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Foreword

Renewable energy co-operatives are on the rise with over 30 having registered since 2008. The number of trading energy generation co-operatives has reached 19, and these have achieved a wholly owned generation capacity of 19.6MW and part ownership in a further 1.22GW of capacity through investment in larger, commercial schemes.

Eight further energy co-operatives are at launch stage and a further 16 are in the process of, or planning to, undertake feasibility studies. Should all succeed they will bring online a further 8.5MW of generation capacity.



In terms of the UK's current energy needs this is a drop in the ocean, but what we see in this report is a picture of inspiring, local communities coming together to start and run energy generation co-operatives, often in the face of significant challenges.

As a leading provider of support for co-operative businesses in the UK, we see the beginnings of a revolution in the way that we generate our energy. Through our Co-operative Enterprise Hub, which provides free business support for new and existing co-operatives, we have earmarked £1 million to support the establishment of new renewable energy co-operatives. Moreover, as a market leader in finance for renewable energy projects, The Co-operative Bank has pledged £1 billion of support with over £500 million already committed.

To move from an inspiring but tiny share of the energy generation market we must first understand what is holding this emerging sector back.

Together with our colleagues at Co-operatives UK, the national trade body that campaigns for co-operation, we have spent time getting under the bonnet of five of these renewable energy co-operatives. We hope the results will be useful reading for communities thinking of following a similar path, for policy makers interested in the challenges these communities faced and for anyone else who wants to gain a deeper understanding of this exciting sector.

Paul Monaghan
Head of Social Goals and Sustainability
The Co-operative Group

Introduction

Co-operatively-owned energy generation is a vibrant and growing sector in the UK. The first co-operatively-owned wind turbines, Baywind in Cumbria, started turning in 1997. Since then, over 7,000 individual investors have ploughed over £16 million into community-owned wind turbines.

With the advent of feed-in tariffs (FITs), smaller schemes have grown in number too, though the FITs reviews in April and November 2011 have posed significant challenges, with some new plans now on hold.

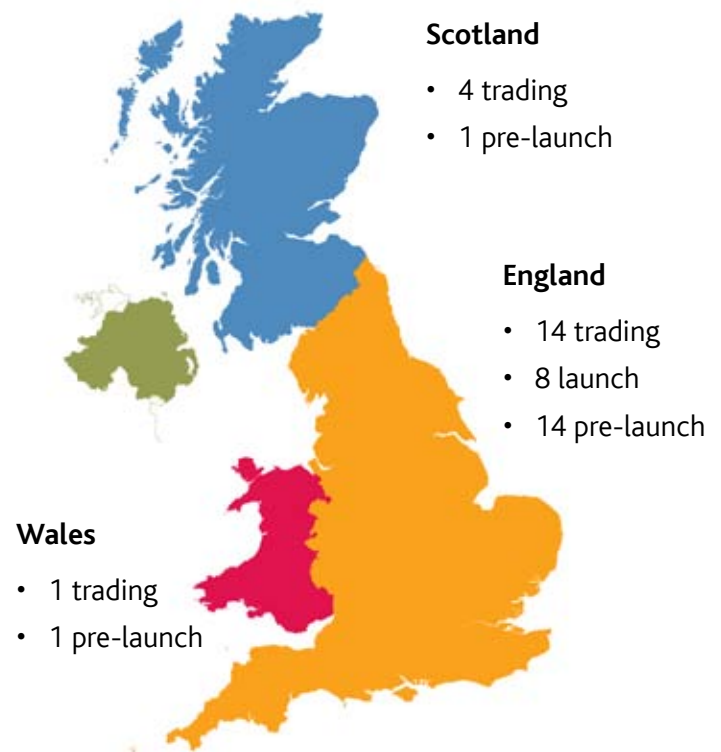
This report summarises insights gained from visits to five co-operatively owned energy projects during the summer of 2011. The research and report writing were carried out before the November 2011 FITs review. Ongoing work by the Co-operative Group and Co-operatives UK will examine the implications.

The co-operatives are:

- Cwm Arian Renewable Energy (CARE)
A proposed 2.4MW wind development in West Wales.
- Green Energy Nayland (GEN)
A 15kW solar photovoltaic installation on the roof of a primary school in Nayland, Suffolk.
- Ouse Valley Energy Company (OVESCO)
A 98kW solar photovoltaic installation on the roof of a local brewery warehouse in Lewes, East Sussex.
- River Bain Hydro
A 45 kW hydro scheme in Bainbridge, North Yorkshire.
- Valley Wind
A proposed 6MW wind development in the Colne Valley, West Yorkshire.

In this report we take a look at what makes a successful energy co-operative, what the groups have achieved and the impact of co-operative models for energy. This report is intended as a learning tool, so we also run through the challenges of setting up and running such an enterprise.

Renewable energy co-operatives in the UK



The basics

What is a co-operative?

Co-operative businesses are owned and run by and for their members, whether they are customers, employees or residents. As well as giving members an equal say and share of the profits, co-operatives act together to build a better world.

Co-operatives are a flexible alternative business model. They can be set up in different ways, using different legal structures, depending on what works for the members. The definition of a co-operative business is that they are owned and run by the members - the people who benefit from the co-operative's services.

Although they carry out all kinds of business, all co-operative businesses have core things in common.

Co-operatives share their profits

Co-operatives want to trade successfully – they are businesses, not charities, after all. Members, such as farmers or freelancers, tenants or taxi drivers, can often do better by working together. And sharing the profit is a way to keep it fair and make it worthwhile. Rather than rewarding outside investors, a co-operative shares its profits amongst the members and/or the local community.

Co-operatives are owned by people like you

A co-operative is an alternative business model that exists to serve its members, whether they are the customers, the employees, or the local community. The members are the owners, with an equal say in what the co-operative does.

As well as getting the products and services they need, members help shape the decisions their co-operative makes.

Across the UK, co-operatives are owned by nearly 13 million people – and these numbers keep on growing. The mix of self-help and mutual aid has made co-operative business an international force for good. 100 million people around the world are employed by co-operatives, whilst around one billion are members.

How do energy co-operatives work?

Although all energy co-operatives are different, they operate along similar lines:

A core group establishes the feasibility of a project, often helped by grant funding and advice from other co-ops or not-for-profit agencies.

The group formally establishes and publishes a share prospectus, explaining the business plan, intended return on investment and plans for community benefit. The scheme is marketed, often locally. All investors become members of the co-operative.

For larger schemes, income from individual investors is supplemented by a bank loan, or co-operation with a commercial developer.

When the funds are raised, the scheme is constructed. Members receive a return, which depends on profitability, and the amount spent on community benefit or ploughed into future schemes. Members themselves decide how profits are allocated.

Although this process seems straightforward, each stage is a significant challenge for groups largely comprised of volunteers.

What makes a successful energy co-operative?

The co-operatives in this report generally emerged from existing community initiatives such as Transition Town groups (OVESCo and Nayland), or community projects (Cwm Arian). The schemes benefited from existing networks and sense of community: “We’ve discovered how important the local connection is in raising funds and raising enthusiasm” (OVESCo). Groups were motivated both by wanting to benefit the community and by the environmental benefits of generating clean energy.

Some projects have been far more straightforward than others, with solar photovoltaic (solar PV) developments easier and quicker to develop – Green Energy Nayland’s project took seven months from start to finish, whereas Valley Wind were formed five years ago and have struggled to find a suitable site, though plans are now progressing well. The groups showed remarkable persistence in the face of significant obstacles.

