

End of Award Report to the Economic and Social Research Council

Community Energy Initiatives: Embedding Sustainable Technology at a Local Level

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1 Background

A focus on local, community scale energy generation is not a new feature of the sustainable energy literature but extends back to arguments for 'soft energy paths' (Lovins 1977) small-scale development (Schumacker 1974) and appropriate technology (Dunn 1978). Such literatures and idealistic 'manifestos' for change have provided influential guiding principles for grassroots alternative technology activists for over 30 years (Smith 2006a). However, until only recently such ideas and approaches 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 potential benefits of a more localised and distributed pattern of energy generation and on the involvement of local people and communities in renewable energy development first emerged in the discourse of government and related official and advisory bodies in the late 1990s. This policy rhetoric was matched by new initiatives that had already begun to be implemented by government departments and agencies in order to actively support, promote and provide funding for community renewable energy projects. The table in Annex 2 first lists a series of government-led initiatives which emerged over the period 2000-2003, alongside others set up by organisations in the 'not for profit' and private sectors.

At the point where our research began we had seen a new theme of 'community based localism' in policy supporting a surge of new activity on the ground. Very little research had been undertaken to explore the motives and rationales of those involved, to examine the ways in which policy and action at a local level were interconnecting or to understand the profile and pattern of outcomes that were being achieved.

2 Objectives

The overall aim was to evaluate the role of community initiatives in the implementation and embedding of sustainable energy technologies in the UK. There were five research questions underpinning this aim:

- 1) why have community-level sustainable energy programmes emerged as a policy measure in the UK?
- 2) under what conditions have community energy projects been developed both within and outside of national programmes?
- 3) how is 'community' differentially constructed and operationalised within energy projects?
- 4) how are the aims and objectives of community energy initiatives conceived by project participants and to what extent are expected outcomes being realised?
- 5) what generic lessons can be learnt for the embedding of sustainable technologies through community-orientated strategies?

We have been able to address each of these objectives within the research project. The key changes to the scope of the research we have undertaken are that (i) we focused only on renewable energy projects rather than also examining those concerned with energy efficiency (ii) we did not manage substantially to research communities of interest as well as communities of locality. Underlying both of these changes was the degree of diversity and complexity that we found when beginning to research community renewable energy programmes and projects, meaning that this alone proved a substantial research task. There were also methodological issues which complicated getting access to physically dispersed communities of interest (see below).

3 Methods

There were four phases to the research design.

Phase 1: an extensive literature review and analysis of documentation on community initiatives

Phase 2: interviews with key people in organisations leading or managing community programmes.

23 'national level' interviews were completed covering 12 programmes or networks with the term community in their rationale or remit – nearly double the number originally envisaged because of the diversity of initiatives that were identified and the need to capture a range of perspectives on recent policy and practice.

Phase 3: construction of an extensive database of community energy projects

A database was constructed and made available on the web (see <http://www.lancaster.ac.uk/CEI>). In our proposal we estimated that there were approximately 80 'community projects' in the UK. This proved to be a gross underestimate as the database finally contained 509 projects in total (as of December 2004). Our approach was to include renewable energy projects in the database that were supported by a programme or network that has the word 'community' within its rationale or remit. It includes *available* factual information about each project (from web, programme data and other sources). We were not able to fill all of the fields in the database as we had to rely on what information was easily accessible and could not verify its accuracy or reliability. With necessary caveats, the database provided a useful *snapshot* of projects that we could use to inform case study selection and a simple statistical analysis provided a profile of activity supported by initiatives by technology type, region and initiative.

Phase 4: case studies of community renewable energy projects.

In the proposal we intended to undertake 18 case studies using a research design of documentary research, semi structured interviews and the application of a Q method statement sorting exercise with interviewees (Eden et al 2006). Our final research design was considerably changed for the following reasons:

- feedback from reviewers and panel on the original proposal was that 18 case studies was too many if we wanted to achieve any depth of analysis. We took this point on board and reduced the number of case studies to 6. This enabled us to give each case study sufficient research time to examine the perspectives of both project proponents *and* members of the local public and to gain a detailed view of how each project had evolved.
- we moved away from the use of Q method as (i) the diversity of project types and contexts made the development of a common 'statement set' across the projects too problematic (ii) the practicalities of applying Q method with local residents were felt to be too difficult. We therefore developed questionnaires to be used with local residents to assess awareness, support and involvement and attitudes towards sustainable technologies and climate change.

