

HARNESSING COMMUNITY ENERGIES



Recent policy statements have placed growing importance on the use of renewable energy in the UK. As part of this, there has been increased interest in the potential for community-based renewable energy with funding programmes and support networks set up to promote this approach.

It is claimed that through co-operative community projects, new technologies and developments may be more readily accepted. These should be more appropriate for the local context and more able to bring communities a range of economic, social, educational and environmental benefits.

This research evaluated the role of community initiatives in the uptake of sustainable energy technologies in the UK. The researchers constructed a database of community projects, undertook national programme level interviews and carried out project case studies. The research has highlighted the extent and diversity of community renewable energy activity, the different interpretations of 'community' and both the positive outcomes and challenges that have arisen. A number of policy implications have been identified.

EMPOWERING COMMUNITIES

Substantial progress has been made in recent years in bringing sustainable energy technologies to the point of technological and commercial maturity. But although these technologies are increasingly recognised as feasible and necessary implementation has proved slow and problematic. Partly as a result there has recently been a focus in the UK on community-orientated strategies. This multidisciplinary research has evaluated the role of community initiatives in the implementation and embedding of renewable energy technologies in the UK.

EXPLAINING POLICY SHIFT

A focus on local distributed energy generation is not a new feature of the sustainable energy literature. However, until only recently such ideas were alien to UK energy policy and, where they did continue to be pursued this was within a 'grassroots niche' outside of the mainstream energy supply system and without the support of public resources. A new emphasis on the benefits of a more localised pattern of energy generation first emerged in the discourse of government and related advisory bodies in the late 1990s. By 2002 a series of programmes and networking initiatives had been established to subsidise and support the

development of community renewables, followed by a surge of local project development. By the end of December 2004 we had 509 projects in our database supported by 12 different programmes and networks, far more than we had expected.

Project Case Studies

Llanwdynn: biomass fuelled heating network for a school, community centre and 19 houses

Moel Moelogan: 2 x 1.3MW wind turbines, followed by 9 more, set up and owned by local farmers

Bro Dyfi: 75kw wind turbine, financed through local cooperative share ownership

Kielder: biomass fuelled heat network for a school, youth hostel, 6 houses and castle

Falstone: solar photovoltaic panels and biomass boiler for tea room and shop

Gamblesby: ground source heat pump for renovated village hall.

In interviewing those involved in policy decisions at this time and in running the various national funding programmes and support networks (both government and NGO led) it became clear that no one factor explained this marked and rapid shift in policy. For some, particularly those in government, motivations were instrumental in nature – a

means to an end. A community approach provided a possible way of overcoming obstacles in obtaining planning permission that were bedeviling the development of on-shore wind farms. It also provided a way of stimulating the market for renewable energy technologies without contravening European rules on state aid (hence the charitable status of local groups was crucial); and could contribute to rural regeneration at a time when the countryside was reeling from the aftermath of foot and mouth.

For others, particularly but not exclusively those in NGOs, motivations were more normative in nature. These emphasized principles of collaboration and learning, people working together at a local level and through this achieving greater cohesion, mutual respect and self worth. As one interviewee put it *'it's a bit like American barn raising, and I think that anything that brings a community closer together is a good thing.'*

Whilst these different motivations did not all closely align, they came together to create a 'coalition of interests' in which each actor found it useful to work within a 'community' theme. A flexible space with 'functional malleability' was constructed that could be interpreted in different ways [A], interconnecting multiple governmental actors and forging

mutually beneficial alliances with grassroots activists. This did not, as has become clear through successive iterations of national energy policy, represent a paradigmatic shift in thinking, but rather a fragmented and partial recognition that community approaches had a role to play in 'co-provisioning' alongside conventional energy infrastructure.

DIVERSITY IN HARDWARE AND SOFTWARE

As conceived and enacted in the UK through recent policy and practice, community renewable energy needs to be understood as a heterogeneous category that encompasses both multiple ways of utilising renewable energy technologies. On the ground (and in our project database) it takes many different forms, both in terms of technology 'hardware' and the 'software' of social arrangements (purpose, ownership, operation etc..) through which the technology is utilised [B]. It includes multiple scales of implementation (from kW to mW) of different technologies for generating electricity or heat. It encompasses both on-grid and off-grid applications, different models of ownership and financial return and multiple patterns of responsibility for and local participation in project development and operation. This diversity is a key characteristic, which enables renewable energy technologies to be used in ways that are appropriate to particular local needs and contexts.