All groups had access to considerable expertise from volunteers, who serve as Directors or advisers to the project. Green Energy Nayland benefited from the help of a school governor, a county councillor and an investment banker. The Cwm Arian group had expertise in community development and grant fundraising.

All groups had institutional support and funding, mostly grants, to cover the difficult early phase of the project. For example, the River Bain hydro project emerged from an unrestricted Carnegie UK grant for improvements to the local environment. OVESCo employed a member of staff funded by the local authority to run an energy efficiency contract:

Key learning points

Presence of existing community initiatives and networks.

Clear motivations – environmental as well as community benefit.

Access to volunteers with relevant skills (eg legal, finance and community development).

Institutional support and/or grant funding for the difficult early phases.

“A very important thing is seedcorn funding to cover the initial risky phase of projects like these.”

Cwm Arian

In-kind support from local authorities, National Park authorities and charitable trusts also proved crucial.

Having planned a 98kW scheme to make full use of the roof area at Harvey's, OVESCO was shocked to hear in April 2011 about the change in policy which lowered the FIT rate for schemes above 50kW installed after 1st August 2011. They realised that if they wanted to have a chance of making the scheme work they had to raise the necessary capital as quickly as possible. Although this cut in rates will be problematic for community renewable energy projects in the future, it did give urgency to OVESCO's call for investors amongst the local community. It may even have encouraged action amongst some people who would otherwise have waited before deciding to invest. It also gave Harvey's an incentive to work with OVESCO rather than simply invest alone.

Community

“It's nice working with people for a common purpose – it's one of the best things there is.”

Lewes has a strong local identity. The high street is full of independent retailers and it seems that there are a high proportion of people active in community initiatives.

OVESCO Directors feel that this is central to the success of this project, most notably in terms of the profile of people responding to the share offer, most of whom were known directly or indirectly by the Directors themselves.

“We want to do this same sort of thing over and over again in this locality because we've discovered how important the local connection is in raising funds and raising enthusiasm.”

Finance

The goal of £307,000 in the first share offer was exceeded, with £330,000 raised altogether. The excess will be invested in future projects.

Success factors

Local factors: Lewes is a town which prides itself on independent shops and strong local identity, proud to be associated with initiatives such as this one.

Site: Harvey's Brewery is a very well known and well-supported local company. Willing to work in partnership with OVESCO rather than go it alone with a solar PV installation.

Small core of skilled and committed Directors with businesslike attitude and experience.

Core group had good local contacts to approach personally about share offer.

2000 floods focused minds locally on environmental issues.

PV an uncontroversial technology (compared to wind).

Support from Wessex Reinvestment Trust with IPS rules and a share offer document.

After much discussion, OVESCO decided to offer a 4% return on investment:

“If there is a financial return it makes such a difference. It gives a solidity to your project rather than it just being a kind of gift... There are not endless supplies of people willing to give money away.”

Offering a return on investment was also designed to encourage confidence in people to invest larger sums of money:

“Those who invested more would ask you questions about EIS [Enterprise Investment Scheme] and how secure is the feed-in tariff. You could see that they wanted to invest in something that was secure, but at the same time they thought it was the right thing to do.”

Positive feedback was demonstrated by research carried out for OVESCO¹ (amongst 98 of its 250 shareholders) which showed that 74% of existing shareholders stated a willingness to reinvest.

On the back of this initial project, OVESCO has secured a £50,000 low interest loan from PURE loans. This means funds will be available to support future developments.

Technical

A 98kW system was installed, with 544 panels installed in several blocks in order to accommodate skylights.

Prior to installation, roof condition works were required. Harvey's Brewery was willing to cover the cost of these, as they would have been needed at some point whether or not the solar PV project went ahead. The panels will need to be cleaned on a regular basis to maintain their efficiency. A broadband connection from the system can be logged into by both Harvey's and by OVESCO, providing a data record hour by hour.

Future plans

“Despite the FIT review we are still looking for PV sites, but also considering other renewables. Government incentives are key to allowing community renewables to get off the ground. We want to see decentralised energy at the same scale as Germany or Denmark, using local ESCO [energy service company] co-ops to run projects.”

OVESCO has now reached agreement on its next project to install 30kW of solar PV at a local secondary school, working alongside the school's eco-group and is considering a solar PV installation at the local football ground. The November 2011 solar FITs review means these are now on hold.

Future plans also involve learning from past experience. OVESCO was involved in talks with a school a couple of years ago about a solar PV installation.



Difficulties encountered

A possible future difficulty is planning in the new National Park – working out what is feasible.

Need to balance the wish to share experience and advice with others with the risk of spreading resources too thinly.

Need to consider critically what partnerships will work positively for OVESCO; past experience demonstrates need to avoid talking which doesn't lead to practical outcomes.

The lack of marketing expertise.

Contract negotiated with solar PV installer was non-standard to incorporate least risk possible for investors, given the critical importance of security of investment in maintaining local goodwill.

Compiling the required 25 year cash flow forecast was very challenging.

Disappointment in DECC not seeing the benefits of community renewable energy beyond energy power generation. Lack of connection between DECC and big society agenda.

Shifting policy goalposts.

1. Details available from OVESCO on request

They had explained the Building Research Establishment's low carbon programme funding for schools which meant that 50% funding was available and there were ideas about where to get the other 50%. The school was enthusiastic:

“And then the government decided that ...solar PV was so successful in the South East, they were going to stop it all and move it further up North... From that we learnt that the goal posts constantly move and that you have to be prepared to jump on getting whatever incentive there is when it arrives. If the incentives aren't there long enough for you to work out how to make your financial model work, normally backed by volunteers, or people who are low paid or part time paid to make your project happen, it's so hard to keep up.

The feed-in tariff review is frustrating for that reason. Fair enough, a lot of projects will be under 50kW. But really good projects for communities to find would be 100 – 200kW because they would make enough profits from those projects to be financially viable for some time to set up more projects.”

Despite some public opposition to an application for a wind turbine at nearby Glyndebourne, OVESCO is open to wind projects in future and is hoping to learn from local experience to inform future decisions on this.

Community

The development of the Community Action Plan in 2004 has rooted all Cwm Arian's initiatives firmly within the local community. The renewable energy project will be able to tap into this, including links with a gardening club, Young Farmers group, Brownies, Guides, a marquee committee and a welfare committee. All these groups as well as others were invited to an open meeting/information session held before the planning application for the meteorological mast (or 'met mast') took place. People, especially those known to be concerned about CARE's proposals, were invited:

“ We invited them specifically. We said, ‘we know you have had concerns about this, why don't you come and find out more about it?’ And they did! ”

Looking ahead, there is potential for the project to link in with the local secondary school. The school is hoping to use space in a new building which is going up as part of the development of the community centre.

The group sees this community involvement as crucial and have already experienced the difference it can make:

“ Big wind farms can have a negative vibe. The difference is with ours being community owned, so people feel more involved rather than if it's a developer coming from outside. A fellow came to fit the fire extinguishers here [at the community centre]. He mentioned that he was a bit concerned about wind farms going up all over the country. And I told him that we were trying to put up a couple of wind turbines in this area, but that they would be community owned and the profit would be kept in the community. He said 'well that's a brilliant idea' and he didn't mind. People do warm to the idea if it's community led. ”

Success factors

Strong track record of successful community initiatives.

Good skills for securing grant funding.

Structured process supported by PLANED to develop a Community Action Plan to identify and evidence community priorities.

Experience of share offers (eg when purchasing old school building including offering shares via local credit union).

Good mix of skills and experience developed within core group.

Seedcorn funding obtained to cover initial work prior to planning.