After considerable debate and discussion with our advisory panel, we adopted a regional approach to undertaking the case studies, using the database to select two regions (Wales and the North of England) containing projects providing some diversity in technology type and scale and model of community involvement. The rationale for collecting data in two areas of the UK was to enable the identification of wider political and institutional factors shaping the emergence of the projects.

The six projects covered a variety of renewable resources and technologies, scales of development and institutional structures. They all had successfully installed renewable technology, and *reported* high levels of community involvement or beneficial outcomes in each place, as indicated by materials produced by the project organisers. Key aspects of each project are summarised in the following table:

Table 2: Key aspects of the six cases study projects

Location	Technology context	Institutions	Funding
Llanwyddn	Biomass district heating network linking school and community centre plus 19 local houses	Public-private partnership	£375,000
Moel Moelogan	3 grid connected 1.3MW wind turbines (phase 1), later increased to 12 (phase 2)	3 local farmers	£2.6 million
Bro Dyfi	One 75kW wind turbine, grid connected	Committee-co-operative	£83,555
Kielder	Biomass district heating network linking school, youth hostel, 6 houses, workshop and castle	Public sector, local council	£630,000
Falstone	Solar photovoltaic panel and biomass boiler in village shop, tea rooms and visitor centre	Public sector partnership	£250,000
Gamblesby	Ground source heat pump for renovation project on village hall	Village hall committee	£42,100

Case study research involved interviews at local and regional levels and questionnaires with members of the public in the communities in which the projects are located (were all relatively small and rural). In total 41 local level and 15 regional interviews were undertaken.

208 questionnaires were completed (a 31% response rate out of the 676 surveys distributed which varied little across the six places). The survey was designed with a mixture of open-ended and closed questions. Analysis of the questionnaire utilised a variety of statistical techniques - as reported in detail in *nominated paper B*.

In selecting the case studies we explored the possibility of choosing a case in which there was a dispersed 'community of interest' that had invested in the project through share ownership (as discussed in the project proposal). However it became clear that our ability to access such people would be constrained by data protection provisions preventing project organisers giving us contact details. Whilst other access strategies might have been possible, the time and resource to explore these was not available (Bro Dyfi did have share ownership but this was limited in scale and involved only people living in the locality).

4 Results

4.1 Explaining community based localism

The complex infrastructure of public, civil society and private programmes and networks that had evolved by late 2004 contained within it multiple motivations and objectives (see fuller discussion of government programmes in *Nominated Output A*).

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 (Toke 2005, Bell et al 2005). It 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, empowerment, learning and local ownership.. 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*'. For the CRI one of the criteria for projects it supported was that they should have an educational element "*the project has got to be explaining itself, explaining the installed, delivered renewable energy to other people so they can learn from it and be, hopefully be interested and inspired by that*"

Whilst these different motivations did not all closely align, they came together in the late 1990s 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' (Gledhill 1994) was constructed that could be interpreted in different ways, 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' (Van Vliet and Chappels 1999) alongside established energy generation.

4.2 Making Projects Happen

The support infrastructure has undoubtedly played an important role in stimulating the growth in the number of community renewable energy projects. The various capital funding initiatives have all been oversubscribed and have demonstrably tapped into the imagination, skills and enthusiasm of many local people, groups and organisations.

Projects have most often been driven by the need to address practical local needs rather than primarily by wider energy and climate change concerns. Across our case studies these local needs included supplying affordable heat for a village hall (Gamblesby) and for homes with poor existing heating systems (Llanwdynn), supporting local forestry and regenerating the local economy (Kielder), providing a new income stream for local farmers (Moel Moelogan) and sustaining facilities for a remote rural community (Falstone). Some projects have also been driven by a commitment to implement particular models of project development (such as the cooperatively owned turbine at Bro Dyfi) and to set up demonstration and educational projects for others to learn from.

Community renewable energy is now implemented in many forms, shapes and sizes, both in terms of the technology 'hardware' and the 'software' of social arrangements through which this technology is utilised. This diversity is a key characteristic, enabling community renewable energy to be appropriate to particular needs, objectives and local contexts. Projects are being developed and operated under many different forms of local organisational arrangement – across our case studies there were different forms of alliance or partnerships between public, private and voluntary sector groups set up to develop the projects, different models of responsibility for ongoing operation (including an energy service company arrangement in the case of Llanwdynn) and different forms of technology ownership (including a community company at Kielder and many different social, economic, educational and environmental outcomes are being pursued.

