanying report: *Cultures of Community Energy – International Case Studies*. Each summary sets out basic details of the projects, highlights key aspects of the three areas of culture being examined and gives quotes from local participants.

These case studies do not give a full account of why the projects succeeded and how they secured community buy-in based on investment decisions. There is more financial detail needed for each scheme to set out in full what makes them attractive and sustainable from a financial point of view. Rather than setting out all of these details, they focus on the three aspects of culture that are the focus of this study, looking at a range of projects that vary in terms of genesis, scale and technologies used. This is in order to understand the cultural context and drivers that made them possible, attractive and sustainable.

Box 2: The eleven case studies – Table taken from full case studies report, p.7

	Rural / urban	Size / technology	Partnership with others?	Other factors
Denmark and Germany				
Middlegrunden, Denmark	Urban	Large-scale wind	Joint with commercial developers	Offshore, near Copenhagen. One of the first projects
Hvide Sande, Denmark	Small town in rural area	Large-scale wind	Linked to local business organisation	Linked to town district heating plant
Bioenergy Village Jühnde, Germany	Rural	Biomass and other technologies – small scale but whole village	Partnership with local university	
UK				
Wiltshire Wildlife, England	Rural	Solar PV, medium-large scale	Partnership with commercial developer	
Brixton Energy, England	Urban	Solar PV, small scale in several locations	Worked closely with local authority	Strong social element including apprenticeships etc
Cwm Arian Renewable Energy (CARE), Wales	Small town	Medium, wind	Community-led	Not yet built due to a series of difficulties
Horshader Community Wind Turbine, Scotland	Rural	Small, wind	Community-led with support from Community Energy Scotland	
Wild cards				
Ecopower, Belgium	Operates across the Flanders region	Range of technologies	Co-operative but very large in scale	Generates and supplies electricity to households
Buan County, South Korea	Rural	Solar PV	Community-led	
Energy Coop Aysén, Chile	Predominantly urban	Not yet operational	Community-led	Early stage; mainly focussed on networking & feasibility
Creluz, Brazil	Rural	Hydro – small-scale but large network	Community-led	

Group 1: Community energy leaders

The first set of case studies was taken from Germany and Denmark, countries where there is significant community ownership of generation infrastructure. For example, in Denmark one third of the population has links with a co-operatively owned wind scheme[1]. By the end of 2010, community energy made up 40% of Germany's renewable energy assets.[2] The following case studies examine the three aspects of energy culture at play in German and Danish projects.

Middlegrunden Wind Turbine Cooperative

This offshore wind farm, located **3km from Copenhagen harbour**, is composed of **twenty 2MW wind turbines**, making it the largest wind cooperative in the world. It is **co-owned by approximately 10,000 members of the Middlegrunden Wind Turbine Cooperative (50%) and Copenhagen Energy (50%)**, a municipal energy supply company.

A national policy framework that required local authorities to meet renewable energy targets and devolved planning decisions to them provided the 'institutional space' that allowed Middlegrunden wind project to thrive, and a nationally mandated Feed-in Tariff enabled the development of a sound business plan and provided long term predictability for investors.

National funds also contributed to the development of the project. A nationally funded body charged with the development of regional renewable projects (The Copenhagen Environment and Energy Office) initially worked in partnership with the nascent cooperative, and led on project management. The local authority also provided support for the initiative: the municipally owned energy company brought technical expertise to the project while the cooperative led on community engagement activities.

For further detail see **page 10 of full case studies report**

> Cultures of social enterprise – Middlegrunden: "The use of the coop model is a more than 149 years tradition in Denmark, coming from agriculture activities in order to establish local companies of the benefit to all local people."

Middlegrunden

National institutional and political culture

- National policy framework provided institutional space for project: local authorities are required to meet renewable energy targets and are responsible for planning decisions and there was a nationally mandated Feed-in Tariff

CR Hans Chr. Soerensen

- A nationally funded body tasked with the development of renewable energy provided initial organisational support
- A national government grant enabled community engagement and consultation work
- A local authority-owned energy company provided technical expertise

Cultures of social enterprise

- One third of the population has links to wind cooperatives
- Familiarity across Denmark with cooperative models of ownership positively impacted on acceptance of the scheme

Local culture

- Copenhagen urban environment is characterised by a lack of interpersonal and institutional bonds of trust
- Extensive public information campaign and public consultations undertaken by the cooperative – together with familiarity with cooperative models – were central to the scheme's success

[1] Devine-Wright, P. (2005) 'Beyond NIMBYism: towards an Integrated Framework for Understanding Public Perceptions of Wind Energy.' Wind Energy, 8, pp.125–139. The public engagement in such schemes breaks down as follows: although only 5% of respondents were share owners, 35% of respondents knew someone else who was and 43% expressed interest in becoming share owners.

[2] https://www.gov.uk/government/uploads/system/uploads/attachment_datafile/275163/20140126Community_Energy_Strategy.pdf

Hvide Sande Wind Farm

This wind farm is composed of **three 3MW wind turbines** and is situated on a beach near the Hvide Sande village. It is located on a land owned by **Denmark's 5th largest port** and went into operation in January 2012.

The project was developed by The Hvide Sande Community Foundation (HSCF), a charitable trust established in 2010. The project was **mainly financed by bank loans (80%)** whilst the remainder was secured via **shares sold to local residents**. An elected board of local residents allocate the **financial surplus (1.2 million euros per year) to projects benefitting the local area**. Rent is also paid to the port authority for hosting the wind turbines and the revenue has been used for redeveloping and modernising the harbour facilities.

For further detail see **page 15 of full case studies report**

Local culture – Hvide Sande: "[In 2006] there were investors that came to Hvide Sande and said that they want to buy the rights to build windmills. And all Hvide Sande people protested, and said that they didn't want it. So the project went away and wasn't set up, and then 4 years later local people said 'we'll set windmills up and make it as a trust fund.' All people supported, there was no protests at all. So it means that when we change the ownership and give money to the fund, and use the money to develop the local area, then people are positive."

Hvide Sande

National institutional and political culture

- Like the Middlegrunden project, Hvide Sande has benefitted from Denmark's longstanding support for wind energy and community led approaches, and the financial support provided by government in the form of the Feed-in Tariff
- The project emerged out of a "spirit of resistance" to large commercial development of wind energy projects, which had become the dominant model of wind development in Denmark since the early 2000s

Cultures of social enterprise

- The community already owned a local heat and power plant and district heating system – which paved the way for the wind turbines
- Only 20% of the project is financed by share offers as the aim is to return profits to collective projects within the local area, as opposed to individual investors

Local culture

- Rural community that is relatively economically marginal and reliant on its harbour for jobs and income
- Desire for local regeneration and harbour modernisation in particular

Photo: Comrade Foot

Bioenergy Village Jühnde

The small Saxon village of Jühnde, home to a close-knit community of **750 people**, is host to a CHP bioenergy plant combined with a district heating system established in 2005. The impetus for the scheme originated from the University of Göttingen who selected the village to receive support in developing a bioenergy scheme.