Landowner already in core group prior to site being identified.

Relatively easy grid connection available.

Technical consultants local to the area.

Currently a relatively benign attitude towards wind power in the area.

Finance

£8,000 was secured for a feasibility study (£7,000 from Pembrokeshire National Park, £1,000 from (PLANED). The study was carried out by a local co-operative, Dulas.

The initial feasibility study suggested two 1.2MW reconditioned turbines, but CARE found that this would only be possible if they sourced all their own capital, as banks were not prepared to lend unless the turbines were new. Second hand turbines were also found to be difficult to source. The group therefore decided to try for two new 1.2MW turbines which would mean a cost of around £2 million. This was thought possible with a 90% loan, probably to be sought from The Co-operative Bank.

The remainder of the required funds will be raised via a community share issue, which Cwm Arian has good experience of already. The proposal is for people to be able to join the co-operative for a £20 membership fee and that they will have first option on buying shares. After that the offer will be extended further afield within Wales and then possibly beyond. For local people unable to afford the minimum £250 investment there will be an option to join via the local credit union.

In 2010 the group was successful in its application to become one of the Department of Energy and Climate Change (DECC) Low Carbon Communities Challenge (LCCC) communities, and was awarded £500,000, with plans to involve 2,600 households in the local area, going beyond the three Cwm Arian Forum villages. The LCCC funding was hugely beneficial in enabling the group to employ staff for the first time. However, the change of government policy following the 2010 general election meant that they had less money and time than originally envisaged and this proved an obstacle to achieving all they had hoped.

The group's intention with this renewable energy project, as with other projects implemented by the wider Cwm Arian group, is to seek grant funding to get it going with the aim of becoming self-funding in later stages.

“Not to be beholden to anybody would be fantastic!”

They are currently awaiting news on a Big Lottery proposal, which, if successful, would enable some more staff time for project development, including the renewable energy scheme.

Difficulties encountered

County Council slow in handling planning application for meteorological mast needed to test conditions in advance of siting the turbines.

Impact of political changes (eg with Low Carbon Communities Challenge in terms of timescales and amount of funding).

Increase in turbine developments in the area may start to tip the balance of local opinion against wind energy.

Managing community expectations and maintaining goodwill (eg LCCC project offered smart meters to all homes but the offer had to be withdrawn after procurement issues arose).

£18,000 has been received from the Welsh Assembly Government's Ynni'r Fro programme which uses European Structural Funds to provide support and funding for community scale renewable energy schemes across Wales. CARE particularly appreciated this contribution at the high-risk stage of the project in the build up to the full planning application.

Ynni'r Fro has also provided in kind support through the assistance of one of its Technical Development Officers.

“He really helped us so much at the beginning and has slowly let us go off independently, but they still help, we're still their project.”

Technical

CARE is hoping to get planning permission for two turbines producing up to 2.4MW. More information is needed before deciding exactly what to put forward to planning, particularly in terms of what is allowable by the Ministry of Defence.

There has been some frustration about lengthy delays in this initial work. Delays have been caused by the volume of renewable energy projects in the planning system, since the introduction of feed-in tariffs. Those required to comment or act, including the Ministry of Defence and grid operators, have no additional resource to deal with the applications they are required to comment on.

One advantage of the current site is its proximity to the local sub-station, which will mean that connection costs are substantially less than average.

Issues regarding the lease have been made more straightforward as the prospective site is owned by a core member of the original Cwm Arian group, who also hosts the Blue Rock Festival. There are some concerns amongst immediate neighbours but no outright organised opposition to the plans.

Future plans

The 'met' mast has recently been put up on the proposed turbine site, after much frustration at the delay in consideration of the planning application. The group remain confident about completing the project, and are already looking further into the future.

There is talk of a Community Land Trust, which could in turn lead to more potential for renewable energy projects to take place:

“Finding land, buying it, building an industrial unit on the land and then offering that unit for green social enterprises is what we want to look at. Again the wind turbines could help fund some of that... We might even be able to buy another bit of land and put two more turbines up, you never know.”



The economics of renewable energy co-operatives

In terms of cost renewable energy co-operatives, particularly small schemes, are an expensive way of generating electricity. However, a value should be attached to the community and environmental benefits described above; further research will be required to understand these more fully.

The expense is in part because of the higher costs of the technologies (solar, hydro) and in part because of the considerable legal, financial and institutional complexities involved in setting up a scheme. This is discussed further below. Costs could be reduced considerably if policy and regulations were designed with small players in mind.

Table 1: Size and cost of the five energy co-operatives

Project	Capacity	Cost	Share capital raised
Valley Wind	6MW wind	Expected around £10m	Not decided
Cwm Arian Renewable Energy	2.4MW wind	Expected around £2m	Expected £500,000
OVESCo	98kW solar	£307,000	£307,000
River Bain Hydro	45kW hydro	£450,000	£200,000
Green Energy Nayland	15kW solar	£47,607	£37,900



The projects were financially viable thanks to a combination of upfront grants, FITs, community share issues and voluntary support. This allows the groups to provide a financial return to their investors, which most see as crucial.

“If there is a financial return it makes such a difference... there are not endless supplies of people willing to give money away.”

OVESCo

Investors in community schemes have different motivations. Some are happy to see their investment more as a gift to a worthwhile project. Others are more concerned with the security of their investment and the possible return.

None of the groups have had problems attracting investors once they had a definite go-ahead for their scheme. The OVESCo share issue, which predicted a 4% return on investment, was oversubscribed.

A subsequent survey of OVESCO investors found that 78% would be willing to reinvest in a new scheme.

Most of the groups had ambitions to use some of the revenues raised to invest in further schemes, or to use within the community. OVESCO and Green Energy Nayland plan to use revenues to fund start-up costs of future renewable energy projects. Cwm Arian would like to help fund a community development worker.

OVESCO has already reached agreement on its next project to install 30kW of solar PV at a local secondary school, working alongside the school's eco-group.



Community share issues

Community investment is a way of raising money from communities through the sale of shares or bonds in order to finance enterprises serving a community purpose. Unlike charitable fundraising, community investors can get their money back, and many also receive interest or dividends on the money they invest. It is not a new idea. Community investment underpinned the birth, growth and development of consumer co-operatives in the nineteenth and twentieth centuries. In the last ten years there has been a resurgence of interest in using community investment to finance a range of community initiatives.

The most popular trade activity among the new initiatives since 1999 is renewable energy, followed by community-owned retail stores and community finance. Community investment has also been used to finance fair trade initiatives, community farms, land and buildings, and even telecommunication services.

To date, £16.3 million has been raised through community shares for investment in renewable energy co-operatives. The majority of this has been raised by co-operatives associated with Energy4All.

For more information visit the Community Shares website www.communityshares.uk.coop.

Co-operative case study

River Bain Hydro

Background

In 2007, the Yorkshire Dales River Trust was approached by Carnegie UK, a charitable trust, to carry out a community-led project with the aim of improving the catchment area of the River Bain. This became the Raydale Project. It received £18,000 to spend without restrictions within the broad theme of 'sustainable management of community assets'. A range of projects were supported, including working with farmers on nutrient management plans to reduce pollution, tree planting to reduce run off, and green tourism developments. It also provided £500 towards a feasibility study (carried out in conjunction with the Yorkshire Dales National Park) to look at options for hydropower sites in the catchment. The feasibility study pinpointed a particularly suitable site just before the river flows under the bridge in the village of Bainbridge. Four years on, this site is now in use, producing power through a 45kW Archimedes screw.

