

# Social and Economic Benefits of Community Energy Schemes



## Executive Summary

The Department for Energy and Climate Change is currently reviewing its policy towards community energy, seeking evidence of its benefits and a better understanding of the barriers to its development.

In addition to its commitment to generate 50% of its own energy from renewable sources the National Trust has also been working with local communities to assist them in developing their own community renewables schemes, including the development of a small hydro project in the village of Abergwyngregyn, North Wales.

To inform the current debate the National Trust worked with 2012 Clore Social Fellow, Mark Walton to explore the social benefits that community scale renewables can deliver. The work was undertaken through interviews with 30 people involved in community energy generation, either as practitioners or as supporting figures, both inside and outside the Trust.

The report identifies many of the wider social benefits delivered by community renewables and how these can best be measured and multiplied. It also examines some of the barriers faced by community renewables and highlights the positive role the National Trust can play as an enabler for local communities and an advocate for community energy. It includes a case study of the Abergwyngregyn project.

## Key Findings

- **Social benefits**  
Community renewables schemes can deliver a range of social and economic benefits to local communities including increased autonomy, empowerment and resilience by providing a long term income and local control over finances, often in areas where there are few options for generating wealth. Other benefits include opportunities for education, a strengthened sense of place and an increase in visitors to the area.
- **Measuring social impacts:**  
There is a great deal of interest in this issue but very little formal measurement of social benefits of community renewables. Only two systematic attempts to measure social benefits were identified. Effective measurement of social returns would provide useful evidence to support a more favourable policy and funding environment for community owned renewables.
- **Barriers faced**  
Access to land, raising capital and obtaining planning permission present barriers to community renewable projects. Lack of clarity and consistency in national government policy was also a significant concern. A lack of knowledge and confidence can prevent people getting involved in projects that may appear complex and unfamiliar. They may also be unwilling to commit to a long-term project.

- Role of the National Trust**  
 The National Trust is well placed to support community renewable projects. At a local level this might include providing access to land and signposting useful sources of support and funding. They can also use their own experience of installing renewables to help communities navigate the complexities of the process and lend credibility to projects they partner with.

## Introduction

The UK government has a commitment to supporting community energy projects as part of its strategy to achieve an 80% reduction in carbon emissions by 2050, and to ensure that 15% of the UK's energy needs are met by renewable sources by 2020. The Department for Energy and Climate Change is currently reviewing its policy towards community energy, seeking evidence of its benefits and a better understanding of the barriers to its development.

The National Trust has a commitment to generate 50 per cent of its energy from renewable sources and halve its fossil fuel consumption by 2020. In the majority of cases the Trust is working independently to develop and install new renewable capacity on its properties; however in North Wales it is working in partnership with a local community, to help them develop a small hydro power scheme on the Afon Anafon. The Trust is a member of the Community Energy Coalition - a group of UK-based organisations that support a dramatic increase in community energy.

30 individuals involved in community energy generation, as practitioners or in supporting roles, both inside and outside the Trust were interviewed about the benefits that could be delivered by energy generation projects and how these are currently measured. They were also asked about the barriers faced by community energy projects and the role of the National Trust in supporting and enabling their development.

The partnership between the National Trust and the Abergwyngregyn Regeneration Company to develop a new small hydro scheme in the Afon Anafon, a river that flows down the Anafon valley in North Wales, is presented as a case study.

## 1. Social benefits

In most cases interviewees focussed on the economic benefits delivered by community energy generation. Whilst some community renewables projects use the income created by the renewable scheme to fund further energy efficiency measures and micro renewables in a bid to reduce their carbon footprint or become carbon neutral, this is not always the main or only use of income generated.

Some of the key benefits identified were:

- Autonomy:**  
 Long term income and control over finances in areas where there are few options for generating sustainable wealth. The size of the income will vary depending on the size and profitability of the scheme.

- The Talybont on Usk hydro scheme delivers an income of about £25,000 per year and enabled the creation of a small community fund providing grants to other projects in the village.
- **Resilience:**  
The income from schemes can be used to increase the energy efficiency of local houses and community buildings, protecting against the impact of fluctuating fuel prices.

In Abergwyngregyn the community is considering the potential to use income generated to develop projects that can create jobs, and improve the local economy, such as establishing a village shop or pub. They are also exploring the potential to lower fuel bills and reduce fuel poverty through “sleeving” the energy produced to local consumers. [See box below]

## Sleeving

In most cases community renewable generation does not lead to lower local household energy prices as, in the absence of local or ‘smart’ grids, the energy is sold directly to the national grid rather than to individual households. However, the National Trust is working with energy providers to explore the possibility of using a process known as ‘sleeving’. Sleeving matches the energy usage of a defined customer group with the output of a specific generation source. This pricing mechanism provides consumers with a more direct relationship with the source of at least some of their energy, and by reducing marketing and administrative costs enables the supplier to offer consumers a reduced rate for their energy supply.