Some communities can largely 'do it for themselves', with local people taking the initiative, organising and managing projects, and drawing on skills and collective enthusiasm. The refurbishment of the village hall at Gamblesby and installation of a ground source heat pump was such a case, drawing on the accountancy, fundraising and plumbing skills of members of the village hall committee, raising money from local events as well as from funding bodies and involving most of the village in practical tasks. Such cases are not though typical and most need more assistance, hand-holding and guidance. This is particularly true where projects are more complex, larger scale or risky (such as the biomass local heating networks at Llanwdynn and Kielder) and where local skills and experience are limited.

Funding packages for individual projects are typically complex, multi-agency and consequently difficult to manage and coordinate. On the ground those locally involved drew on many different sources of funding and support beyond the key central government community RE programmes, particularly European, local authority, charity and private sector funds for regeneration, environmental and community development.

Whilst there have been many examples of successful projects, such success does not typically come easy. Researching experience on the ground and talking to those involved in local support activities brings out many practical difficulties and examples of projects that have never got off the ground or have stumbled part way through. Such

problems relate less to the innovative nature of the technology hardware involved (most being well proven) and more to complexity of the funding, installation and operation arrangements (the 'software') that needed to be put in place in each particular project context. The involvement and support of local people can also not always be guaranteed, particularly where there are existing fractures in the community, where there are histories of distrust, or where benefits are disputed or seen as inequitably distributed.

4.3 The multiple meanings of community

Across all of the different programmes, networks and projects we examined and the debate and narratives surrounding, these, we found many different interpretations and meanings of community being applied. Boundaries were constructed for pragmatic, strategic and normative reasons around what community renewable energy should or shouldn't include – in some cases drawing boundaries quite narrowly, in others more expansively, and in others seeking to defer or avoid definition so as to 'make it up as we go along'.

Within this diversity of meaning we identified two principle discursive resources which are used to give a distinctive and normative quality to community implementation of renewable energy. A *process* dimension, concerned with how the project is developed and run, who is involved and has influence; and an *outcome* dimension concerned with how the outcomes of the project are distributed, who benefits in economic, social or environmental terms. In both respects, what is seen as making community RE distinctive is the *local* and the *collective* character of the process used and/or the outcomes achieved.

These two dimensions are used in Figure 1 as a way of representing different combinations of process and outcome. The two axes are not precisely defined and represent a cluster of characteristics. This diagrammatic representation has proved an effective tool for conveying different interpretations of community and has been well received in dissemination, including by those seeking to use it in practical ways (see section 7 on impact). Further development is being explored as part of paper writing.

Our six case study projects are positioned on this Figure 1, with the dotted arrows emphasising that the two dimensions cannot be precisely calibrated and any one project may be positioned in different ways depending upon how its participatory and outcome dimensions are weighed and evaluated. Gamblesby is firmly positioned at the top right as there is no dispute that it was developed through a highly participatory and locally inclusive process and its key outcome – a warm and useable village hall – is a collective benefit for the whole village rather than for particular individuals. At Moel Moelogan there were contrasting representations of the project and dispute over how 'community' should be understood – protestors seeing the project as little different from a standard utility led approach with the key decisions and significant financial benefit going to three entrepreneurial farmers; whilst the proponents argued that the process had been very open and that the financial income to the local farmers and an annual monetary return to the community council meant that the benefits would be retained locally rather than going to a multinational and to shareholders outside of Wales. That this project won an Ashden award as an exemplary 'community project' is a source of pride to some, perplexing and disputed by others.