Community

From the beginning, the local community has been closely involved. This started with a community group under the auspices of the Raydale project. After the initial feasibility work, people were invited to a community open meeting to find out more. There was then the chance for anyone to invest in the share offer:

“We made sure there were different elements of inclusion. The opportunities were there to allow for different responses from the community at different stages.”



Fact file

Location	Bainbridge, North Yorkshire (within Yorkshire Dales National Park)
Size of scheme	45kW
Number of members	194 members. 67% from within Yorkshire, the rest from other parts of UK and abroad
Amount of initial share offer	£200,000 (part funding for total capital cost of £450,000)
Legal form	Industrial and Provident Society for the Benefit of the Community
Technology	Hydro (Archimedes screw)
Amount received for electricity	21.9p per kW/h
Company electricity is sold to	Good Energy

www.h2ope.org.uk

Project group members also used both formal and informal networks to promote support for the project, including Parish Councils. One member of the group, a farmer, used the local auction mart to spread the word and increase awareness. Clear communication also helped to avoid problems during the construction phase when relations with the local community, including the landowner, could have been damaged. For three weeks, as rock was drilled out, the site was described as "very noisy, almost like an earthquake."

“The landowner, who lives absolutely on site, never complained once. They were brilliant. They opened their door onto a building site, but they were amazingly tolerant.”

The landowner's goodwill toward the project was felt, at least in part, to have been assisted by their close involvement, from the results of the first feasibility study right through construction, facilitated by weekly visits by a member of the core group organising the project. No pressure was placed on the landowners at any point, and the option of them developing the site themselves was put forward:

“If they'd have said 'thank you very much, we'd like to do that ourselves', that would have been absolutely fine. But I did explain that what we'd really like was for them to say that they'd like to have a community scheme here and for the profits to come back to the village and they said they were interested straight away.”

The landowners had questions about noise, safety and public access:

“We were able to satisfy them on all those counts and I have to say they have been absolutely brilliant.”

Success factors

Initial 'no strings attached' funding from Carnegie UK.

Yorkshire Dales National Park Sustainability Officer was very supportive and introduced group to h2ope. The Park also provided £50,000 of capital funding.

Subsequent support from h2ope including funding of upfront costs prior to issue of shares.

Willing and supportive landowner.

Essential skill set including project management skills existed within group.

Group functioned well, crediting a no blame culture and policy of decision making and problem solving in private to ensure overall public message was cohesive and positive.

£10,000 spent on marketing the share offer.

Support and efficiency of Environment Agency.

More widely, there was some scepticism about the viability of the project, but no outright opposition. The community was kept informed via monthly submissions to a local newsletter.

Since completion, the scheme continues to provide opportunities for discussion – the person who runs the local tea shop near the river has said that people ask her about it. According to the group she has become “a PR exercise for hydro!”

Some community members thought that the power would come directly to the village. The group felt that if it had been possible it would have been really positive. Although this was not possible, the group have been able to explain and promote green electricity companies like Good Energy, who buy power from the scheme.

Finance

£50,000 was funded by community hydro organisation h2ope to cover initial costs including design fees, legal fees, fees related to share issue and other professional fees. This was repaid at the financial close of the share issue once all contracts had been agreed and finalised. If the project had not been successful h2ope were prepared to forgo the repayment of the initial outlay. According to the group running the scheme:

“That is why we were comfortable going ahead with only £18,000 in the bank; it meant we felt we could go ahead with a project of this sort of profile and cost.”

£150,000 was provided by Charity Bank as a commercial loan.

The cost of the Archimedes screw itself was covered by a grant of £50,000 from CO2Sense, which was at that point in time part of Yorkshire Forward regional development agency (now closed, although CO2Sense continues independently to provide support for green energy initiatives), £50,000 from the Yorkshire Dales National Park with the remaining £200,000 raised through the share issue.

“Because of the nature of the site, it wouldn't have happened if it wasn't for the grant... because part of the problem, unlike a lot of sites, is that the length of the leat [channel leading to the Archimedes screw device] here meant £1000 of build costs per kW hour which is actually relatively high. We've got 60 yards of leat which took three weeks to chip out of solid limestone!”

Local people took a long-term view of investments, seeing themselves as stakeholders as much as shareholders in the scheme. One group member, a local farmer, explained:

Difficulties encountered

Challenges of getting all the legal and financial contracts to tie up with each other.

“Don't compete with a general election!” The share offer had to be re-launched due to the difficulty of getting publicity during the general election period.

Local reputation of similar projects. There is a hydro scheme near Bainbridge which was known to have had problems.

Need to educate potential supporters (eg the perception that the turbine needs to be working all the time when people know the river levels won't be consistently high enough for that, so viability needed to be explained at 30% for summer months and 60% for winter).

Unexpected implications of becoming a tourist attraction (eg parking issues near viewpoint for the hydro site).

Difficulties of co-ordinating different companies involved in connecting to the grid.

“I was thinking of the future, of the next generations. We'll have to do something to produce green electricity. We can't rely on nuclear. We've lived in good times and I hope the future do as well.”

Local interest was supplemented by an advertising campaign organised by h2ope, which included coverage in the Yorkshire Post, The Guardian and The Times. 67% of shareholders live in Yorkshire, and many of the others are thought to have connections with the area as tourists or through family connections.

Technical

The project involved a 45kW Archimedes screw with a 55m leat. Viability is based on working at 30% capacity in summer months and 60% in winter. Maintenance is carried out locally, further enhancing the impact of the project.

The construction phase of the project started in October 2010, but the severe winter brought unexpected delays. Other than that, the technical construction issues were relatively straightforward compared to the paperwork:

“What’s in the business plan then has to be reflected in the lease, the funding, the power purchase agreement ... all the documentation has to tie together and actually there are so many parties involved, all of whom insist on using their standard format, so that actually at ‘first pass’ all these documents miss each other ... So you get all your documentation lined up and there were weeks of bashing away at people saying ‘the following clauses don’t tie up, the following clauses don’t make sense, somebody’s going to have to give way here’.”

Once construction was complete, connecting to the grid connection proved difficult.

“How anyone gets electricity into houses in this country beggars belief with the structure of the power industry...Between the power house and the grid, a distance of a hundred yards, we ended up with five different organisations involved in delivery, which makes you wonder what the hell is going on in terms of efficiency and effectiveness.”

Problems were exacerbated by different companies not being willing to talk directly with each other.

Future plans

The group feel a sense of achievement that this scheme is up and running and are looking forward to being able to invest the income from it into future projects for the benefit of the community. This is likely to include development of the original Raydale Project and consideration of solar PV installations as well as other community development initiatives.



The advantages of choosing a co-operative structure

All five groups are registered as industrial and provident societies, one (Valley Wind) taking the bona fide co-operative form and four taking the benefit of the community form.

One, Cwm Arian, identified strongly as part of the co-operative movement, and this was because of a tradition of co-operatives in the local area. For the other groups, the IPS form was chosen because it was the most appropriate legal form to meet their aims, which include supporting the local community as well as generating energy.

Through being involved in this research, some of the groups have become more aware of the wider co-operative movement, and want to make links with other co-operatives.



Industrial and Provident Societies

Industrial and provident societies (IPSs) are corporate bodies registered under the Industrial and Provident Societies Acts 1965-2002. To qualify for registration, an organisation must either be a 'bona fide co-operative' or a 'society for the benefit of the community'.

The IPS society for the benefit of the community format is common among housing associations and other forms of voluntary and community sector activity and can be appropriate for democratic, non-profit-distributing organisations. Its characteristics are similar to those of a co-operative, but include a requirement to primarily benefit people other than its members.