PROCESSES AND OUTCOMES

It is possible however to identify two dimensions that can be used to characterise different types of project and that distinguish community from other modes of technology implementation. The *process* dimension relates to how a project is developed and run, who is involved, takes decisions and has influence. The *outcome* dimension relates to how the outcomes of the project are distributed, who benefits from the generation of energy and the economic, social or environmental returns this

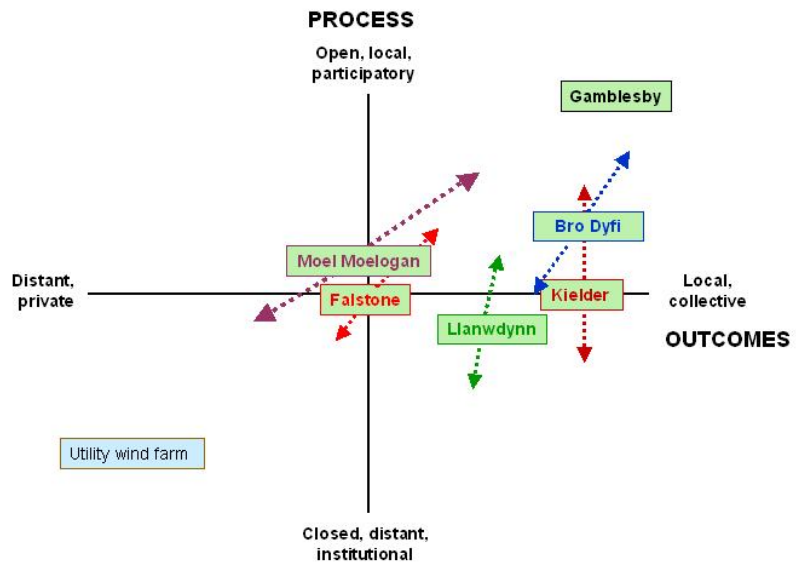


Figure 1: Locating the Case Studies

provides. Community projects are those in which process and/or outcome dimensions are to some degree *local* and *collective*. As shown in Figure 1, our six case study projects can be positioned in relation to these two dimensions and the degree to which they are local and collective in character. The arrows on this diagram also emphasise, however, that the dimensions cannot be precisely calibrated and any one project may be judged as more or less participatory or more or less beneficial for local people.

Our focus on these two key dimensions emerged from the analysis of interviews and the debate which at times unfolded around what constitutes a 'true', 'real' or 'core' community project (to quote various of our interviewees). Community is a slippery term, with a warm rhetorical glow that is politically and pragmatically useful to deploy. On the ground its realities can be contested and viewed in different ways. Who the community is, the extent to which it exists in a cohesive and inclusive form, and exactly how 'it' should be involved and should benefit from a community energy project is open to interpretation. Some at programme and project level favour a flexible and pragmatic view of how processes and outcomes should be combined. Others are far

more judgemental and draw boundaries more tightly.

Interestingly the distinction between process and outcome also emerged from our psychological analysis of survey responses of local residents living near to the case study projects. Quantitative analyses indicated that distinct facets of process and outcome made up the structure of beliefs held by local residents about community energy projects, each of which were positively related to project acceptance and replication elsewhere [C]. Conceptually, this suggests similarity between the discourses practiced by our policy and NGO interviewees, and the ways of thinking reported by local people, providing interdisciplinary support for the validity and utility of the process/outcome conceptual framework for understanding (community) renewable energy.

MAKING PROJECTS HAPPEN

Particular factors explain why projects appear and succeed in some places and not in others. In each of the case studies initial ideas came from individuals who saw an opportunity to creatively utilise a renewable energy technology to meet a local need – such as affordable heat for homes and public buildings, local jobs and regeneration and farming diversification.

Some communities, as in Gamblesby, ‘do it for themselves’, with local people taking the initiative, managing projects and drawing on their collective skills and enthusiasm. In most cases though a leading part is played by partnerships of local organisations, and there is far more need for assistance and hand-holding by support bodies and other forms of ‘intermediary’. Partnerships that are led and work effectively, which communicate well with local people and which are able to draw on ongoing expert support, appear to fare particularly well through the different phases of project development.

There are in contrast many examples of projects that have never got off the ground or have stumbled part way through. Such problems typically are not due to the innovative nature of the technology involved, but rather to the complexity and novelty of the funding, local installation and ongoing operational arrangements that needed to be put in place in each case.

PUBLIC SUPPORT AND OUTCOMES

While direct project outcomes in terms of technology installed, electricity or heat generated, jobs secured and income received can be measured fairly easily, other less direct social consequences of adopting a community approach, such as promoting local acceptance, understanding and social cohesion can be much harder to capture.

From our case study research with local people we found that:

1) all apart from one project did achieve a good general level of local acceptance and support. There was little overt opposition or conflict involved and people to varying degrees were trusting of those leading the projects. In Gamblesby all indicators of acceptance, trust, participation and community cohesion were very positive. At Moel Moelogan responses were far more divided as the wind farm expanded in size and became locally

controversial, despite its strongly-pushed community credentials [D].

