



Public perceptions of opportunities for community-based renewable energy projects

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ABSTRACT

It is now widely acknowledged that the UK needs to increase renewable energy capacity and it has been claimed that community-based renewable energy projects, with high levels of public participation, are more likely to be accepted by the public than top-down development of large-scale schemes and may bring additional benefits such as increased engagement with sustainable energy issues. However, little research has investigated public expectations of how people would like to participate in such projects and why. The aim of this study was to explore one rural community's response to a proposed sustainable energy project. A questionnaire survey and semi-structured interviews provided quantitative and qualitative data. There was widespread support for local generation and use of renewable energy, with respondents expecting benefits from a project in terms of increased community spirit and conservation of natural resources. However, desire for active involvement was lower and residents viewed themselves participating as consultees, rather than project leaders. We suggest community renewable energy projects are likely to gain public acceptance but are unlikely to become widespread without greater institutional support.

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1. Introduction

In the UK a consensus has emerged that renewable energy capacity should be increased as part of the national strategy to reduce carbon emissions and ensure energy security. To date, the current structure of the energy sector and a reliance on market-based policy instruments to support renewables have combined to favour large-scale developments by commercial companies (Hain et al., 2005; Mitchell, 2003). Unfortunately progress to increase renewable energy capacity has been slow and it is uncertain whether domestic and European targets, such as the 2010 target for renewable energy to make up 10% of the UK's electricity supply, will be met (Mitchell et al., 2006). This slow progress is due to a range of technical, economic and social factors but one is public opposition to proposed renewable energy developments, chiefly on-shore wind power and bioenergy. The most commonly cited reasons for opposition are inappropriate scale of development, an unacceptably high ratio of local costs to local benefits and a lack of adequate communication and consultation with local residents by developers (Sinclair and Lofstedt, 2001; Toke, 2005; Upham and Shackley, 2006; Upreti, 2004).

Research into public attitudes towards renewables indicates that people would welcome opportunities for greater involvement

in renewable energy development (e.g. Devine-Wright, 2005a; Gross, 2007; Upham and Shackley, 2006, 2007; Upreti, 2004). Some of the strongest evidence comes from studies of local opinion of a proposed biomass gasifier in rural Devon; following an intensive local campaign, the gasifier was refused planning permission, a decision favoured by most people surveyed. However, a recent repeat survey revealed that 69% would support a smaller project proposed by a local group for the same site, if it was controlled by the community (Upham and Shackley, 2007; Upham, 2007). As a result it is increasingly stated that there should be a higher degree of public participation in local energy planning and one way to achieve this could be through the development of decentralised, community-based renewable energy schemes, particularly in rural areas (Giddings and Underwood, 2007; Kellett, 2007).

The definition of a community renewable energy project is flexible, with different groups applying the term to various types of schemes (Walker et al., 2007a). For the purposes of this project, a rural community energy scheme is installation of one or more renewable energy technologies in or close to a rural community, with input from members of that community.¹ The scheme must benefit the community—either directly through supply of energy

¹ Here the term 'community' refers to geographic communities. Although it is appreciated the geographic definition is over-simplistic and that communities are likely to be more accurately defined in terms of process (Dalby and Mackenzie, 1997), it was the more practical definition for fieldwork purposes.

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to multiple properties or a community facility, or indirectly e.g. through sale of energy generated to the grid. Community members' input may be in various forms, for example project initiation, administration, construction, financial support, or decision-making.

Walker and Cass (2007) have examined assumptions underlying the promotion of community energy projects: firstly it is assumed that members of the public are willing to take on the role of participant in local renewable energy developments, finding it more attractive than the role of protestor. It is also assumed that the participation experience may increase individuals' understanding of sustainable energy issues, leading to their acceptance of other renewable energy developments, including large-scale projects, and more active consumption of renewable energy e.g. switching to green electricity tariffs or installation of domestic renewables. Some evidence that community energy projects may have this type of influence was found in the evaluation of the Community Renewables Initiative and a 2-year academic study of the policy and practice of community renewables (Walker and Devine-Wright, 2008).

However, establishment of community renewable energy projects has been unsystematic in the UK and for this to become a more widespread mode of renewable energy development better understanding of public attitudes towards it is required. To date there has been little empirical investigation in this area and it is important to learn how and why potential participants envisage taking on the role of participant in a community renewable energy project. This study attempted to address these issues through an in-depth case study of one community's response to proposals for a local sustainable energy project. This practical approach, of exploring possibilities for behaviour change directly with members of the public has been advocated by Stern (2000) to enable promising strategies to be identified before formally testing them. In addition, case study is appropriate for researching complex social phenomena, which are highly context dependent (Stake, 1995). Quantitative and qualitative methods were used to assess the response of the case study community to broad initial proposals for a community sustainable energy project. The main aim was to explore social factors which could affect development of a potential project and the scope for residents' participation. Key questions considered were:

- (1) What are residents' attitudes towards the concept of a community energy project and their expectations of such a project?
- (2) Would residents like to be involved in a community energy project, how would they like to participate and why?