The IPS form is particularly appropriate for organisations wishing to raise capital from the public as it has several special attributes that make it different to companies in this regard. These are:

- enshrined democracy and protection of members' rights;
- withdrawable share capital;
- limits on shareholding;
- limits on share interest; and,
- an optional asset lock.

For more information on legal forms for community enterprises see www.uk.coop/simplylegal

Co-operative case study

Green Energy Nayland (GEN)

Background

Nayland Primary School had already achieved the Silver Flag Eco-School award. Its pupils were looking at the school's energy use as part of their work to achieve Green Flag status, when the head teacher was approached by a parent, a member of Transition Nayland, with a phrase she still remembers:

“Did you know you are blessed with the biggest south facing roof in the village? It's almost perfect pitch!”

The school looked into a commercial scheme offering reduced price electricity to schools installing solar PV. Having examined the deal, and realised the profits being made by the company concerned, the idea came about to raise the money locally. This is how Green Energy Nayland was born, with solar PV on the village school as its first project.

After the governors' clear decision to go ahead, Suffolk County Council wanted to co-operate too, as the scheme was in line with the philosophy and strategies it has been adopting as part of its 'greenest county' initiative.

Community

As the school is a ready-made community, the impact of the panels is far reaching:

“The children come up to school and they look up at the roof, they know that we use solar and it stops it being sci-fi doesn't it, and starts being just what you do. I think that's really interesting.”



Fact file

Location	Nayland, Suffolk
Size of scheme	15kW
Number of members	34
Amount of initial share offer	£37,900
Legal form	Industrial and Provident Society for the Benefit of the Community
Technology	Solar PV
Amount received for electricity	3.1p / kWh - pegged to export tariff
Company electricity is sold to	British Gas

www.greenenergynayland.org.uk

“There a couple of other parents who have been asking questions and thinking about putting PV panels on their homes and I think that’s because it becomes an everyday thing. One family already had solar panels on their roof; now the other kids are really impressed. You can see something becoming fashionable, cool. That’s what you’ve got to tap into with kids, isn’t it?”

“It’s generated a lot of enthusiasm and it makes them think about leaving lights on and things like that.”

But the project has also provided opportunities to further community links:

“We had already started to build up community links via someone helping with composting. It’s one of the things we’re inspected on, community cohesion, so the ideas of starting to work with another community group wasn’t unusual.”

At a difficult stage in the project, where the presence of bats in the roof meant that if the work was not finished within a short space of time it would need to wait four months, community links were invaluable in keeping the project on track.

“Everyone wanted to make it work. The wholesaler, the installer, the investors, the school, and Suffolk County in the end, all wanted to make it work. Because we did work with local companies, people had an interest other than just the financial return. They had an emotional stake. It’s a huge dynamic in making things work.”

Raising funding locally also had a beneficial and empowering effect:

Success factors

Core group of Directors with key skills, well rooted in local community.

Dynamic head teacher at school who was keen to run with the idea.

Backing and enthusiasm of school pupils and incentive of finishing the installation before the older children left.

Good local installer.

Seedcorn funding via Transition Nayland group prior to GEN start up.

Suffolk County Council’s public ‘green’ aspirations provided positive backdrop within which to work.

Able to maximise positive knock on effects of the project over and above the financial aspects via educational opportunities within school, both formal and informal.

A problem-free installation and set up has been a good advert for other schools to ‘have a go’.

Homes in Nayland are all using oil fired central heating, so people are more acutely aware of price volatility. The school has a biomass heating system installed through a grant scheme three years ago.

Project started at a good time for cash flow (ie beginning of the summer weather).

“The children are very aware of the fact that the money to do this came from in and around Nayland. The parents are aware of that. Some of our parents are investors. Some of our governors are too. It’s quite a widespread group. The children may not know the nitty gritty of it but they are well aware that this is not some big company from somewhere else.”

“It’s like anything, if you own it you’re going to want to stick up for it more and talk about it but also you care more, it’s the difference between having something done to you or choosing to do it.”

Finance

The group was well aware that before going to the local community with the share offer they needed to have a clear, costed and workable plan. Transition Nayland, as an established and supportive organisation, approached the Suffolk Foundation for seedcorn funding:

“That was what funded things like the co-operative’s registration, planning application, surveys and things like that. We got £5,000 but only used £1,200. We are trying to work out a way of hanging on to the rest for the next project. If you don’t have that £1,000 to start with it’s actually a major stumbling block to most community groups.”

In order to make the investment as attractive as possible, the school is charged for electricity, but at a low rate of 3.1p per kW hour plus VAT. This will save the school around £700 per year. At the end of the first year they are going to buy something ‘very visible’ to demonstrate to the children how much money has been saved in one year of using solar energy. VAT has been charged on the electricity to enable GEN to reclaim VAT on the costs of the installation.

The local share offer was successful, and enabled GEN to apply for match funding from Suffolk County Council which enabled the installation to be 15kW rather than 10. However, the group was concerned that the FIT step rates could prove counterproductive.

Difficulties encountered

Planning. Initial uncertainty about whether it was needed – it was! Planning “is one of the biggest obstacles for all renewable energy.”

Compensation clauses for projects involving public buildings (eg dealing with scenario of school closure within 25 year project timeframe. Such a clause was negotiated for this project but with hindsight it would have been better to base it on the value of the feed-in tariff rather than the value of the panels).

Insurance. Suffolk Council couldn’t re-negotiate their policy because it covered all their buildings throughout the County; gifting the panels to the school overcame insurance issues.

Questions over eligibility for Enterprise Investment Scheme in relation to options to withdraw funds.

“The school is 15.5kW, we’d never have done that if we didn’t have a grant for some of it, because as soon as you go over that 10kW step the rate you earn per pound comes down. So we would have stopped at 10, but we’ve got a roof that can do 20... If the export tariff was more valuable we would have done the whole roof.”

The two founders of the group were aware that they would benefit from involving people with more experience of dealing with issues such as finance, business and planning. The two people who joined them on the small board of four have contributed significantly to this aspect of development. The feeling was:

“If you do put things on a commercial basis people do trust that it’s more sustainable, it’s more real, it’s not just charity.”

This gave confidence to investors. One family had investment funds that belonged to their children:

“... and they took them out and put them into Green Energy Nayland. It works financially but it’s also a nice message to send your children.”

Some investors from a neighbouring village, having seen a flyer in a local shop and an article in a village newsletter, decided to go to the public meeting to find out more. They then saw the share prospectus which they said was “professionally produced, small and easy to handle.” They decided to invest on the basis that “we were interested in green energy and it made financial sense.”

Technical

The 15kW installation, which is expected to offset five to six tonnes of carbon emissions per year, has a computer display in the entrance hall of the school:

“It generates conversations amongst the kids about flow of energy, and questions like ‘When the school is using all it needs to use, whose house is the nearest, who gets the electricity next?’, ‘If there’s a power cut does it mean we won’t have one?’ Unfortunately not, but I love those kinds of questions. They also ask ordinary questions about the panels: ‘Who cleans them? What happens if it snows on them?’ The children are taking all that knowledge out of school, they’re taking it home, they’re talking to parents, that’s when things grow. So if you think of it not just from a financial standpoint but from an environmental standpoint... it’s fab!”

GEN felt that solar PV was the simplest way forward for its first projects, but has not ruled out looking at other renewable technologies in the future.

Future

Possibilities for future solar PV installations include the local church, as part of their ‘Shrinking the Footprint’ initiative (though the listed building status could make it too costly), local fire station (complicated due to Private Finance Initiative issues), a nearby village hall or other local schools. GEN is in touch with eight other groups who are developing renewable energy projects, including one in Japan.