- **Community empowerment:**  
Engagement in a significant long term project such as development of new renewable energy generation involves local people in a range of activities, improving skills and confidence. By making collective decisions about the use and distribution of income local communities also develop greater self determination through the direct control of local resources.
- **Education:**  
Renewable generation installations attract school and college visits and student projects. They provide direct experience of the application of science and technology; study sites for a range of disciplines, and opportunities for technical skills development, connecting people to where their energy comes from. In 2012 as well as visits from local schools Torrs Hydro in Derbyshire attracted students from Cardiff, Aberdeen, Sheffield, Bath and Manchester universities.
- **Sense of place:**  
Community control of the type and size of the installation ensures appropriate scale technology is installed which is sensitive to the landscape and the needs of the local community. By improving the prospects for self sufficiency renewables schemes can also contribute to the protection of local culture and language. The collective endeavour of developing and managing such sites can improve social cohesion, creating new networks and connections between individuals.

- **Local economy:**

While much of the hardware and technology is sourced from outside the UK, the planning, survey and engineering works all provide local employment opportunities, and the income from schemes strengthens the local economy. Existing schemes also reported that the renewables installations themselves can become visitor attractions, attracting new visitors

and retaining them longer. Torrs Hydro estimate that 1000 people per year visit the site, which is included in the annual lantern parade and is used as a site for art installations during the local art festival. The turbine, which has been named “Archie” by local school children, is ranked as the second most popular visitor attraction in New Mills on the Trip Advisor website.



## **Case study – Anafon Community Hydro Scheme**

Abergwyngregyn is a small village in Gwynedd, North Wales. It has a population of approximately 250 people and contains about 100 properties. Like many rural villages Abergwyngregyn has witnessed the withdrawal of local services and amenities including its pub and shops.

### **Abergwyngregyn Regeneration Company**

The Abergwyngregyn Regeneration Company (ARC) was established in order to improve the social and economic wellbeing of residents. Over the past 10 years it has successfully developed a range of community projects, including the purchase and renovation of an old mill which now houses a café and community centre, annual summer and Christmas fairs and the management of two local car parks.

### **Hydro Scheme Initiation and Development**

Since 2011 ARC have been working with the National Trust to develop a proposal for a hydro electric scheme that will harness the power of the nearby Afon Anafon River. The National Trust were aware of the hydro potential of the site, but due to complicated land ownership issues, it was not a high priority. Other sites offered more straightforward opportunities. However ARC were made aware of the opportunity and in 2011 met with other organisations where it was agreed to explore the potential to develop a community managed hydro scheme.

### **Current Development**

Working with the National Trust Environmental Advisors, ARC secured funding that enabled an initial feasibility study to survey the site.

Feasibility and survey work can cost tens of thousands of pounds, up to 10% of the capital cost of a scheme. It must be done before applying for planning permission and at any stage issues may be found meaning the project cannot continue.

At Anafon these risks were managed by identifying the most high risk areas at the start, and surveying them first before moving on to the lower risk issues. So far survey work has found a rare grassland fungus which has resulted in changes to the proposed route for the pipeline as well as reducing the size of the project from 500kW to 300kW in order to protect bryophyte habitats.

The Trust and ARC are exploring joint venture options which would enable the National Trust and Forestry Commission to lease the land required for the scheme to ARC who would finance, develop and operate the hydro. The proposed model allows the group to apply for support and grant financing as well as benefiting reduced borrowing costs for post planning capital construction.

## Funding

Funding for the pre-planning stages of the scheme has been provided by the Welsh Government's Ynni'r Fro, Cooperative Community Energy Challenge and the Waterloo Foundation. Funding required for the capital works themselves will be sought from a commercial lender or investor based on a sound business case model. This will be repaid in 5-10 years. The total life span of the facility is expected to be up to 100 years.

## Community benefits

ARC have considered the range of benefits that could be delivered using the income from the sale of energy.

Priorities for the use of funds are likely to be:

- improving energy efficiency through e.g. improved insulation (powering down)
- reducing carbon emissions through e.g. installed solar PV (powering up)

With only 100 properties in the village there will be a limit to the need for these measures. Other options include:

- improving the local economy by establishing a village shop, community bus service or village pub,
- creating a new children's play area,
- providing educational opportunities such as a college bursary.