The feedstock – biogas and woodchip – are sourced locally. The excess heat from the CHP plant is used for drying the woodchips. **The system supplies 70% of the heating needs of the village and double its electricity demand**. The district heating system mainly replaced off-grid oil fired space heating. The plant is owned by a cooperative where **75% of the village residents are investor members**. The 5.2MEuro scheme was financed through a combination of shares (0.5M), grant funding (1.3M) and bank loans (3.4M). The project has resulted in the provision of low-cost and low-carbon energy with a **60% reduction of carbon emissions**. The Jühnde bioenergy project is unusual in that shareholder members of the cooperative are both consumers and producers of the energy. This has resulted, for example, in decisions to minimise returns to investors in order to keep the price of heating low.

For further detail see **page 21 of full case studies report**

Cultures of social enterprise – Jühnde: "In Jühnde we were the first co-operative. But the people here in Germany in the rural areas, they know the construction of co-operatives. So for example the bank in the next village is a co-operative, or examples where farmers bring their products from the fields to co-operatives that buy it and sell it to the market. So they knew that this was a very fine and excellent type of company."

Jühnde

National institutional and political culture

- There is a national Feed-in Tariff and priority grid access for exported energy
- A fairly decentralised energy planning system
- A supportive local authority arranged public meetings and enabled access to finance

Photo: Axel Hindemith

Cultures of social enterprise

- Small-to-medium-sized enterprises and distributed patterns of business ownership are an important part of the German economy, and there is a burgeoning community energy sector
- Familiarity with cooperative models eased the path of development despite being the first model in the area
- Share owners also purchase electricity from the cooperative which encourages them to make balanced pricing decisions as "prosumers"
- Shared learning was promoted via a guide book directed to other interested communities

Local culture

- Close-knit community with high degree of interpersonal trust
- High level of local engagement – including the Mayor's active involvement – led to the community being selected by the University of Göttingen for the project
- Institutional support provided by the University of Göttingen engendering residents' trust

Group 2: The UK

The following case studies are taken from across the UK, encompassing rural, urban and island communities. The British Academy's YouGov survey suggested low general levels of involvement in cooperatives generally and community energy projects specifically (see Box 1 page 3). However, the introduction of Feed-in Tariffs saw rapid growth in community energy initiatives.

Wiltshire Wildlife Community Energy (WWCE)

WWCE owns and operates **two large ground mounted solar PV farms of 1MW (Chelworth) and 9.1 MW (Braydon Manor),** completed in June 2014 and January 2016 respectively.

WWCE is a Community Benefit Society established in 2012 by Wiltshire Wildlife Trust (WWT), a charitable membership-based organisation that works to conserve and protect the natural environment in Wiltshire. 70% of the investor members of WWCE are also members of WWT.

Chelworth farm was financed entirely through a community share offer whilst Braydon Manor is co-owned by a commercial company and a community group. **Thus far, WWCE has achieved a 7% return to investors and 20% of the financial surplus is donated to WWT**. The remainder is paid into a **trust fund to be used for projects benefitting the community**. A legislative change in April 2015 allowed for the co-ownership of the Braydon Manor solar array by a commercial company and a community group. It also provided for an increase in the scale of the project from 5MW and a concomitant costs reduction per kW installed.

For further detail see **page 30 of full case studies report**

National institutional and political culture – WWCE: "Government support has driven down the cost of renewable energy significantly, enabling renewables to compete with other technologies and helping the industry stand on its own two feet. Our priority is now to move towards a low-carbon economy whilst ensuring subsidies are used where they are needed most, to provide the best value for money for hardworking bill payers."

Wiltshire

National institutional and political culture

- Despite the lack of a culture of social enterprise in the UK compared to Denmark and Germany, the introduction of a Feed-in Tariff in 2010 saw the rapid growth of community energy organisations – particularly in the South West of England. However, the national Feed-in Tariff decreased during the development phase which led to a revision of the project's financial projections
- A legislative change allowed for a co-ownership between a commercial company and the community which led to an increase in the scale of the project and a cost reduction per kW installed
- There was increased project complexity with "community versus commercial" imperatives
- A supportive local authority set up a subsidiary to undertake feasibility work and planning consent

Cultures of social enterprise

- The 2010 Feed-in Tariff led to a rapid growth in community energy organisations
- South-West of England particularly active and project received support and advice on split ownership from neighbouring groups

Local culture

- Trust was engendered by the fact that the project was set up by the Wiltshire Wildlife Trust – with a binding desire to promote biodiversity
- However, it could be argued, that WWCE serves a community of interest rather than a geographical one, with the common interest being a desire to promote biodiversity in Wiltshire
- The choice of solar energy resulted from a local aversion for wind turbines, for aesthetic and rural conservation reasons

Brixton Energy

Brixton Energy is made up of three not-for-profit Community Benefit Societies that own and operate rooftop solar schemes located on the Loughborough Junction Estate in South London.

The installations have a **capacity of 37kW (Brixton Solar 1), 45kW (Brixton Solar 2) and 50kW (Brixton Solar 3)**. The first scheme was set up in March 2012 and all were financed through successive **community share offers**.

Each of these arrays provides electricity to their host buildings with the remainder of the electricity sold to the national grid. **Investor members receive a 3% return on their investment and 20% of the financial surplus is channelled into a Community Energy Efficiency fund** used to tackle fuel poverty and fund energy saving measures.

The government mandated Feed-in Tariff not only underpinned the financial viability of these schemes, but also their credibility - providing a perceived government seal of approval. Support for initial coordination was provided by Lambeth Council, and DECC's Local Energy Assessment Fund provided support for consultation and project management. Engagement with residents led to less focus on climate change mitigation and more on local development and jobs. In accordance with this, **a team of young apprentices were recruited to support the projects**.

For further detail see **page 35 of full case studies report**

Local culture – Brixton: "During our energy schemes we've worked with residents and young people, some of whom are going to university, some of whom have just finished at school to help them go through an internship programme and develop a wider range of skills. So we've had quite a strong impact on some of these young people and it's been great to see that progression. So community energy has had a role to play to address some of these community and poverty related issues."

Brixton

National institutional and political culture

- The national Feed-in Tariff underpinned the project's financial viability and credibility
- Local and regional government initiatives provided support for coordination activities, staff funding, community engagement and consultation work

Photos: Tim Mitchell

Cultures of social enterprise

- Local context with an existing degree of (voluntary) collective action
- The project emerged during a period of rapid expansion of community energy projects
- Other community energy groups provided advice and support to the project

Local culture

- Urban area with weak interpersonal ties and high level of socio-economic deprivation
- Founding members were non-residents but worked with trusted local community groups
- The project focused on improving the prospects of young people by providing training and internships programs

Cwm Arian Renewable Energy (CARE),

Cwm Arian Renewable Energy is based in The Cardigan Area of West Wales. Formed in 2010, they have proposed two wind energy projects, both of which **failed to gain planning consent**.