According to Nayland School’s head teacher:

“I’ve had schools contacting me nationally. I suppose what they want to know more than anything else is ‘How much hassle is it? Does it work? Have you had loads of issues?’ And the answer is ‘Not much hassle at all, yes it works and no we haven’t had any issues!’ The good thing about what we’ve done here is that there isn’t a negative side to the story. The story is it was turned around in seven months, we raised more money than we thought we were going to get, and it all works fine. That’s it!”

Other head teachers have noticed the positive publicity:

“The knock-on is incredible, it’s the pebble in the middle of the pond.”

The challenges of choosing a co-operative structure

Co-operatives – in particular the mutual industrial and provident society for the benefit of the community legal form – are a hybrid in the sense that they exhibit a combination of commercial and social characteristics. Groups are motivated by social and environmental benefit, as well as the return provided to shareholders and the community.

They are profit-making, but have wider concerns as well. This can make it difficult to 'place' them. Charitable funders may not want to fund something they see as profit-making. Conversely, commercial banks focus on the commercial return, and may not place a value on the community benefits. Co-operatives may therefore find themselves losing out on both types of funding.

This 'hybrid' status of co-operatives is also problematic for their dealings with government. As one group said:

“Local authorities don't see the difference between a huge multinational coming and putting up a wind farm, and a community project.”

Cwm Arian

As a result, they may impose conditions on the development (such as Section 106 contributions - see Glossary) that are inappropriate for the size and type of scheme proposed.

A similar dilemma emerges with staffing issues. Many groups make heavy use of volunteer time, and volunteers are often very skilled and knowledgeable. But this places considerable burdens on people. There is a lot more involved in running an energy co-operative than many other types of community venture, because of the financial and technical complexities. On the other hand, some groups feel that employing staff would mean that the project loses its 'community' feel:

“It's a huge commitment and responsibility to do this in your own time... but as soon as you start to pay people within the wrong sort of structure you lose something of the engagement.”

Finding this balance is a challenge for all the groups.

Co-operative case study

Valley Wind Co-operative

Background

Five years ago, a community in the Colne Valley area of Yorkshire was allocated £35,000 under a government initiative organised by the then Department for Business, Enterprise and Regulatory Reform. Around 20 people went to the meeting which was called at the beginning of the programme, but there was disappointment at the fact that the £35,000 was being spent on the process of finding out what people wanted without any funds to make practical progress:

“We ended up with a wish list but no means of taking it further.”

Surrounded by open moors, wind energy was an obvious topic of discussion. Frustrated by what they saw as a wasted opportunity, a small group decided to take the idea further and called a meeting. The local Green Party had recently been leafleting and campaigning on renewable energy, and a member came along to the meeting. From that, a core group of six people formed Valley Wind. Since then, two members have been co-opted from Energy4All, and the Board is being expanded further to bring in new skills. There will be 11 Board members altogether.

For the first three years, the search for a prospective site dominated work. There were discussions with Kirklees Council about potential wind energy sites, and flyers were sent out via the National Farmers Union.

The National Trust, Natural England and Yorkshire Water were also approached, as were a (now lapsed) renewable energy group in Hebden Bridge, which led to a contact with CO2Sense, a non-profit agency originally established by the Regional Development Agency.



Fact file

Location	Marsden, West Yorkshire
Size of scheme	Hoping for minimum of 6MW from three turbines
Number of members	Seven core members and 250 supporters
Amount of initial share offer	share offer not yet begun
Legal form	Industrial & Provident Society Bona Fide Co-operative
Technology	Wind
Amount received for electricity	To be decided
Company electricity is sold to	To be decided – have had interest from Good Energy and Yorkshire Water

www.valleywind.coop

Despite these contacts, the group were frustrated by the difficulties they encountered in finding a site.

“Local authorities should have a database of suitable sites. If they’re really serious about renewable energy it should be built into the Local Development Framework. They should zone it like housing. Isn’t it time to revisit the issue of renewable energy projects and designated land? Climate change is the biggest threat to these kind of environments compared to anything else really. We’ve reached this moment where the priorities have been all commercial, that’s what’s driving policy. We are proposing an economically viable scheme that will benefit the community by any measure, and yet we’ve got different issues such as residential property values which can take precedence over issues that are affecting the entire community. It seems that the smallest consideration could override what we are trying to do.”

Community

A survey carried out by the Valley Wind group showed that 89% of people spoken to locally were in favour of a wind development in the area. Initially 82% were positive, but a further 7% came on board after being told it was a co-operative being run for the benefit of the community. This was felt by the group to be partly due to a very positive feeling about co-operatives in the local area. Although there is little opposition in the area, the group has chosen to keep a low profile, especially before a site was even found, because opponents “do write a lot of letters to the paper!”

The group is only too aware of the planning problems that can be associated with wind energy developments. The group feel that being a co-operative can only be helpful:

Success factors (so far)

Initial funding from CO2Sense.

Support from Energy4All.

Persistence in searching for a site.

Commitment and solidarity of the core group.

Size of proposed development will make commercial loans a possibility once past planning stage.

Potential revenue from a development of this size could bring a good financial return for investors and the local community.

Inspiring potential in terms of levels of renewable power generation.

“We would hope that coming from a local co-op a planning application might be viewed more favourably than if it came from a distant development company.”

However, they are also conscious that due to greater resource constraints than many commercial developers, they would find it harder to appeal an initial planning refusal.

In addition to the core Board members the group have the support of 50 ‘Friends of Valley Wind’ who each contributed £20 to join. There are a further 200 who are supporting the group’s current bid for additional grant funding.

Now that the group has identified a prospective site (by word of mouth), and will be submitting a planning application for an anemometer, they are preparing to contact the community immediately around the site. A new prospective board member knows people local to the site, which will be useful in terms of liaising with community members. The two nearest properties are around 500m away from where the turbines would be. There are about a dozen further properties reasonably close.

Finance

The group received a £65,000 grant from CO2Sense to fund a risk analysis of their chosen site, and to cover the costs of ecological surveys and consultancy advice from Energy4All. This money was released as pre-identified targets were met, so suppliers had to wait to be paid. Legal work was funded by a local council grant of £7,500. They applied for further funding from CO2Sense but, despite being given positive feedback, they were not successful in gaining more support:

“We went back to CO2Sense and put in another application to finish off the bird and ecological work, put up a met mast and do some more community engagement, but in the end they said they were minded now not to give any more support because ever since the cut backs they have had to take a more risk averse view to the projects they support. They have always been very clear to themselves and to us that they knew it was a risky project that might not come off, but if it did they would get a good return. But now they need more certain and quicker returns they’re favouring lower risk projects, particularly ones which are covered by the feed-in tariff apparently.”

The group felt frustrated by this because they felt that organisations such as CO2Sense are now only backing projects which stand a good chance of success, therefore denying funds to projects which are more risky but stand to provide better returns if they do succeed.

Another issue is the time frame of grant funding:

“The trouble with schemes like this is that even if everything went well it would still take four or maybe five years to get going, and we’ve got a grant system which is working on an annual or biannual basis. There’s no long horizon; it just doesn’t work.”

If successful with their bid for further grant funding, again the funds would have to be spent within a year.

“The effect of this is to build perverse incentives for micro energy schemes which are quick to put in place but in terms of the energy needs of the country are almost irrelevant.”

The work of the group is undertaken on a purely voluntary basis, with their time recorded and used as match funding. They do not rule out the organisation having paid employees in future at an operational stage.