## Role of the National Trust

In the case of the Anafon scheme the National Trust has been able to provide a wide range of practical and technical support to the local community.

The main benefit has been the identification of the site and the offer to the community of the opportunity to develop it. Access to land is a critical issue facing many community renewable projects.

A further key benefit to the community has been the technical expertise that the Trust has developed as result of pursuing its own renewables programme, including the installation of similar hydro schemes at other local sites.

It has also been able to provide access to a range of additional expertise and support programmes, and credibility with other statutory bodies and agencies.



## 2. Barriers Faced

A wide range of barriers that communities face when developing energy generation projects were identified. These included:

- **Access to land:**  
Most communities do not own land where the resources (wind, water etc.) are suitable for renewable energy generation. The first hurdle is therefore often negotiating access to land and the terms of leases and access rights with a landowner.
- **Finance:**  
In most cases the main financial barriers come at the start of the process. Undertaking the suite of specialist surveys and studies required for a feasibility study, and to support applications for planning, licences and loan finance can cost tens of thousands of pounds. Whilst there are sources of grant funding which can support these, their availability is patchy. Loan finance is not available for these activities due to the risks of failing to get project approval. There are many issues that may derail a project at this stage ranging from insufficient flow of head to the sensitivities of specific species or habitats.

Once the viability of the scheme has been assessed and planning permission has been granted, most schemes are able to access commercial loan finance from a range of providers.

- **Planning and licences:**  
A key barrier to developing community renewables schemes is gaining planning consent and other permissions. This is clearly a major obstacle to the development of wind farms but is less of an issue for hydro schemes where the key regulatory hurdle is obtaining an abstraction licence from the Environment Agency based on the available flow in the watercourse.
- **Lack of clarity and consistency in national government policy:**  
While the UK Government has stated its support for community energy there are concerns that until a clear strategy is published there are uncertainties regarding the future price of energy, dependency on power purchase agreements with large commercial energy firms, the ease of connection to the grid, the future of the feed in tariff and the level of support available for community schemes.
- **Unfamiliarity, lack of skills, experience, or access to expertise:**  
Developing a new renewable project is a new process for most communities that can appear complex, uncertain and unfamiliar, requiring a high degree of specialist knowledge. While some schemes and programmes exist which can assist communities this is often not clearly signposted or universally accessible. The fact that every new scheme has to experience the same learning curve is seen as a severe drain on developing more such schemes.

- Lack of confidence:**  
 Whilst expert advice is available and an increasing number of schemes demonstrate that a wide range of renewable schemes are achievable for local communities, the lack of familiarity can result in a lack of confidence that such a project can be undertaken. This is especially true where a community does not have previous experience or track record of delivering a project involving substantial capital works.
- The long term nature of the work:**  
 The fact that timescales from initiation to income generation can be several years is a significant issue for community organisations where people are working in a voluntary capacity during their spare time. The long timescales can make it particularly difficult to deal with set backs when a lot of time, effort and money has been invested.
- Overcoming differences of opinion:**  
 The use of the term “community” can lead to assumptions that all of the community are involved in or supportive of a project. In fact projects are often driven by a small number of enthusiasts and the wider community may have limited involvement or influence. Whilst hydro and renewable heat schemes are less contentious than wind turbines it remains important that wide community engagement is undertaken to maximise understanding and awareness of, and support for, the project. There may always be some opposition and this may sometimes be quite

vehement. Individuals undertaking this work need to be able to deal well with such situations.

### 3. Measuring social benefits

There was a wide spread belief amongst interviewees that effective measurement of social returns would provide useful evidence to support the creation of a more favourable policy and funding environment for community owned renewables. Such evidence would be of interest not only to national and local government and practitioners but also to the growing field of social investment where investors are looking for social returns on their investment as well as, or instead of, financial returns.

While there is a great deal of interest in this issue and a wide range of actual and potential benefits were identified by interviewees (see above), there is very little formal measurement of social benefits of community renewables being undertaken in practice. The current literature and guidance for the delivery of community benefit is mainly aimed at developers of onshore windfarms and focuses on ownership options and on the establishment and management of community funds using a proportion of the income from installations.