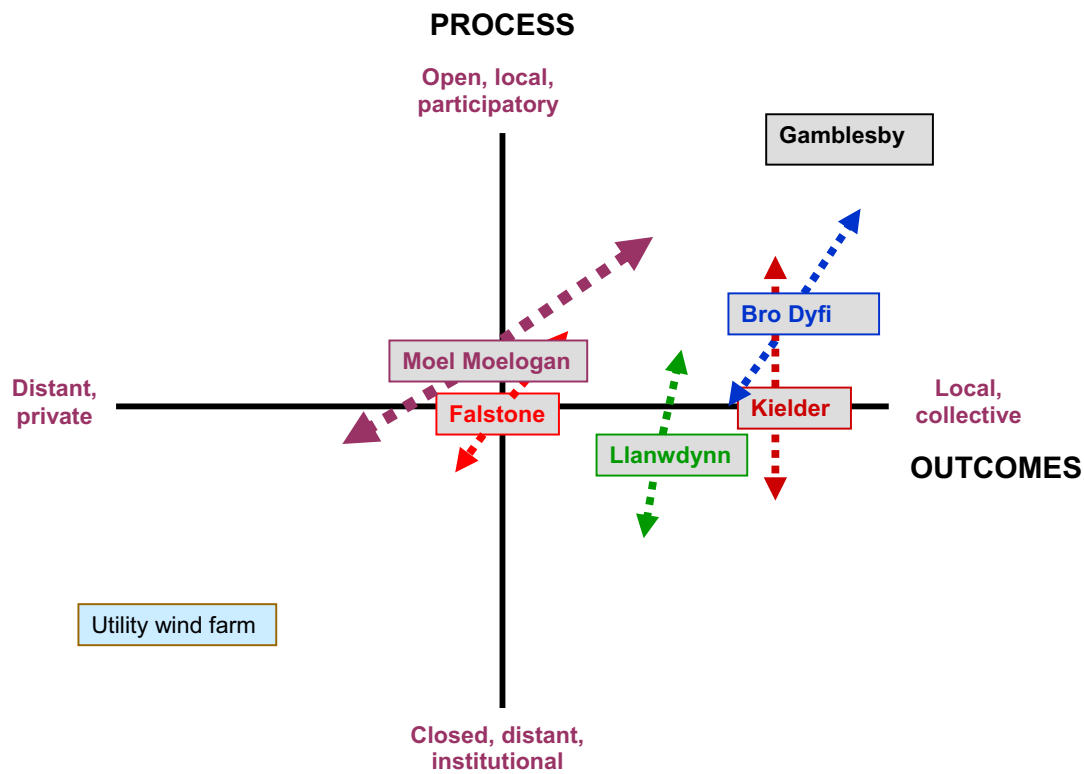


Figure 1: Locating the case studies in terms of process and outcome dimensions

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 [see details in nominated output B]. In turn, the results suggest that facets of outcome and process can be further sub-divided, for example outcomes operating at personal and global levels; and process operating at community and personal levels. 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 framework for understanding community renewable energy.

4.4 Project acceptance 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. Given that these are though part of the policy and actor motivations for deploying a community approach we particularly focused aspects our analysis on these. A detailed multi-

dimensional analysis of the questionnaire data is provided in *nominated output B*. The main findings are that:

1) local public acceptance of community renewable energy was generally high. However, this masks considerable diversity across places. Acceptance was both lower and less consensual at the Moel Moelogan windfarm project whilst respondents in Gablesby reported highest levels of acceptance. This diversity indicates that 'place' matters in understanding psychological aspects of environmental beliefs. Both contextual and psychological factors are likely to be important here including institutional aspects, such as whether the project is led by an organisation representing the community or by certain individuals; and the previous history of social relations in the locality.

2) all of the projects did have some positive impact on local people's 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 Gablesby. 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.

This analysis leads us to conclude that although no one 'best' model of project development can fit diverse local circumstances, 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.

4.5 Community and the embedding of sustainable technologies

In the paper presented at the SPRU conference (Walker et al 2006) we consider to what extent institutional support for community RE, as practised in the UK over the past 5 years, has exhibited qualities that are likely to lead to successful development, diffusion and embedding of RE technologies in a more distributed pattern of generation. By evaluating recent practice against the prescriptions of the transitions management and sustainable niche management (SNM) literatures (Rip and Kemp 1998, Smith 2006) our emerging analysis finds both positive and more negative assessments.

On the positive side a diverse constituency of interests has been built around the community RE involving many bodies that would not normally engage with technology innovation in any explicit way - processes of enrolment and identification and the creation of an actor network is a key part of niche building and all of these have been observed at least to some degree. Bottom up creativity, enthusiasm and commitment to making innovations work has been enabled through connecting policy to existing networks of activist committed to community renewable energy. The funding and resources provided by the government, could both support and be exploited by the grassroots niche activists and organisations that had for a long time be arguing for and experimenting with different models of energy generation and use.

More negatively, management of the niche (or maybe multiple separate niches) has failed to put in place effective learning mechanisms and has lacked strategy, intentionality and continuity. One of the basic tenets of transition management is that it

involves the formulation of 'long term goals' (Rip and Kemp 1998), that there is a 'guiding vision' and for SNM that it is a strategically planned and deliberate process (Kemp et al 1998). None of these characteristics are clearly in place for community RE.