The first consisted of two **1.2MW wind turbines** and the second a **single 500kW turbine**. Both were to be built on land owned by a founding member of the group. The project finance would have consisted of bank loans and a community share offer providing a return to investor members. Any financial surplus would have been used for projects to benefit the local community.

CARE received various sources of institutional support including an initial grant of £7000 from The National Park Authority and one of £18,000 from Ynni'r Fro (Valley Energy), a source of EU Structural Funds administered by the Welsh Assembly. The project also received valuable advice from the Technical Development Office from Ynni'r Fro. A £400,000 grant from the Low Carbon Communities Programme enabled the group to employ staff. However, when government priorities changed, the programme was curtailed, and only a quarter of the grant could be used.

For further detail see **page 41 of full case studies report**

Cultures of social enterprise and local cultures – Cwm Arian: "The idea for community ownership [of wind energy] came because we'd gone through community-ownership of the school, so we had a bit of social enterprise ambition … so there's this desire, I don't know where it's coming from, but because we were in the middle of the fight for the school, and people just had some kind of strength to think that we could pool our money and do things."

Cwm Arian

National institutional and political culture

- Regional grants enabled feasibility and development work
- A national grant enabled staff employment but was later curtailed, with only a quarter of the grant being used
- Sudden decrease in national Feed-in Tariff and withdrawal of tax relief schemes led to a revision of the financial proposals and introduction of cost-cutting measures
- Project proposals were denied planning permission partly because the Welsh Government does not issue guidance to give weight to community benefits in planning decision

Cultures of social enterprise

- The communities already had experience in working together in a number of community owned projects which led to the original choice of a cooperative model

Local culture

- Rural close-knit community with strong social ties between its members which benefitted both supporters and opponents of the project
- Local residents who opposed the scheme managed to get support from wider anti-wind lobby as a large number of planning objections came from non-local residents

Photo: Cris Tomos

Horshader Community Wind Turbine

The **900kW wind turbine** installed in Horshader on the **Isle of Lewis in 2012** is owned and operated by a limited company set up by Horshader Community Development Trust (HCDT).

The profits from the sale of electricity are gift-aided to the Trust, and used for projects community projects such as an initiative to tackle fuel poverty, a local shop, and the construction of a play area.

Horshader is **home to only 159 residents**. The HCDT is led by **8 voluntary Directors** all of whom are local residents. The idea for the project emerged from an opposition to a proposal for a commercial wind energy project to be sited on the Island – which was rejected on the basis of poor financial returns to the community.

Without a Feed-in Tariff the project would not have been financially feasible. In 2012, potential changes to the Feed-in Tariff resulted in the group having to rush through the final stages of project development, which led to increased costs. Big Lottery Funds initially enabled the trust to employ a development officer. A feasibility study, pre-construction work and necessary site checks were funded through the Scottish Government's Community and Renewable Energy Scheme (CARES).

For further detail see **page 47 of full case studies report**

Local cultures – Horshader: "And it's more of a geographical sense to the communities as well, so it's easier to define them in that sense, whereas if you're in a larger area you need to find the communities within that … So that helps because these small pockets where everybody knows each other, and everybody knows what the needs of that area are."

Horshader

National institutional and political culture

- The national Feed-in Tariff underpinned the project's financial feasibility
- Scottish Government made various sources of funding available for a feasibility study, pre-construction work, and site checks

Cultures of social enterprise

- Collective community-based activities are relatively frequent and are viewed positively
- A culture of self-reliance, which led to the rejection of a commercial wind project and the adoption of a Trust based legal structure, ensure that profits are returned to the community
- A supportive network of regional community energy groups sharing learning and skills

Local culture

- A community with high levels of trust and interpersonal bonds which enabled informal and effective consultation work
- A culture of self-reliance, born partly out of necessity, can be traced to the 19th century's highland clearances and may have contributed to both the rejection of the commercial wind proposal and a preference for a Trust-based legal structure over a cooperative model

Group 3: International experience (wild card countries)

These case studies have been taken from a range of different countries in order to provide contrasting cultural and institutional settings.

Ecopower

Ecopower, a cooperative based in Flanders, is unusual in that it **generates renewable energy**, but it also **distributes and supplies energy to approximately 50,000 households**.

The cooperative generates about half of the energy that it supplies by means **of 20 wind turbines and 320 solar PV installations**. The cooperative also owns a wood pellet factory and a co-generation plant supplying heat for a municipal building.

Ecopower is a fully mutual cooperative where **members can buy between 1 and 50 shares, each worth £250**. In return, members can buy lower cost electricity from the cooperative, can **get a return on their investment of up to 6%**, and the ability to influence decisions made by the cooperative. Cooperatives are active in a number of sectors in Belgium including agriculture, credit and insurance, as well as health care: project leaders were familiar with the cooperative model.

For further detail see **page 54 of full case studies report**

National institutional and political cultures – Ecopower: "At the beginning of the liberalisation of the electricity and gas market in Flanders in 2003 our general assembly decided to become a supplier of electricity. And we were one of the first suppliers, and it was not hard to get permits because people from the advisor of the Ministry came to our meeting and practically begged us to do it. So we did and he was one of the first to have the electricity."

Ecopower

National institutional and political culture

- A national "Green Certificates" trading scheme is in place as opposed to Feed-in Tariffs
- A regional quota system, premium prices and net-metering schemes underpinned the project's financial viability
- Government-driven liberalisation of the energy market resulted in easy access to an energy supplying licence
- Return on investment for members is capped to encourage further investment in renewables schemes
- Equity is "open" so that new investors can join the scheme anytime

Cultures of social enterprise

- A broad consensus around the concepts and values of social enterprise and a social economy
- There is familiarity with cooperative models in agriculture, credit and insurance and health care

Local culture

- Aversion to projects imposed from outside the community necessitated developing the project from an early stage and in an open and transparent way
- Project emerged from an anti-nuclear sentiment: a group of citizens committed to identify alternative low carbon and safe energy solutions following the Chernobyl accident
- Low opposition due to high levels of community involvement in project development

Buan County Community Energy (BCCE)

Buan County Community Energy (BCCE) is based in a rural area on the South West Coast of the Korean Peninsula with a **population of 60,000**, 35% of whom are employed in agriculture or fishing.

BCCE has installed 36kW of solar PV and solar thermal. The organisation's main office and many of its **installations are located in the village of Deunyong, home to just 44 families**.

A core group of 10 investors provided the finance for the first few installations. Sales of electricity to the national grid and a Feed-in Tariff provides revenue that enables BCCE to pay a return to its investors, and to channel any financial surplus into promotion of energy efficiency measures - such as providing energy efficient lighting to residents.

The energy market in Korea is dominated by a state owned enterprise that generates energy using fossil fuels and nuclear and levels of both renewable energy and community energy are low. The roots of the organisation lie in opposition to the siting of a nuclear waste disposal facility in the Buan County – all founding members of the group were active in this movement.