Only two systematic attempts to measure social benefits were identified:

- Community Energy Scotland has undertaken an impact survey to look at the social impact of its work to support community**

energy projects. This survey used 5 point Likert scales to identify changes in a range of areas such as skills, awareness, engagement and wealth.<sup>1</sup>

- New Economics Foundation have undertaken some early stage work to develop a set of metrics for a Social Return on Investment (SROI) study with the Ashton Hayes “Going Carbon Neutral” project. A full SROI report has not yet been undertaken. This work builds on a previous SROI project with Kirklees Warm Zone, an energy efficiency project.<sup>2</sup>

#### 4. Role of the National Trust

The areas where interviewees felt that the National Trust is most able to support the development of community renewables were:

- Access to land / identification of opportunities
- Signposting the route by providing case studies / practical examples
- Navigating the complexities of the process and offering familiarity with the technical expertise and issues that might arise
- Engagement with other agencies and statutory bodies with whom it already has relationships
- Providing credibility to inexperienced community organisations by partnering in order to provide track record

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<sup>1</sup> Community Energy Projects – 2012 Impact Survey, Community Energy Scotland

<sup>2</sup> An evaluative framework for social, environmental and economic outcomes from community-based energy efficiency and renewable energy projects for Ashton Hayes, Cheshire, March 2012, nef

- Engagement with visitors and interpretation of schemes and works
- Taking a leadership role with regard to national policy, land use and planning issues and identifying the benefits of community renewables
- Sharing lessons with other land and asset owners

There was general support for the National Trust acting to support community renewable projects through partnerships. However this was tempered with some concerns that the Trust should not seek to duplicate or undercut existing consultancy and support programmes.

In the case of the Anafon scheme the National Trust has been able to provide a range of practical and technical support to the community.

The main benefit has been the identification of the site and the offer to the community of the opportunity to develop it. Access to land is a critical issue facing many community renewable projects.

A further key benefit to the community has been the technical expertise that the Trust has developed as a result of pursuing its own renewables programme, including the installation of similar hydro schemes at other local sites.

It has also been able to provide:

- access to a range of additional expertise and support programmes,
- credibility with other statutory bodies and agencies,
- access to capital funding.

## Conclusion

Community renewables schemes can deliver a range of social and economic benefits to local communities including; increased autonomy empowerment and resilience, opportunities for education, a strengthened sense of place, and an improved local economy. However, despite a widespread recognition of the social and economic benefits delivered by community renewable schemes very little work has been done to identify metrics and methodologies for measuring them.

There is a clear opportunity for the National Trust, using its capacity and expertise, to support the development of metrics to measure the social, economic and environmental benefits of community renewables through its partnership with the Abergwyngregyn Regeneration Company at Anafon. This work, particularly if undertaken jointly with other projects and partners with an interest in this field, has the potential to contribute significantly to the evidence base to support policy development and social investment in this field.

Significant barriers to the development of more community renewable energy generation include access to land, finances and obtaining the relevant licences and permissions. Lack of clarity and consistency in government policy towards community renewables was also cited as an issue. The specialist skills and knowledge required to develop a renewables project, the steep learning curve and the time take to develop projects are also seen as barriers to

individuals getting involved in community energy projects.

The National Trust has the potential to build on its work on the Anafon scheme at Abergwyngregyn by partnering with local communities to provide access to land as well as a range of practical support, knowledge and expertise to new community energy projects.

## About this research

This research was carried out between March and May 2013.

A desk review was undertaken of:

- Academic research on the public benefit of community energy projects,
- Reports, guidance and policies on community benefits delivered by community renewable schemes,
- Community energy project websites.

Telephone or face-to-face semi structured interviews were undertaken with 30 people, including:

- People local to, or associated with, the Anafon scheme
- Community energy support organisations
- Community projects
- Finance organisations
- Energy organisations
- National Trust staff

A list of interviewees and questions is available on request.

**Mark Walton** undertook the research while on secondment to the National Trust as part of his fellowship with the Clore Social Leadership Programme. He is Executive Director and co-founder of the social enterprise Shared Assets Ltd.

**The National Trust** is a conservation charity of over 4 million members. We were created more than 115 years ago to care for special places, for ever, for everyone. To achieve these goals we look after a quarter of a million hectares of land, over 700 miles of coastline, several hundred historic houses and their gardens and parks,

and many thousands of vernacular buildings. Many millions visit and enjoy our places, while over 60,000 people volunteer with us on a regular basis.

**Clore Social Leadership Programme** identifies the UK's most promising social leaders and gives them gold-standard training, skills and opportunities. During the highly individualised Fellowship programme Fellows attend residential courses, experience coaching and mentoring, undertake an extended secondment and practice-based research project, as well as engaging in Action Learning.

**Shared Assets** support the development of social enterprise and community management of environmental assets such as woodlands, waterways, coastal areas and parks. They aim to reconnect local communities with their natural resources and facilitate new collaborative relationships between landowners and communities, based on principles of productivity, replenishment and enterprise.

**With thanks to all 30 interviewees who participated in the research.**

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