4.6 Policy implications and recommendations

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 and innovation on the ground. The community renewables 'niche' has been nurtured and grown but not managed very effectively. 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 (DTI 2006), 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:

- 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 Householders and Community Renewables Initiatives has many merits here.
- Develop far more effective practical *and* strategic mechanisms for learning lessons and sharing experience and knowledge – a key prescription of the niche management literatures
- Remove a number of market and institutional barriers that currently limit the economic viability of distributed microgeneration (Watson et al 2006) and promote innovative capital-funding mechanisms, including cooperative share ownership
- 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
- Promote and prioritise projects which maximise the scope for local participatory processes and for locally focused and relevant benefits and outcomes
- 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
- 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

5 Activities

5.1 Advisory Panel

An advisory panel was formed and this met twice Bristol in November 2004 and May 2006. The members of the advisory panel are listed on the evaluation form. The first meeting proved particularly helpful in highlighting the different perspectives on the national programmes and how they have been working, criteria to be considered for case study selection and opportunities for dissemination. The second meeting focused on emerging outcomes and the preparation for the end of project workshop in which three of the advisory panel members were active participants.

5.2 Regional Workshops

Our project application proposed three regional workshops as a means of disseminating project outcomes and obtaining feedback to sharpen up our analysis and writing. In the summer of 2005 an opportunity arose to link these workshops to seminars being held as part of the review and evaluation of the Community Renewables Initiative carried out for the DTI, DEFRA and the Countryside Agency. This provided a great opportunity to discuss our preliminary findings and to be involved in discussion about how community renewables had progressed with the support of the CRI. The workshops were held in Bristol, Cambridge and Leeds in July/August 2005 with approximately 30 participants at each event. A report was produced by the consultants Energy for Sustainable Development and Dr Devine-Wright on the outcomes of these events.

5.3 End of Project Workshop

An end of project workshop was held in Oxford, hosted by the UKERC Meeting Place on 12th June 2006. This provided both an opportunity to disseminate our key findings to a mixed audience of policy makers and practitioners (see list on end of award form) and academics and to debate other perspectives. The programme for the event is included in Annex 2. Attendance was very good and feedback forms indicated that most had found it valuable and informative. Presentations from the day are available on the UKERC web site and a report on the workshop presentations and discussion has been produced. [See <http://www.ukerc.ac.uk/content/view/305/503>]

6 Outputs

A series of papers are in the process of production and publication emerging directly and indirectly from the research. The multidisciplinary nature of the project is reflected in the varied publication outlets and the different elements of the project work are being combined in different configurations. See Annex 1 for details. One paper has been accepted for publication and another published in conference proceedings. Another journal paper has been submitted (Journal of Environmental Psychology) and two more are in preparation and committed for submission for special issues (in Energy Policy and AREA). Two further papers are in draft form and will be submitted to Environment and Planning C and Local Environment. In addition we will produce a shorter paper for

submission to Town and Country Planning as part of dissemination to user communities. Two book chapters and two journal paper reporting less directly on the project but drawing on the insights gained have also been completed.

A total of 18 presentations on the project have been made, several of which have produced powerpoints that are available on the web (see annex 1 for details). These have included international conferences (in the US, Greece, Germany, Ireland), UK conferences, invited seminars and contributions to academic, policy and practitioner workshops (including CRI annual conference and Welsh National Assembly Sustainable Energy Group).

Other outputs are:

- the web site which will continue to provide access to the database of projects and to various project outputs at <http://geography.lancs.ac.uk/cei/index.htm>
- submission to the ESRC Data Archive of the questionnaire data in SPSS format

7 Impacts

Throughout the project we have had opportunities to interact with policy makers and practitioners. The specific findings from the research and more general evolution of ideas and perspectives have fed into, for example, the role that Dr Devine Wright has played as a member of the National Advisory Group steering the Community Renewables Initiative in England. The decision to extend the funding for the CRI for a further year in part drew on the report produced by Dr Devine Wright and ESD, that utilised some of our preliminary research findings.

In particular we have had feedback from users that the process and outcome framework for thinking about the meaning of a community approach has been particularly useful as a conceptual and practical tool. This, for example, has been fed into the case prepared by a member of our advisory panel for a planning inquiry into the development of a wind farm in Wales.