For further detail see **page 60 of full case studies report**

Local culture – Buan County: "...In other places, people do not worry about energy issues…Buan people are not thoughtless about energy issues. Most people in Korea do not participate in the process of energy production and so they do not think of energy [issues]. Energy means only electricity charges and oil prices to them. [Energy] production, consumption, conflicts and energy tax systems are not of interest [to them]. However, because Buan people have already faced [the issues] during the opposition movement to the nuclear waste disposal site... in general, Buan people have an awareness [of those issues], which seems to have an important meaning."

Buan County

National institutional and political culture

- State controlled energy generation in which fossil fuels and nuclear power are dominant
- Feed-in Tariff introduced in 2002 for small distributed renewable production, replaced in 2012 by a Renewable Portfolio Standard, favouring large commercial developers

Cultures of social enterprise

- Community-based models of social enterprise are emerging in some sectors but energy focussed social enterprise is still extremely niche
- Launched in 2012, the Sustainable Energy Action Plan for Seoul incorporates proposals for social enterprise-led energy schemes

Local culture

- The project is rooted in the niche counter cultural local movement opposing nuclear power
- Deunyong village, the focal point of BCCE, is a close-knit agricultural community in which residents are further connected by the fact that they are all Catholic (a minority faith in Korea)
- Support was provided from connections across the anti-nuclear movement which had experience of community energy

Energycoop Aysén

Energycoop Aysén (EA) is based in Northern Patagonia, Chile and the EA group was formed immediately after a successful campaign to oppose a new hydroelectric facility in Aysén.

It has **98 members** from across the region with the core group based in the regional centre Coyhaique. EA formed in April 2014 and is working towards installing a wood pellet heating system in a school as well as increasing the energy efficiency of the school building. Wood will be sourced locally, dried naturally, and pelleted by a local business.

The Chilean energy market is dominated by large corporations and centralised energy generation. Recently, there are signs that policy in this regard is beginning to change: in 2014 a Feed-in Tariff for small scale generation was introduced but fell short of aspirations as it excluded domestic installations.

For further detail see **page 65 of full case studies report**

Energycoop Aysén

National institutional and political culture

- Energy market is centralised and dominated by monopolistic corporations
- A Feed-in Tariff was introduced in 2014, but it excluded domestic generation
- Country still emerging from the Pinochet regime which imposed a high degree of centralisation

Cultures of social enterprise

- Social enterprise sector has developed in recent years

Local culture

- The project is rooted in an opposition to a large hydroelectric project, supported by the national and international community
- Driven by a desire to propose an alternative which is locally owned and operated, respectful of the ecology of the area, and for the benefit of local communities

Creluz (Co-operativa de Energia e Desenvolvimento Rural do Medio Uruguai Ltd.)

Creluz is a cooperative based in the state of Rio Grande do Sol in Southern Brazil.

It owns and operates a section of the national grid, **supplies electricity to its 20,000 members**, and also **owns and operates six run-of-the-river hydro schemes** that collectively generate approximately 4MW of electricity. Creluz has formed a partnership with four other cooperatives and together they are **working on the development of two large hydroelectric schemes with capacities of 24MW and 17MW**.

Creluz funds a variety of ecological, economic and social programmes suggested and selected by members, including reforestation programmes and habitat improvement. They also offer a sliding scale of tariffs for members to whom they supply electricity such that wealthier customers subsidise those on lower incomes and **600 members are supplied with electricity at no cost**. They offer support to their **87 employees** in the form of health care, food and transport programmes. A very high percentage of members typically participate in decision-making processes.

For further detail see **page 69 of full case studies report**

> Cultures of social enterprise and local culture – Creluz: "I think it's still a feeling of being a pioneer area. People expanded out of the rest of Brazil into that area. It's a generation or two ago but the sense of being pioneers. It's like the western expansion in the States. It's that sort of feeling that we've all moved into this area and we've got to work together to make it work."

Creluz

National institutional and political culture

- National aim is to achieve universal electricity access, but large infrastructure projects are favoured and there is little support for community energy
- The project relies solely on the local sale of electricity as there is no Feed-in Tariff

Cultures of social enterprise

- Strong belief in the value of working together, partly inherited from a "pioneer" culture
- Familiarity with cooperatives due to the presence of a crystal mine cooperative in the area, which is a major employer
- The organisation was already a trusted electricity supplier and had implemented social projects when it developed the micro-hydro project

Local culture

- A relatively deprived area with unreliable electricity supply which forced out-migration
- Shaped by a strong belief in helping those in need led to the wealthiest members subsidizing the poorest
- Most residents are Catholic, which facilitated social cohesion and the project's acceptance
- Guilt complex linked to deforestation perpetrated by pioneer settlers led to a commitment to environmental sustainability

Concluding remarks: understanding the role of culture in community energy

Culture and community energy: what do the case studies tell us?

How does culture influence community energy? The following summarises the impact that the three aspects of culture explored in the case studies has on community energy drawing on all sets of case studies.

National institutional and political cultures

Government policy impacts on the relative success of community energy initiatives – not only because of the its direct effects, but also in terms of the story policies tell about the institutional attitudes towards community energy; this is what economist may call 'an announcement effect'. These stories are as important as the outcomes of the policy itself.

Market liberalisation is also important – but it is the type of liberalisation, rather than the degree of liberalisation, that is a factor in the ease with which community energy initiatives are set up and are able to scale-up. For example, liberalisation can enable the entry of small-scale suppliers into the market – in Belgium it enabled Ecopower to expand operations into supply as well as generation. In contrast, liberalisation in Korea and Brazil that favours large corporations means that community energy groups must operate outside the system. The case studies also suggest that the existence of incentive systems, such as Feed-in Tariffs or specific tax incentives (e.g. EIS and SEIS in the UK), matter in incentivising local energy economies.

However, although financial incentives for renewable energy such as a Feed-in Tariff or 'Green Certificates' (Belgium) is an important enabler, without other forms of political institutional support they are of limited benefit. Community energy thrives where the policy environment is supportive of community energy in a broad sense.

Policy is important in other ways, of course. It should not only give appropriate incentives but should also be clear, credible and consistent. The existence of long-term stable conditions for community energy is important to its success. Long-term policy stability is crucial for all types of energy supply – as argued recently by the Royal Academy of Engineering[3], and by Nicholas Stern in his book *Why are we Waiting?*[4] – but compared with commercial schemes, community projects place a premium on predictability over high rate of return. Of course, policy contexts change but 'predictable flexibility' is key. As policies induce the successful and widespread adoption they seek, they can then be reduced in their intensity – but the rules for reduction should be known and understood ex ante. Predictability is particularly important for communities because of longer development times, relatively complex partnerships, building the confidence of local investors, and the need for capacity-building to develop skills and experience. DECC's 2014 Community Energy Strategy could form the basis of this stable framework, developing it along with the Cabinet Office, HM Treasury and Ofgem.