In Section 2, a description of the study area and background to the project proposals puts the case study in context, explaining the rationale for its choice. Section 3 sets out the methods used. In Sections 4 and 5 findings are presented and discussed, while in Section 6 conclusions are drawn and implications for future development of community-based renewable energy projects are considered.

2. Case study background

The case study community, Thirlmere, was selected because a community sustainable energy project was proposed here in 2007 by a housing association, Impact, which owns 17 properties in the area. Thirlmere is a small community in the Lake District National Park, Cumbria, UK (OS grid reference NY 318 189, Fig. 1). Although not an officially defined settlement, the term 'Thirlmere' describes the scattered groups of dwellings and isolated houses near

Thirlmere reservoir. It is part of the St. John, Castlerigg and Wythburn Parish, classified under the Department of Communities and Local Government's 2004 rural–urban definition as 'hamlet and isolated dwellings—sparse'. It is a suitable case study site because rural Cumbria has significant natural renewable resources (Howard et al., 2006) and, like other remote areas of the UK it contains many settlements, including Thirlmere, with strong socio-economic drivers for community energy schemes, such as lack of mains gas (Giddings and Underwood, 2007).

Impact's proposals were for a community-based project to reduce local energy use and generate renewable energy locally which would:

- (1) address local problems of high fuel costs, low incomes and few opportunities for local employment;
- (2) contribute to wider regional and national objectives to reduce carbon emissions;
- (3) serve as an example for other rural communities wishing to tackle such issues (Muir, 2007)

Impact held a public meeting in February 2007 to gauge residents' interest. Meeting attendees expressed general support for the proposals and a willingness to participate in research. An initial renewable energy feasibility assessment was carried out for Impact's properties in March 2007 by the local Rural Community Council, which indicated that small-scale wind turbines, heat pumps (ground and air source), and biomass (wood fuel and anaerobic digestion) could supply energy for one or more properties. The research described in this paper was carried out after this feasibility assessment. In addition to exploring residents' attitudes to a community energy scheme, secondary aims of the research were to raise local awareness of proposals and inform any future development of a project.

3. Methods

Two methods were employed: a questionnaire survey (comprising quantitative and qualitative data collection) and a series of semi-structured interviews (qualitative data collection only). This combination was used to build a comprehensive picture of local attitudes through triangulation of data (Mays and Pope, 2000).

3.1. Questionnaire survey

The geographic extent of the Thirlmere community for the purposes of the research (Fig. 1) was defined at a second meeting convened by Impact in May 2007. The boundary was identified through discussion with the six residents present. The boundary contains 56 properties; 46 are regularly occupied and comprised the survey sample. Each was treated as one household unit (Table 1). The questionnaire mixed open and closed questions and had three sections: (1) attitudes to the proposals; (2) current energy use and participatory activity; and (3) socio-demographic characteristics. The closed questions comprised the quantitative data. To view the full questionnaire see Electronic Annex 1 in the online version of this article.

All households were sent a letter about the survey and then visited by the first author for face-to-face administration of the questionnaire between May and July 2007. Responses to Sections 1 and 2 were recorded in note-form by the researcher; Section 3 was completed by a member of the household. If no contact was made after six visits, households were telephoned to request an appointment, as recommended by Singleton and Straits (2002). Second homes were sent a postal version of the