We have also regularly had enquiries from people using the database asking about updating this (which has not proved possible within the project resources) and using it as a resource for their own research and investigation (e.g. at Birmingham University on social enterprise and Cambridge University on the economics of microgeneration). We have had a range of academics following up on conference and seminar presentations e.g. interactions with researchers in the Netherlands and Germany on aspects of niche management; and with academics in the US on the case studies and on conceptualising community approaches.

8 Future Research Priorities

The project team is already pursuing related lines of research that have been informed by this project. All three partners are involved in the consortium for the 3 year project "*Beyond Nimbyism: a multidisciplinary investigation into public engagement with renewable energy*" funded by ESRC/EPSRC under the TSEC programme. This is conceptualising and exploring engagement with renewables across multiple technologies and multiple scales and modes of implementation.

In terms of the psychological analysis of acceptance of projects and motivations to take action there are various avenues for further research. Future development would benefit from more explicit empirical investigation of how multiple levels, from personal through community to national and international organisations, are implicated how people choose to take action (or not), both as individuals and as members of collectivities, in relation to climate change and renewable energy.

Future research could also valuably focus on

- particular models of project ownership, management and financing, evaluating their strengths and weaknesses and conditions under which they may be locally applied.
- urban community renewable projects and how these might be contextually different to rural settings
- activity in Scotland and Northern Ireland, given the differences there are from policy in England and Wales
- cross national comparisons with initiatives in EU countries and in the US
- frameworks for evaluating community energy projects

(5227 words up to this point)

Annex 1: List of Outputs

Papers reporting directly on the project findings

Journal papers published or accepted for publication:

Walker G P, Hunter S, Devine-Wright P, Evans B, Fay H (2007 forthcoming) Harnessing Community Energies: explaining and evaluating community-based localism in renewable energy policy in the UK, *Global Environmental Politics*

Walker G P, Devine-Wright P and Evans B (2006) Embedding socio-technical innovation?: niche management and community-based localism in renewable energy policy in the UK, *Proceedings of The Future of Science, Technology and Innovation Policy Conference*, September 2006
<http://www.sussex.ac.uk/Units/spru/events/ocs/index.php>

Journal papers submitted for publication:

Devine Wright P, Walker G P, Hunter S, Fay H and Evans B, An empirical study of public beliefs about community renewable energy projects in England and Wales, *Submitted to Journal of Environmental Psychology*

[N.B. Three working papers providing versions of the above papers have been made available at <http://geography.lancs.ac.uk/cei>]

Journal papers to be submitted for publication:

Walker G P and Devine-Wright P, Trust and Community: exploring the meanings, contexts and dynamics of community renewable energy, *to be submitted for Special Issue of Energy Policy November 2006*

Walker G P, Devine-Wright P and Evans B, Embedding socio-technical innovation?: niche management and community-based localism in renewable energy policy in the UK, *to be submitted to Environment and Planning C January 2007*

Walker G P, Devine-Wright P and Evans B, Energising Community Renewables, *to be submitted to Town and Country Planning. December 2006*

Walker G P, Evans B and Devine-Wright P, The discourse and politics of community renewable energy, *to be submitted to Local Environment, January 2007*

Walker G P, Renewable Energy, Climate Change and the Sociality of Energy Production, *to be submitted to Special Issue of AREA, February 2007*

Other Publications

Devine-Wright, P. Reconsidering public acceptance of renewable energy technologies: a critical review. Invited contribution to *Grubb, Jamasb and Pollitt (Eds.) Taking Climate Change Seriously: A low carbon future for the electricity sector*. To be published by Cambridge University Press in 2007.

Devine-Wright, P. (2007) Energy citizenship: psychological aspects of evolution in sustainable energy technologies. In J. Murphy (Ed.) *Framing The Present, Shaping The Future: Contemporary Governance Of Sustainable Technologies*. London: Earthscan.

Devine-Wright, P. (2005) Local aspects of renewable energy development in the UK: public beliefs and policy implications. *Local Environment*, 10(1), 57-69.

Harnessing Community Energies, STP Programme Innovation Brief 111

Energising Communities: report on the workshop held at St Anne's College, University of Oxford on 12 June 2006, UKERC Meeting Place

Presentations

'*Communities and renewable energy: wishful thinking or necessity?*' South East Renewable Energy Conference, 3-4th November 2004,

'*Communities, responsibility and renewable energy*' Annual Conference of the Community Renewables Initiative, February 8th, 2005

'*Harnessing Community Energies*' Association of American Geographers, Denver, April 2005

'*Community energy initiatives*', Convergence Festival, Dublin, 27th April 2005

'*Energised communities?: the politics and practice of community-led sustainable energy initiatives*' presented at RGS_IBG annual conference September 2005.