Cultures of social enterprise

The existence of a tradition of social enterprise affects both the ease with which a community energy group can be established and its ultimate success. A familiarity with, and an acceptance of, social enterprise also matters: increased support for social enterprises in the UK could act as an enabler for social enterprise in the energy sector.

Installation of renewable energy is capital intensive. Decisions about financing and ownership models can be fraught, and lead to a tension between commercial practice and community expectations. Where there is a tradition of community ownership of energy infrastructure, for

[3] The Royal Academy of Engineering argue for the need to "Clarify and stabilise market mechanisms and incentives in order to give industry the confidence to invest." In A Critical Time for UK Energy Policy, October 2015. http://www.raeng.org.uk/publications/reports/a-critical-time-for-uk-energy-policy

[4] Nicholas Stern (2015), Why are we Waiting?, MIT Press

example in Middlegrunden in Denmark, this tension is easily resolved. Where community energy is a recent phenomenon, for example, in Wiltshire in the UK, these tensions are less easily resolved.

Those community energy enterprises based in places where there is a strong tradition of social enterprise, such as Ecopower (Belgium) and Hvide Sande (Denmark), tend to be more diversified in terms of use of technologies and of business models. In the UK, the community energy sector lacks a diversity of business models: most groups have focused on solar PV, and, to a lesser extent, onshore wind developments supported by the Feed-in Tariff.

Local culture

'Resistance spirit' (opposing something but also wanting an alternative) is an important galvaniser of community energy action. For example, Ecopower (Belgium) was founded as an alternative to nuclear power. Opposition to large scale commercially owned hydropower was the impetus for the formation of Energycoop Aysen (Chile).

The motivation and the stated aims of groups vary depending on the local situation, needs and priorities. For Creluz and for Brixton Energy, the stated focus of the project is primarily social; for the isolated community of Horshader, self-sufficiency features prominently. In addition, the kind of public engagement differs between communities – for example close knit rural communities require less active networking than less socially connected urban communities.

But communities have different forms and can work in different ways. For the Cwm Arian group, the close-knit nature of the community meant that it was easy to engage the local community in a dialogue about the wind energy project – but it was also easy for anti-wind networks to join together in opposition. Needless to say communities are complex; there are communities that are united by common interest or common resistance, but not necessarily by geography; and local communities are not always in accord with one another on energy (or indeed other) issues.

However, there is also influence in the other direction of travel which can be very positive – from energy projects to local communities. Community energy initiatives can act as a catalyst for local discussions about energy and can enable citizens to think beyond being passive consumers. The 'Beyond consumers' recommendation below suggests that there is evidence that creating interest in local energy projects can engage communities in broader issues relating to energy generation and use. It would be valuable better to understand the nature of this influence.

Supporting community energy in the UK: suggestions for practical actions

The experiences of the case studies summarised above point to lessons on ways to support the community energy sector in the UK. The suggestions below were developed by the working group and research team, reflecting on how the case studies might guide the development of community energy in the UK. They are offered as suggestions to a wide range of stakeholders who have an interest in supporting community energy projects as part of the overall energy mix – including central and local government, regulators, community energy bodies, and individual community groups. They are not intended as absolute recommendations, but as useful suggestions for utilising cultural drivers to give appropriate support to community energy projects.

Incentivising local energy economies

Community energy is one aspect of a wider local energy 'ecosystem'. Such local energy ecosystems can be enabled by:

- Giving local areas some responsibility for energy generation and carbon reduction.
  - *For example, this could be done through the 'city deal' devolution settlements; and by addressing any obstacles facing local authorities wishing to invest in energy projects*

- Encouraging partnerships between local authorities, other local service providers such as housing associations, and community energy projects.
  - *For example, local authorities establishing an energy generation project could be incentivised to work with community-based social enterprises*
- Promoting a clearer understanding of the range of potential community benefits that might accrue from local energy economies of this sort.
  - *For example, a survey of local areas where such schemes exist could help to categorise the different forms of benefit – financial, jobs and skills, community capacity*
- Creating 'innovation spaces' at local level, where new approaches can be tested.
  - *This could include trials of new, simplified regulatory approaches. Ofgem's Low Carbon Networks Fund is a good example of such an 'innovation space', which could be broadened to tackle related issues together (eg planning, grid connection, local supply, and so on)*

Diversifying the community energy sector

Case studies from other countries show that community approaches work not just for electricity generation, but also for energy supply, heat and energy efficiency. In the UK, complex regulatory structures prevent such integration. There may be limits to the development of localised, community solutions from a regulatory perspective, but these need to be explored and made explicit. Improvements to the current system could include:

- Developing a community energy supply model, allowing community generators to sell directly to customers.
  - *For example, this could build on experience with Ofgem's License Lite process*
- Providing support for a diverse community energy projects through specific actions such as:
  - *Greater rewards for local generation when offsetting distribution and transmission charges*
  - *Finance from the Green Investment Bank for community energy to purchase commercial assets*
  - *A community 'uplift' within the Renewable Heat Incentive*
- Supporting community enterprises to deliver energy efficiency and demand reduction, taking advantage of the trust and links that community groups are likely to have.
- Testing the regulatory framework to see the extent to which more localised approaches to grid management and energy supply can work, whilst protecting consumers, fundamental grid security and security of supply.

Encouraging a social enterprise approach within the community sector

Social enterprise is a distinct model of service delivery, using business methods to deliver social and environmental outcomes. Encouraging the community energy sector to embrace social enterprise will help the sector scale up within a commercial energy market. A practical barrier to this is that there is a spectrum through which community energy operates, with some groups focussing on lower returns to investors and no debt, in order to maximise community benefit, but focussing on smaller projects as a result. This spectrum should be embraced, but makes it more difficult for potential partners to understand and engage with the sector.

Greater clarity on the role of social enterprise could be achieved by:

- Clarifying the range of approaches to delivering community energy
  - *For example, bodies such as Community Energy England, Community Energy Scotland and Community Energy Wales could help set out the kinds of projects, their local cultural implications and their resulting community needs and requirements*
- Developing the necessary commercial skills within the community sector and building capacity to work with commercial partners.
  - *For example, this could be done through training, vocational standards and sector development*
  - *It could also be achieved through schemes to promote peer support – for example building on previous schemes such as those run by the Cabinet Office and Co-operatives UK*

- Providing financial incentives for communities to establish projects.
  - *This could be encouraged through financial support for early-stage community initiatives, to help groups to form*
  - *It could be achieved through recognition of the value of social enterprise through the tax system, for example by ensuring that community energy schemes of all sizes are eligible for Social Investment Tax Relief (SITR)*

Supporting communities to encourage engagement and action

In addition to specific support for community energy projects, there is a need to encourage communities earlier in the development process, and potentially even before there is a specific project identified. However, it is important to recognise the inherent inertia within communities that needs to be overcome. Moreover, culturally, energy provision can often be regarded as something that is not for communities and is the sole preserve of big companies, regulators and governments.