The anticipated total cost for the 6MW project is around £10 million, of which it is proposed that 40% would be financed by bank loan and the remaining 60% via a share issue. Existing supporters and local residents will be given first priority for share purchase. The group is exploring options to make shares affordable to those who cannot meet the proposed minimum £250 investment. In addition to a return for investors, it is anticipated that 3% will go to a community fund and a smaller percentage to a habitat fund.

Technical

For the scheme to proceed the group will need to install turbines with a capacity of 6MW which is the minimum size according to the lease option for the site. There is potential for more turbines on the site (potentially up to eight turbines producing 20MW) but expanding beyond three turbines would mean going on to an area of land which has SSSI (Site of Special Scientific Interest) and Natura 2000 status. The proposed minimum development is estimated to provide enough power for approximately one third of the residents of the Colne Valley (around 10,000 people). A met mast is available at a reduced cost from Energy4All.

Although the local public has shown itself to be broadly supportive of wind energy, there was a setback when the local council put up two 6kW turbines on the roof of the Civic Centre which were not positioned well and proved to be ineffective:

“To a section of the population that will have discredited wind energy. They did have a computer display but they had to take it down because it was laughable – it would hardly have boiled a kettle!”

Although the educational benefits of some demonstrator projects were acknowledged, the group feeling was:

“Surely as a society we should be moving past the educational stage now and moving into actual operational capacity.”

Future

Without further financial backing to support the project prior to planning approval, the initiative will not succeed. However, the group is determined to continue to try to achieve their goal:

“Working together does build communities. Every time a problem emerges you think 'there must be a way around this!'”

Difficulties encountered

Difficulty of finding a suitable site.

Availability of funding for initial stages of project, particularly in current economic climate.

Political prominence of smaller scale initiatives meaning grants and other support is geared up for shorter term projects rather than longer term developments.

Knock on effect of poor performance of some other local wind energy initiatives.

Difficult to find time to keep website up to date and use it to its full potential.

Main learning points

The co-operatives faced similar difficulties: a regulatory environment that changes constantly; access to finance; planning and legislative hurdles; and, the stresses of maintaining motivation and finding the time, particularly as all rely heavily on volunteer input.

Shifting regulatory environment

Groups pointed to a number of government initiatives and policies, designed to support community energy, which caused problems because they were changed, often without much notice:

“We learned that the goal posts constantly move and that you have to be prepared to jump on getting whatever incentive there is when it arrives... it's so hard to keep up.”

OVESCo

There were particular problems with the Low Carbon Communities Challenge (LCCC), a grant scheme established in 2010 under the previous government, which changed significantly after the election. Cwm Arian had hoped to benefit from significant funding for their wind project from the LCCC, as well as free installation of smart meters, but these never materialised. The government has also ruled that projects in receipt of government grant monies should not be eligible for FITs, due to EU state aid laws. This could be challenged, but the costs of a legal process would be prohibitive. The reduction in FIT rates for solar PV projects over 50kW, announced in May and introduced in August 2011, is a further example, as was the removal of Enterprise Investment Scheme (EIS) tax relief for renewable energy investments (though government has proposed reinstatement of EIS for social enterprise renewable energy ventures). As one group said:

“You just can't do that to community projects. It's based on goodwill. People need to know that what you say is happening in their community is going to actually happen, otherwise you lose support.”

Cwm Arian



Access to finance

Bigger community schemes, such as large-scale wind projects, may qualify for bank loans. However, smaller schemes are rarely able to access commercial finance at reasonable rates. The Co-operative Bank has historically only financed renewable energy projects valued at £1 million or more, and its ability to finance smaller schemes has been further challenged by recent changes to feed-in tariffs rates.

Financing the early stages, before the share issue, is particularly difficult, as there are no guarantees that the scheme will go ahead. All the projects we studied had secured grant funding or, in the case of River Bain, a loan which would not have to be repaid if the project did not go ahead. Given that grant funding is increasingly difficult to access, this is a considerable hurdle for community schemes.

However, The Co-operative Enterprise Hub has allocated £1 million pounds to support the establishment of new renewable energy co-operatives, a portion of which will operate as a revolving fund that underwrites community share offers.

Limitations and restrictions of funding

Grant funding tends to be for a limited period of time, often a year. As Valley Wind explained, this does not help big or complex projects:

“Even if everything went well it would still take four or maybe five years to get going, and we’ve got a grant system which is working on an annual or biannual basis.”

Valley Wind

This may build in a bias toward smaller schemes:

“The effect of this is to build perverse incentives for micro energy schemes which are quick to put in place but in terms of the energy needs of the country are almost irrelevant.”

Valley Wind

Concerns were also expressed about funding applications that involve voting, like the British Gas Energyshare scheme, as it is very difficult and time consuming for small organisations to canvass support to win through such a system.

Planning and legislative hurdles

The sheer quantity of administration that is required for energy co-operatives can be overwhelming, and is often out of proportion to the size of the scheme. Groups need to work with different organisations including the planning authority, the Environment Agency (for hydro schemes), Distribution Network Operators, funders and so on, all of whom require different information. This example from River Bain is typical:

“All the documentation has to tie together and actually there are so many parties involved, all of whom insist on using their standard format, so that at first pass all these documents miss each other... there was weeks of bashing away at people saying ‘the following clauses don’t tie up.’”

River Bain

Grid connection is a particular headache:

“Between the power house and the grid, a distance of a hundred yards, we ended up with five different organisations involved in delivery.”

River Bain

These problems have been compounded since the introduction of FITs, because of the sheer volume of projects, often very small scale, which regulators have to deal with. One group pointed to perverse incentives built into legislation, too, like the step rates within FITs:

“The school is 15.5kW, we’d never have done that if we didn’t have a grant for some of it, because as soon as you go over that 10kW step the rate you earn comes down. So we would have stopped at 10, but we’ve got a roof that can do 20.”

Green Energy Nayland

Finding a site

Lastly, it has been difficult for some groups to find a suitable site for their scheme. This has been the main difficulty for Valley Wind. Both OVESCO and Green Energy Nayland have spent considerable amounts of time finding a site for their next project.

Motivation and time

All the co-operatives relied heavily on local volunteer time in order to develop and run the enterprise, often drawing on what would otherwise have been high cost professional skills. This was complemented by a broader base of mostly local community volunteer support to spread the word and get local people on board with the idea.

Given the complexity of projects and the length of time from conception to launch, maintaining momentum and motivation was a challenge for many of the groups.



Support and information

If this report has inspired you to think about setting up a renewable energy co-operative, there are various sources of support information. Below are those available from The Co-operative Group, Co-operatives UK and Co-operative and Community Finance

The Co-operative Enterprise Hub

The Co-operative Enterprise Hub offers free advice, training and access to finance for new and existing co-operatives, to help them set up, grow and prosper. Support is delivered through a network of co-operative development advisers and is available to new and established co-operatives – whether they're starting out, wanting to expand or needing to change their management structure.

The Co-operative Enterprise Hub has allocated £1 million pounds to support the establishment of new renewable energy co-operatives, a portion of which will operate as a revolving fund that underwrites community share offers.

For more information call 0161 827 6192 or visit www.co-operative.coop/enterprisehub

The Co-operative Bank

The Co-operative Bank is one of the world's leading ethical banks and is committed to supporting businesses involved in renewable energy and efficiency. It facilitates lending to projects within the renewable energy and carbon reduction sectors, and has a track record in funding a wide range of renewable energy projects, with onshore wind being a particular specialism.