'*Energised communities? The politics and practice of community energy initiatives*' 6th Bi-annual German Environmental Psychology Conference, Bochum, Sept 21st 2005

'*Community and the embedding of sustainable technologies: drivers and meanings*', STP Programme Workshop, September 2005

'*Community Renewable Energy and Sustainable Transition Management: Analysis of Policy Change and Discourse in the UK*' Northumbria University, October 2005

'*NIMBYs, communities and renewable energy development*' Locating renewables in community contexts conference, Open University, Milton Keynes, November 15th, 2005

'*Social cohesion, conflict and the public acceptance of renewable energy technologies*' Energy and Environment Seminar Series, Electricity Policy Research Group, Judge Business School, University of Cambridge, November 28th, 2005

'Complexity, Ambivalence and Sustainability', Invited Plenary Paper, Governance for Sustainable Development, Berlin, January 2006

'Energised Communities', Institute of Energy and Sustainable Development, January 2006

'Harnessing Community Energies?' From Fuels to Futures Conference, ESRC Sustainable Technologies Programme, Social Science Week, Design Museum, London, March 14th.

'Trust and community: exploring the contexts and dynamics of community renewable energy projects'. Paper presented at the Workshop on 'Trust in the Transition to Sustainable Energy', UKERC/University of Oxford, June 28-29.

'Collective action for climate change: understanding motivation to accept and participate in community based renewable energy projects' 26th International Congress of Applied Psychology, to be held in Athens, Greece from July 16 to 21, 2006

'Renewable energy, climate change and the sociality of energy production' RGS-IBG Conference, September 2006

Embedding socio-technical innovation?: niche management and community-based localism in renewable energy policy in the UK, The Future of Science, Technology and Innovation Policy Conference, September 2006

"Public engagement and community involvement: research findings and policy implications", Presentation to Welsh National Assembly Sustainable Energy Group:Cardiff, 3rd October, 2006

Annex 2: Community Renewable Energy Programmes and Networks in the UK

Lead Sector	Initiative	Purpose	Date Started	Spatial Coverage	Funding Source	Managed By	Technologies
Government	Community Action for Energy (CAFE)	Advice, information, training and support	2001	UK	DEFRA and others	EST/Centre for Sustainable Energy	Energy efficiency with related renewable energy technologies
	Community Renewables Initiative (CRI)	Support and project development	2002	10 areas within England	Department for Trade and Industry	Countryside Agency	Solar roofs, biomass & wood heat, farm waste schemes, wind turbines
	Clear Skies	Capital Funding	2003	England, Wales and Northern Island	Department for Trade and Industry	Building Research Establishment	solar thermal, wind turbines, micro/small scale hydro turbines, ground source heat pumps, heaters/stoves with automated pellet feed, wood fuelled boiler systems
	Scottish Community and Households Renewables Initiative (SCHRI)	Advice, support, project development and capital funding	2002	Scotland	Scottish Executive	EST, Highlands and Islands Enterprise	micro hydro-electric, micro wind, solar water and space heating, ground-source heat pumps, automated wood fuel heating systems, solar PV
	Community Energy	Guidance, training, development and capital grants	2002	UK wide	DEFRA and others	EST/Carbon Trust	Community Heating Scheme using; heat from power generation (CHP); using conventional or renewable fuels, heat from a geothermal well or heat pumps; from industrial processes or energy from waste plant
	Energy Saving Trust (EST) Photovoltaics Programme	Capital grants	2002	UK	DTI	EST	Solar photovoltaics
	Energy for All	Set up community owned projects	2002	UK wide	Baywind	Baywind	Wind
	Renewable Energy Investment Club	Promote, arrange and facilitate investment in community RE	2002	UK wide	Coop Society and Countryside Council for Wales	Dulas	All forms
	Solar Clubs	Set up and evaluate solar clubs	1997	England and Wales	Environmental Action Fund and other sources	Environ and Centre for Sustainable Energy	Solar water heating installed by groups of householders
	Ashden Awards	Award scheme for community projects	2004	UK wide	Ashden Trust	Ashden Trust	All forms
Private	Energy 21 Network	Networking, information, guidance		UK wide	Various	Energy 21	All forms
	Community Power		2003	UK wide	Powergen	Powergen	On shore wind