The 'resistance spirit' identified in this research is an example of such a catalyst for action. Also important are influential individuals, levering in already active networks, building on existing successful local actions, and linking into incentives that are likely to have resonance at a local level.

Involving communities in the energy debate and taking the first steps on the energy ladder might be helped by:

- Developing the skills for community engagement.
  - *For example, bodies such as Community Energy England or Community Energy Wales or Community Energy Scotland providing guidance and training on how to engage communities around energy*
- Central and local government expressing clear support for community energy.
  - *For example, this could include central and local government encouragement for commercial parties actively to seek community partnerships within pilot programmes such as Innovate UK, Local Carbon Network Fund; through storage pilots; or through devolution settlements as they relate to energy issues*
- Promoting success stories.
  - *Bodies such as Community Energy England, Community Energy Scotland and Community Energy Wales, as well as individual community energy companies, can help to promote positive media coverage of successful projects and the benefits they generate*

Beyond consumers: Understanding engagement in the energy system

The case studies surveyed for this report suggest that community energy projects allow people to engage in the energy system more actively, which may have additional benefits, through building support for renewable energy and energy infrastructure; and providing an incentive to reduce energy use and carbon. However, there is little research on what effect a local, community-based energy system has on individuals' engagement in the energy system. Therefore, it is helpful to:

- Carry out research into engagement with the energy system.
  - *For example, a member survey carried out by Bath & West Community Energy suggested that over 70% of members talked more to friends, family and colleagues about community energy as a result of being a member of BWCE.*[5] *Findings such as this could helpfully be* tested through rigorous and comprehensive evidence gathering across a wider set of projects.

[5] In addition, over 60% talked more about climate change and 50% have carried more actions to reduce their carbon footprint, following being a BWCE member. This data is drawn from an unpublished internal BWCE document

Future questions

The working group, research team and British Academy Fellows also identified a series questions to consider in setting the future direction of community energy:

- Can any process of centralising energy policy and delivery frameworks adapt to accommodate local energy solutions without losing the checks and balances necessary to protect consumers, grid security and energy security, as well as ensuring emissions targets are met at a national level?
- Can primarily voluntary community action embrace social enterprise and more commercial approaches to delivery without losing core community principles and social motivations?
- How can communities create the necessary fiduciary trust to mobilise cheap loans and equity from members to overcome the high capital costs of renewable energy? What additional institutional support would help?
- To what extent can communities without any prior experience of, or exposure to, energy issues take ownership of energy action within their local area?
- What robust link is there between communities and their members engaging in community energy generation projects and becoming more engaged in energy issues including demand reduction?
- How can the British planning system, based as it is on simple statements of rights without any real economic factors spliced in, be reformed to help the kind of local interaction and deal-making that is important to community energy?

These questions are important to the future of community energy. Stakeholders with an interest in this part of the energy ecosystem are encouraged to consider them as part of planning for the future of community energy.

Part two: Next steps for community energy

A report on discussion and feedback from stakeholder workshop on cultures of community energy.

At the outset of this project, the working group was keen to share evidence and findings with key stakeholders, so that they could be used to inform practical action This section sets out the discussions at a stakeholder workshop, designed to gather feedback on the case studies, conclusions and suggestions for action from a wide range of relevant stakeholders. A full list of participants is set out in the acknowledgement section; it encompassed community energy practitioners, government, regulators, industry representatives, and infrastructure providers. The views expressed below are not necessarily endorsed by the British Academy or the report authors but serve to highlight questions and issues that arise out of the case studies and conclusions, and which are critical to identifying a way forward for community energy in a changing policy and fiscal environment. The section below sets out a summary of those changes and the discussions in workshop breakout sessions follow. They are presented as a useful resource for those engaged in shaping the future of community energy.

Policy shifts: the impacts of recent policy and fiscal changes on community energy

The dominant business model amongst community energy groups focuses on the generation of renewable electricity and is reliant on the Feed-in Tariff. Project delivery is becoming increasingly standardised. However, in England there have recently been dramatic cuts in the Feed-in Tariff. The mechanism that places quarterly caps on applications and quarterly reductions to the Feed-in Tariff spells its eventual demise. Until November 2015 investors in community energy schemes were eligible for tax relief. This eligibility has been removed, and this makes raising finance more difficult for community energy groups. Furthermore, renewable energy projects in many (particularly rural) parts of the country are facing grid capacity constraints.

In the short term, community energy groups have a number of options. Some have pre-registered sites for solar PV installation; if they act quickly they are able to get a Feed-in Tariff rate that supports the subsidy-dependent business model. Even under these conditions, groups will need to test the continuing appetite for investment in the absence of tax relief. There may be opportunities to purchase existing commercial schemes. Other options include a focus on the generation of renewable heat and energy efficiency – even though these kinds of project are more challenging. In order to identify a new business model, community energy groups can seek to engage new partners such as distribution network operators (DNOs), energy suppliers, developers, and storage providers.

In the long term, a reduction in capital costs and an increase in financial returns will be needed in order to enable the community energy sector to navigate the changing policy environment. A reduction in capital costs is easier to achieve with solar PV than for hydro or wind generation. For a 100kW solar PV array in which 100% of electricity is sold to the site that hosts the panels at a rate of 10p per kWh, in order to make the project financially viable installation costs must come down from £1100 per kW to £750 per kW, and the operation and maintenance cost must fall from £15 – £30 per kW to £10 per kW. In the absence of cost reductions of this magnitude, there remains the option of finding a lower cost form of finance than community shares or bank loans.

Energy from community electricity projects currently involves a sale of surplus electricity to the grid at approximately 4.5p per kWh. The electricity supplier then re-sells that electricity at 10 – 15p per kWh – though this includes further costs including transmission, distribution and retail costs. Whilst a community project cannot pick up the difference between the wholesale and retail price of power, looking at ways for community energy projects to sell power independently of energy companies could provide added value to those projects.

In summary, the dominant model of community energy is financially narrow; there is a need to move beyond this and to encourage sector diversification. The energy market is extremely competitive; an enterprise approach is needed in order to cope with the challenges ahead. This must be matched by regulatory change and sympathetic policy support. Within the UK's recent history, policy has favoured centralised solutions to delivering energy and grid security, with no involvement of the individual beyond that of the consumer. UK citizens tend to assume that ensuring energy provision is ultimately the role of the government. Moreover, community groups tend to rely on voluntary action, and are uneasy about developing a more enterprise-focused culture. All of these cultural expectations will make successful adaptation to the new policy landscape more difficult.

Developing a long-term policy framework supporting community energy

The case studies suggest that predictability and stability is often more important than high levels of return for community projects, because of their relative complexity compared to commercial schemes. The stakeholder discussion highlighted the following issues relating to policy frameworks.