2) all of the projects did have some positive impact on local peoples understanding of and support for renewable energy. The degree of impact varied between the case studies, with again by far the most positive indicators found at Gamblesby.

3) none of the projects in contrast had a significant impact on awareness of climate change, suggesting, as we have already noted, that they are more strongly embedded in temporally and spatially immediate needs, than in wider concerns about the environment.

Although no one ‘best’ model of project development can fit diverse local circumstances, our research does suggest that positive outcomes are likely to be maximised where projects are led by local people or existing community groups, where there is already good social cohesion and where involvement and benefits are strongly collective in nature. We also found much anecdotal evidence of such projects being catalytic in prompting both individuals and other communities to pursue other uses of sustainable energy technologies.

COMMUNITY AND SUSTAINABLE TECHNOLOGY DIFFUSION

Our research shows that pursuing a community approach to sustainable technology diffusion does have the potential to:

- 1) Socially embed sustainable technologies into settings and applications where purely commercial drivers do not apply
- 2) Enable experimentation with different models of project development that fit local circumstances and needs
- 3) Enrol a wide diversity of existing and new actors and intermediaries into engaging with implementing sustainable technologies

4) Draw on diversity of resources (funding, time, skills, commitment and enthusiasm) to support project development

5) Stimulate new activity and learning by local institutions, contractors and installers

6) Build understanding and awareness of sustainable technologies amongst both those directly involved and those living in the local community

7) Achieve a more consensual process of project development

8) Stimulate ongoing sequential and parallel processes of technology development and installation

Whilst this suggests that many of the claims made for community renewables can be observed in practice, none are guaranteed simply by tagging an initiative or a particular project with the word community. As we have shown context is important for understanding the evolution and outcomes of any one project.

POLICY IMPLICATIONS

It is clear that community projects do not simply happen by themselves, and that both the specific policy and non-governmental initiatives to support community renewables, and the general context of policy and organisational commitment to sustainability, have played important enabling and legitimating roles. Whilst there is a great enthusiasm for community renewables, this needs a framework of resourcing, institutional support and learning to enable local proposals to come to fruition and be carried through.

To-date the infrastructure put in place to support community renewables has been demonstrably, but rather ‘organically’ and chaotically effective in stimulating a rapid growth of activity on the ground. The community renewables ‘niche’ has been nurtured and grown but not necessarily managed very effectively [E]. Given experience to date, there is now an

opportunity and need for interventions to be more coordinated, stable and inclusive and for policy to provide a clearer and more concerted commitment to community based processes. There have been a number of welcome recent restatements of the importance of community renewables, for example in the Microgeneration Strategy, Climate Change and Sustainable Energy Act and Local Government White Paper. However, total committed budgets for funding and support programmes are still very small and short term compared to other energy investments and strikingly un-ambitious given the large potential and demand that exists. In brief, future policy needs to:

- 1) Commit to a coordinated programme of integrated long term funding and support available across the whole of the UK - the integrated approach of the Scottish Community and Householder Renewables Initiatives has many merits here.
- 2) Develop far more effective practical *and* strategic mechanisms for learning lessons and sharing experience and knowledge – a key prescription of the niche management literatures.
- 3) Remove a number of market and institutional barriers that currently limit the economic viability of distributed microgeneration [F] and promote innovative capital-funding mechanisms, including cooperative share ownership.
- 4) Introduce mechanisms that make the use of renewable electricity and heat technologies a required part of regeneration schemes and new build developments involving community facilities.
- 5) Promote and prioritise projects which maximise the scope for local participatory processes and for locally focused and relevant benefits and outcomes.
- 6) Use methods of evaluation and monitoring that are sensitive to the diversity of outcomes and rationales

for community renewables and which look beyond immediate carbon reductions.

7) Actively support the potentially catalytic effects of initial local projects in stimulating further phases of collective activity and the take up of sustainable technologies in other settings such as local households.

This final policy prescription along with others relating to learning and evaluation are particularly important to the commitment of public resources and, more fundamentally, to the goal of a sustainability transition in the energy system. If each community project does not simply contribute its direct energy and environmental benefits, but adds accumulatively to creating a social context in which new technologies are better understood, more familiar, accepted and demanded, then the case for a more concerted and radical commitment is greatly strengthened. Our research has provided some evidence that these accumulative effects can operate – rather than simply being an article of faith for those involved - but this is a key area on which further interdisciplinary research should focus in order to better understand the nature and character of the processes and patterns involved.

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FURTHER INFORMATION

The 'Community Energy Initiatives: Embedding Sustainable Technology at a Local Level' project ran from March 2004 to July 2006.

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www.sustainabletechnologies.ac.uk/Projects/communities.htm

<http://geography.lancs.ac.uk/cei/index.htm>

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