It has also funded a number of carbon saving schemes where state of the art fuel-efficient systems have drastically cut customers' CO₂ emissions.

The Co-operative Bank has extended commercial lending in the area of energy efficiency and renewables, from £400m to £1bn.

For more information call 0161 201 4068 or visit www.co-operativebank.co.uk

Co-operatives UK

Co-operatives UK is at the heart of a national network of co-operative specialists working to develop more and stronger co-operative enterprises.

Through our simple guides and films we can help you understand what a co-operative is and whether it's the right business model for you. We provide a range of publications and online tools, developed by co-operative specialists, to help you get everything in place for the crucial early days so you can run your co-operative well. Once you're ready to get into detail, we can refer to a specialist co-operative business advisor and our legal team can help you think through your legal form, and register your co-operative.

Once your co-operative is up and running we'd love to welcome you into membership of Co-operatives UK. We work with co-operatives every day, which means that whatever it is that you need to find out, learn, do or create, the chances are that we can help you do it.

Co-operative UK's comprehensive suite of resources for community enterprises, provides top quality financial, legal and governance support. They are all available to download for free from www.uk.coop/simplifyseries

Community Shares

The Community Shares website contains a comprehensive range of guidance for anyone considering raising finance through a community share offer.

To download copies for free visit www.communityshares.uk.coop

Co-operative and Community Finance

Co-operative and Community Finance lends to organisations that are owned and democratically controlled by their members, who are usually either employees, customers or members of a community.

Loans from £10,000 to £75,000 are readily available, and CCF is able to lend up to £150,000 using other funds. CCF does not require personal guarantees, and profits are reinvested to enable us to continue our work.

www.coopfinance.coop



Glossary of terms and abbreviations

Archimedes screw	The Greek mathematician, Archimedes, developed the screw as a way of irrigating crops through moving water uphill. In recent years however, the screw has been viewed differently. It's possible to channel water into the top of a screw so that the water travels down it and back into a river. The weight of the water turns the screw, and the turning motion is passed mechanically into a generator to generate electricity.
Distribution Network Operators	The owners and operators of the network of towers and cables that bring electricity from the National Transmission Network to homes and businesses.
Enterprise Investment Scheme	The Enterprise Investment Scheme (EIS) is designed to help smaller higher-risk trading companies to raise finance by offering a range of tax reliefs to investors who purchase new shares in those companies. Further information is available on the HM Revenue and Customs website, www.hmrc.gov.uk/eis
Feed-in tariffs (FITs)	The Feed-in Tariffs (FITs) scheme was introduced on 1 April 2010, under powers in the Energy Act 2008. Through the use of FITs, DECC hopes to encourage deployment of additional small-scale (less than 5MW) low-carbon electricity generation, particularly by organisations, businesses, communities and individuals that have not traditionally engaged in the electricity market. This will allow people to invest in small-scale low-carbon electricity, in return for a guaranteed payment from an electricity supplier of their choice for the electricity they generate and use as well as a guaranteed payment for unused surplus electricity they export back to the grid. Further information is available on the Department of Energy and Climate Change website, www.decc.gov.uk
Hydropower	Or 'hydroelectric power', is the energy derived from flowing water. This can be from rivers or man-made installations, where water flows from a high-level reservoir down through a tunnel and away from a dam. Turbines placed within the flow of water extract its kinetic energy and convert it to mechanical energy. This causes the turbines to rotate at high speed, driving a generator that converts the mechanical energy into electrical energy. The amount of hydroelectric power generated depends on the water flow and the vertical distance (known as 'head') the water falls through.
kW	Kilowatts

Low Carbon Communities Challenge

The Low Carbon Communities Challenge (LCCC) programme was run by the Department for Energy and Climate Change. The objectives of the challenges were:

- to understand the role of communities and community support packages in delivering carbon budgets and renewable energy targets
- to understand the efficacy of different forms of area-based community initiatives in leading the transition to a low-carbon society
- to understand the broader social, environmental and economic impacts
- to stimulate active involvement from people living, working and visiting the 22 communities as part of project development and delivery
- to generate a sense of momentum and 'buzz' so commentators and opinion formers outside the 22 communities express the desire for wider delivery of carbon emission reduction plans.

Meteorological mast, or 'met' mast

A met mast is a tall, thin tower used to monitor the wind resource at a site in order to enable an accurate assessment of the site's generating potential and determine an appropriate model of wind turbine.

MW

Megawatts

Private Finance Initiative

The Private Finance Initiative (PFI) is a procurement route established in 1995, and more widely adopted since 1997. It is an important route for government spending on assets, as it transfers significant risks to the private sector. PFI requires private sector consortia to raise private finance to fund projects, which must involve investment in assets, and the long-term delivery of services to the public sector.

Section 106 contribution

Section 106 (S106) of the Town and Country Planning Act 1990 allows a local planning authority (LPA) to enter into a legally-binding agreement or planning obligation with a landowner in association with the granting of planning permission. The obligation is termed a Section 106 Agreement. These agreements are a way of delivering or addressing matters that are necessary to make a development acceptable in planning terms. They are increasingly used to support the provision of services and infrastructure, such as highways, recreational facilities, education, health and affordable housing.

Seedcorn funding

The financing of the development of a business concept or community enterprise.

Solar PV

Photovoltaic (PV) solar cells/panels are renewable electricity-generating systems, which are installed at an optimal angle on a supporting roof or wall. Each solar cell is made from one or two layers of semi-conducting material, such as silicon. When solar energy (photons) reaches each cell, it creates an electric field across the layers. The stronger the sunlight the more electricity is produced, but solar PV can also generate energy in overcast conditions. The strength of a PV cell is measured in kilowatt peak (kWp), which is the amount of energy the cell generates in direct sunlight.

Transition Town

Or 'Transition Initiative', is the name given to a community-led initiative that is adopting and adapting the transition model to answer this massive question: "for all those aspects of life that this community needs in order to sustain itself and thrive, how do we significantly increase resilience (to mitigate the effects of Peak Oil and global economic downturn) and drastically reduce carbon emissions (to mitigate the effects of Climate Change)?" Many are affiliated to the Transition Network. Further information is available on the Transition Network website, www.transitionnetwork.org.

The Co-operative

The Co-operative Group is the UK's largest mutual business, owned not by private shareholders but by over six million consumers. It is the UK's fifth biggest food retailer, the leading convenience store operator and a major financial services provider, operating The Co-operative Bank, Britannia and The Co-operative Insurance. Among its other businesses are the number one funeral services provider and Britain's largest farming operation.

As well as having clear financial and operational objectives, the Group has also set out its social and sustainability goals in its groundbreaking Ethical Plan, which specifies almost 50 commitments in these areas. The Group operates 4,800 retail trading outlets, employs more than 106,000 people and has an annual turnover of more than £13bn.

www.co-operative.coop

Co-operatives UK

Co-operatives UK works to promote, develop and unite co-operative enterprises. It has a unique role as a trade association for co-operatives and its campaigns for co-operation, such as Co-operatives Fortnight, bring together all those with a passion and interest in co-operative action.

Any organisation supportive of co-operation and mutuality can join and there are many opportunities online for individuals to connect to the latest co-operative news, innovations and campaigns. All members benefit from specialist services and the chance to network with other co-operatives.

www.uk.coop

Printed during the United Nations International Year of Co-operatives 2012: a unique opportunity to open the lid on some of one of the world's best kept secrets.

There are over 1.4 million co-operatives across the globe, working in everything from farming to football, healthcare to housing. Between them they have around 1 billion members and over 3 billion people secure their livelihood through co-operatives.

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