Municipalities as a provider of long-term support

Municipalities can play a useful role in mobilising funds for community energy, galvanising local support, and granting planning permission. If the government intends to decentralise more power to local and regional authorities in the UK then this may allow local authorities to play an enhanced role in promoting renewable energy in general, and community renewable energy in particular.

Swindon was given in discussions as an example of a local authority that has been effective in providing support for community energy initiatives. They achieved this by setting up a subsidiary that identified opportunities for renewable energy installations, then submitted for planning permission. Once granted, the project (along with its technical specifications and the planning consent) is then sold to a commercial or a community energy enterprise – this was the process in the WWCE project summarised above. This provides a potential model for other local authorities or municipalities providing long-term support to community renewable enterprises. This model could be enhanced by also offering the provision of standardised legal template agreements. Offering a renewable energy opportunity package on a franchise, rather than a sale basis could offer a solution to the difficulties that community energy groups face in engaging long term volunteer involvement in projects; in this scenario, ownership of the asset would eventually return to the municipality. There are obvious risks with franchising renewable energy projects to community groups since the community organisation responsible for the operation of renewable energy installation would have no interest in the financial sustainability of the project beyond the economic term of the franchise.

The effectiveness of municipal support for community energy initiatives is dependent on keeping the municipality informed of best practice. This would require a system of auditing and of sharing learning – while it is not clear what agency would be responsible for this there are networks in place such as the Vanguards Network of local authorities co-convened by Edinburgh University. The 'Swindon model' is also, of course, dependent on the existence of a sound business models that can be used by community energy groups.

The replicability of such models also depends on the priorities of local authorities and the availability of staff with requisite knowledge of energy issues. There are other challenges to local authority support. Tensions between cities and their surrounding counties may act as a barrier to implementing the Swindon model since renewable energy sites are often located beyond the municipality in surrounding rural areas. If the government were to impose a duty on local authorities that any land sold by them must be sustainably used, for renewable energy generation for example, this might promote partnership working between community energy groups and local authorities. However, all of this must be considered in the context of shrinking budgets for local authorities, with local authorities needing to make use of business rates to support such schemes.

Security of investments – an ongoing debate

Many community energy groups in the UK are legally constituted as Community Benefit Societies. These are not directly regulated by a statutory body. Investments made in Community Benefit Societies (often withdrawable shares) are at financial risk and could lose some or all their value. They are not protected by the Government's Financial Services Compensation Scheme, or the Financial Ombudsman Service. The problem is not so much mobilising funds as convincing potential investors that they could a) retrieve their investments b) sell them before the project came to an end in 20 years' time at a reasonably well-defined price. This can make it difficult for community energy groups to attract investment. However, we are aware that this is a contentious issue and that there are also strongly backed arguments for the value of community energy projects being backed by Community Energy Societies, which might attract investors for reasons other than security of investment.

Secure a source of funding for community energy groups

Future community energy business models are likely to be based on renewable heat, demand-side management, or auxiliary services. Such projects are typically complex and require lengthy development periods. The provision of loans or grants to community energy groups is essential. The discussion about possible sources of funds included the following suggestions:

- **The Community Infrastructure Levy (CIL)**: Although the CIL could provide sources of development funding for community energy projects, those paying the CIL might have differing views on its proper purpose.
- **Funds from Network Innovation Competitions**: There are substantial innovation funds available from Ofgem for DNOs under the Network Innovation Competitions. Currently there is no obvious way for small innovative companies to bid for such projects. However, there is nothing that precludes community energy participation, provided that information is properly disseminated to community energy groups. Currently Wadebridge is participating in an Ofgem-funded trial. DNOs (which are directly regulated by Ofgem) should not be the sole focus though – as this arguably prevents more radical schemes from emerging, which could be led by ICT companies, community groups or others.

Discussants felt that the recent reduction in Feed-in Tariffs, along with the Levy Control Framework, constituted significant barriers to growth in community energy. While the current ways in which tariffs are set mean that some unsubsidized schemes may work this approach, it, was seen as unlikely given that subsidies in part substitute for the lack of a carbon price.

Incentivising local energy economies and supporting local communities

The starting point for this discussion was a shared a vision of 'a local energy future' amongst those that participated in the discussion. This future could encompass distributed renewable energy generation, locally controlled supply, storage, demand reduction programmes, and fuel poverty alleviation programmes. The idealised 'local energy future' would involve a range of stakeholders, enable communities to participate in the redesign of the energy future, and result in a holistic transformation of the energy system. The discussion focused on an analysis of the barriers that face community energy groups in enabling, and being part of, that transition to a local energy future.

Promote a vision of decentralisation

There is currently no shared vision for local energy pathways across government, regulators and other stakeholders. Community energy has created new opportunities. But the question remains of how to create a consensus – not only about the necessity for a low carbon distributed energy system, but also a vision for a pathway towards that future. However, there is a strong pull towards decentralisation as part of any such vision. Devolution debates in government present an opportunity to promote the benefits of decentralisation, and the role of community energy within that.

Regulation must be forward looking

Guidance sets out that Ofgem should protect the interests of current and future gas and electricity customers. However, the perception was that regulators were geared to an 'eternal present'. While there had been an explosion of new approaches, regulatory systems were still to a large extent ossified, favouring incumbents. Regulation relating to grid connection was given as an example. Regulation specifying that 'the connector pays', requiring a community group to increase the grid capacity to enable it to carry the increased load from say a community owned wind turbine acts as a barrier to community-owned wind energy. (However, it is noted that sometimes wider network upgrade costs are at least partly shared among a wider group of consumers and generators – in effect providing a subsidy for the projects, though the new line itself will be paid for by the community company.)

Government intervention is required to change the regulatory framework favouring incumbents. There would be value in allowing Ofgem to take into consideration the added value that community energy can bring, such as allowing Ofgem to waive the cost of grid connection where there is social value in the energy project.

The need for a binding carbon reduction target at the local level

If government-mandated carbon reduction targets cascaded from central government down to local authorities (via DECC and DCLG which have responsibility for meeting statutory carbon reduction targets), it was felt that this would not only enable the regulator to move beyond the technological determinism that dominates regulation, it would also mean that a variety of actors (local authorities, businesses, educational institutions) would be required to create a transition pathway to a 'local energy future'. Some local authorities are very much in favour of working in partnership with community energy organisations to create a transition pathway. However, there has to be a source of revenue to enable them to recoup finance invested.

Move on from users as passive consumers of energy

A transition to 'a local energy future' requires communities to engage in energy projects beyond being passive consumers, but as owners of generation technologies: people that manage their own energy demand and take responsibility for meeting the needs of those most at risk of fuel poverty. Community energy can play an important role in engaging communities in energy issues: the Ynni Ogwen hydroelectric scheme in Bethesda North Wales is an example of a scheme that is working to engage residents in a holistic way. At present, however, opportunities for participation in community energy schemes are limited to being either a volunteer or a shareholder; this limits both the reach of schemes and their ability to respond to energy needs in a holistic way. Community energy groups need support to develop business models that would enable them to engage their communities in a transition to a local energy future. Suggestions on how to do this are included in the detailed recommendations above, following the full set of case studies.