(all programmes and networks as of end 2004 with community in their title or remit and extending beyond the development of single projects or in a particular region)

Annex 3: Programme for End of Project Workshop

Energising communities

A workshop on lessons learnt from recent research, policy and practice on community based renewable energy

June 12th, Ruth Deech Building, St Anne's College, University of Oxford co-sponsored by ESRC and the UK Energy Research Centre Meeting Place

10 - 10.30: Registration and tea/coffee

10.30-10.40 Welcome and setting the scene

Prof. Gordon Walker, University of Lancaster

10.40-11.10 Researching Community Renewable Energy: introduction and project results

Dr. Patrick Devine-Wright, University of Manchester

11.10-11.30 The Community Renewables Initiative: lessons learnt

James Markwick, Countryside Agency & Ian Bacon, TV Energy

11:30-11.50 Energising Gamblesby, Cumbria: lessons and future intentions

Bill Mitchell, Gamblesby Community Energy Project

11.50-12.10 The Highlands and Islands approach

Nicholas Gubbins, Highlands and Islands Community Energy Company

12.10-12:30 Community renewable energy in Wales

Jenny Lampard, Mid-Wales Energy Agency

12.30-13.00 Discussion

13:00 – 14:00 Lunch

14.00-14.45 Comparing case studies of community projects

Prof. Gordon Walker, University of Lancaster

14.45-15.45 Plenary session with panel discussants

Panellists include Neil Evans (Energy for Sustainable Developmen Ltd.), Dan McCallum (Awel Aman Tawe Community Energy Project) and Martin Fodor (Environment Agency)

15.45-16.00 Summing up and close

Prof. Bob Evans, Northumbria University

16:00 Tea/coffee and informal discussion

Workshop Background

The aim of this workshop is to bring together individuals from different academic disciplines, policy and practice, from the UK and EU, to discuss the role of communities in renewable energy developments. A key element of the day will be the presentation of new results from a project funded under the ERSC Sustainable Technologies Programme - Harnessing Community Energies: embedding sustainable technologies at the community level. The event will benefit the UK energy research community by promoting a critical assessment of the role of communities (what we describe as meso-level action, rather than individual scale or large scale actions) in renewable energy developments – an issue typically neglected in debates about energy issues. This contribution will be timely given the current review of energy policy and continued funding of the Community Renewables Initiative in England. It will inform businesses seeking to communicate with local residents affected by planned developments, as well as public sector bodies seeking to inform and educate local people about energy planning and development.

Key stakeholders invited to the workshop include: policy makers and other organisations considering future directions in national energy policy (Energy Review) and the role of meso-level action in achieving policy goals; academics interested in energy and community involvement in environmental technologies and practices; businesses seeking knowledge and expertise concerning community support for renewable energy developments; local authorities and energy agencies seeking to involve and inform communities about the potential for renewables' developments in their localities.

The content of the workshop, including presentations and summaries of discussions, will be written up in a workshop report which will be posted onto the project website and UKERC Meeting Place website, and fed back to participants and speakers through email. The report will feed into journal papers and other written outputs (e.g. short articles for professional publications) submitted over the summer as well as the final project report. The project will culminate with a short briefing paper for stakeholders which will include details of the workshop as well as other project events and achievements.

About the Organisers and Sponsors

The subject for this workshop was proposed by Patrick Devine-Wright of University of Manchester (whilst in post at De Montfort University) with project colleagues at the Universities of Lancaster and Northumbria. This workshop has been coordinated by Patrick and the UKERC Meeting Place and has been sponsored by the ESRC and UKERC Meeting Place. The UK Energy Research Centre (UKERC) was set up in 2004 to provide a focus for energy research in the UK while galvanising collaborative international energy research. A key supporting function of UKERC is the Meeting Place, based in Oxford, which aims to bring together members of the UK energy community and overseas experts from different disciplines, to learn, identify problems, develop solutions and further the energy debate. The Economic and Social Research Council (ESRC) funds research and training in social and economic issues. The ESRC is an independent organisation, established by *Royal Charter*, but receives most of its funding through the Government's Office of Science and Technology. Its budget of more than £100 million funds over 2,500 researchers in academic institutions and policy research institutes throughout the UK. It also supports more than 2,000 postgraduate students.

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