Evidencing the benefits of a local energy future

There is a presumption that local is better: but there is currently neither a rigorous nor a sufficiently extensive evidence base to justify this. An analysis of the benefits of a transition often depends on the time-frame or the discount rate used. Finding a means of testing all of the ideas that form part of this vision for a local energy future within a single community would help to provide evidence of the benefits of local energy.

Diversifying the community energy sector

Diversification can take different forms:

- **Technology**: the dominant model of community energy activity focuses on subsidy-dependant electricity generation, but generation is only one of several ways in which communities could be actively involved. There are opportunities for business models that are based on renewable heat generation, and on demand side response and storage. There is a huge potential for business models that provide flexibility and auxiliary services. Indeed, there are increasing numbers of trials and pilots for various technologies such as storage and demand side response. National Grid paid £800 million for balancing services in 2014. The value and impacts of unlocking some of this for community energy projects could helpfully be explored.
- **People**: engaging more people, and different groups of people, within community energy enterprise presents a challenge for the sector. Those involved in community energy tend to come from a more privileged background. But if the community energy sector is to have greater impact, it needs to find ways to engage a much broader cross-section of society.
- **Community**: community energy schemes are often located in rural communities. Again, if community energy is to have greater impact, the geographical focus of community energy needs to be broadened in order to include deprived urban areas.

The barriers to technological innovation

There is already innovation in the community energy sector, but the current short-term transitions in the regulatory regime make it difficult for innovations to achieve maturity, and to share learnings before changes in the regulatory regime make it impossible to replicate the model. The relatively closed nature of the Ofgem network innovation funding schemes is also an issue. There is a serious lack of connection between the long-term nature of successful innovation and short-term policy changes.

Innovation that focuses on demand-side response and balancing services is limited by a lack of understanding about these services outside a small number of players in the energy industry. Furthermore, it is an opaque energy market: the purpose of these services would be difficult to communicate to members of communities who are more interested in cheaper energy bills.

Support from both local and national government at all levels is vital. There are pockets of good practice (Scotland and Cornwall, for example) in terms of support from a regional or national authority for community energy activity, but these were felt to be the exception. It can be difficult for local authorities to understand the various social benefits of community energy, and be willing to set aside resources to support community energy enterprise. Many local authority officers presume that, if the implementation of renewable energy or demand-side management projects is beyond them, it will also be impossible for a community energy group. This gives rise to a question about how to share models of good practice of support for community energy amongst those local authorities that are unwilling to engage in the concept of an effective partnership with community energy groups.

Barriers to engagement focused innovation

Many of those who engage in community energy as volunteers are retired, or wealthy, or they are bright individuals wanting to achieve a steady return on investment. This raises the question of how to engage a broader segment of the population. Brixton Energy is an example of a group that has succeeded in engaging a community that falls outside this rather privileged group. However, they used grant funding to do this, which limits the replicability of their model.

Creating motivation

Engaging people in energy issues is a question of understanding their motivations for doing so. Motivation to be involved can be driven by:

- **Money** – regardless of any altruistic motivations, any scheme will still need to be financially viable. The UK's energy system needs huge amounts of investment if it is to deliver on government aspirations to decarbonise. This will be paid for by citizens either through subsidies or bills – why shouldn't those same consumers be offered an opportunity to have a stake in the resulting income?
- **Climate change** – this is still one of the prime motivations for many people to engage in community energy schemes
- **Whole energy systems** – the energy system will need to undergo wholesale changes from the model that has delivered our energy in the past. Community energy schemes can help to test a wide range of new technologies and business models

Ultimately, the aim of community energy schemes should be to deliver the greatest amount of value and community benefit possible. Diversification should offer more options to achieve this aim at a greater scale than at present.

Developing a social enterprise approach

Community groups need support to develop a more enterprise-based approach that focuses on trading. Taking a more enterprise-focused approach risks engendering distrust amongst community members who may be wary of groups driven by a need to provide returns for investors. A widespread lack of skills and professionalism constitutes a further barrier to developing a more social enterprise approach. A community energy group that seeks to identify projects that provide the best returns faces the possibility of encroachment from commercial companies who may seek to acquire the rights to develop a profitable project opportunity.

Tensions between enterprise and trust

Distrust of those community energy groups with a commercial focus can limit engagement. Such groups need to work hard to build trust through proactive engagement, clear briefing and, over time, building of a valued track record.

Trust is a complex attribute. Different parties can be trusted to do different things. For example, local authorities may be trusted to be independent; energy suppliers may be trusted to keep the lights on. But community groups are often trusted to have the best interests of the local area and local people at heart – crucial for opening up dialogue around innovation.

There is also a need to be a much clearer and more open dialogue over the benefits of community energy, not just in monetary terms. It can be difficult for community energy groups to collect evidence of social gains using tools such as Social Return on Investment (SROI), particularly when benefits can be so wide-ranging. Such benefits may cover fuel poverty alleviation, community re-investment of profits, local governance and control, local jobs and economic growth, community resilience, wellbeing, and inclusion.

A need to increase professionalism

There is a need to build community capacity around professional delivery: apprenticeship schemes such as that being developed by Oldham Council (with input from Community Energy England) are crucial to developing vocational pathways. This is particularly important for more complex community energy models. A thriving and growing sector, that also remains strongly embedded within community needs and interests, requires input from both volunteers and professionals. Lessons can be drawn from the way in which source software is developed; this sector is able to draw on both volunteer and paid support. Companies will often allow employees to work on the development of open source software alongside volunteers in a framework that also ensures high quality outcomes.

Community groups often assume that they must lead on all aspects of project delivery. However, there are opportunities for working in a partnership with commercial enterprises or local authorities. Community energy groups could best contribute to those projects by focusing on ways in which they are able to add value. This added value may vary from area to area and project to project, based on locally available interests, skills, resources and commitment – certainly in the early stages of sector growth.

Commercial interests

Equally, the community sector often faces competition from commercial interests. The community energy sector might benefit from the development of a set of shared principles and standards that help define expectations and minimise the scope for commercial influences that could undermine the delivery of core benefits and values. These principles, or standards, could capture the value of community energy, local ownership, control, and benefit. It would be important to set expectations about a number of issues such as minimum levels of community re-investment. This will make it more difficult for traditional commercial interests to pay lip-service to community aspirations, as well as preventing community energy groups drifting too far from their community roots as they try to navigate commercial energy markets.

The continued need for grants

Whilst a focus on enterprise and trading provides the potential for growth and replication, the fundamental need for grants is not removed. Whilst grants cannot sustain the provision of capital costs for large-scale projects, grants are essential ensure that community organisations have sufficient 'core capacity' that can then develop specific projects. This is essential within a growing community energy sector that struggles to compete on equal terms with incumbent commercial players with deep pockets and extensive administrative resources.

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