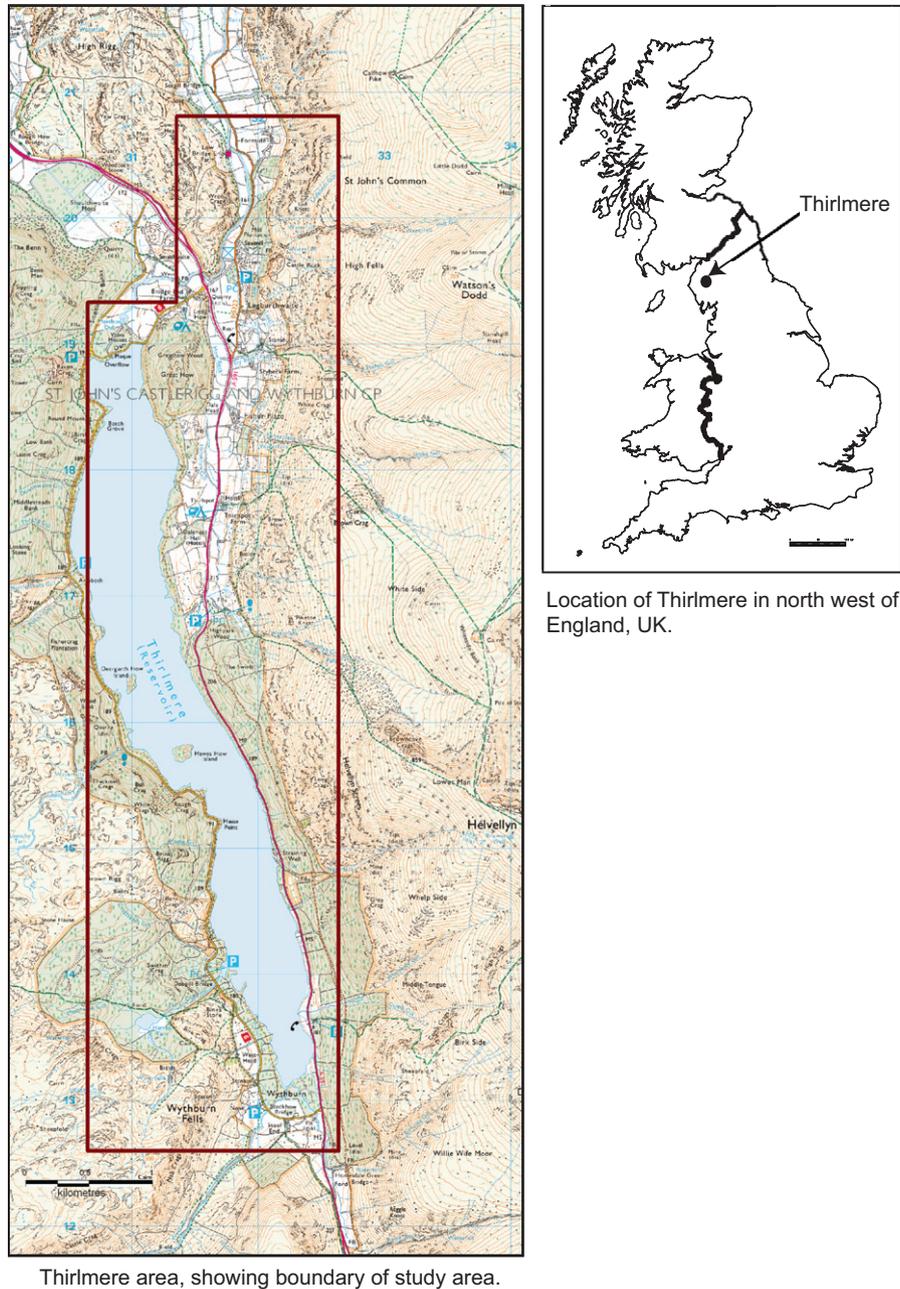


Fig. 1. Thirlmere's location and the boundary of the study area © Crown copyright/database right 2008. An Ordnance Survey/Edina supplied service.

survey as face-to-face administration was impractical. The response rate was 83%, or 95% if second homes are not considered (Table 1).

3.2. Interviews

Additional qualitative data were obtained from nine households and a member of Impact staff (Table 2), purposively sampled to provide contrasting views (Warren, 2002). Where possible a semi-structured interview was arranged, digitally recorded and transcribed verbatim. However, in three cases, qualitative data were collected opportunistically following completion of the questionnaire and recorded in field notes. General interview topics were developed in relation to the main research

questions (Mason, 1996). They included energy issues, interest in proposals, perceptions of the Thirlmere community and experiences of participation, and the roles of community members and Impact/other organisations in the proposed project.

3.3. Data analysis

SPSS (Version 15) was used to carry out descriptive analyses of the survey data (qualitative data were coded into researcher-defined categories to facilitate this). Statistical analysis was not undertaken due to the small sample size. Interview transcripts and field notes were analysed using the framework approach described by Pope et al. (2000), which draws on grounded theory methodology and is suitable for research with a general pre-set

Table 1
Properties in study area and survey response rate

| Type of property | Completed questionnaires | | |
|--|--------------------------|----------------|---------|
| | No. | No. | Percent |
| <i>Permanently or occasionally occupied houses</i> | | | |
| Impact Housing Association homes | 17 | 17 | 100 |
| Permanently occupied non-Impact homes | 11 | 10 | 91 |
| Second homes | 8 ^a | 2 | 25 |
| Total | 36 | 29 | 81 |
| <i>Businesses</i> | | | |
| Farms (may include tourism provision) | 6 | 6 | 100 |
| Hotels/B&Bs | 3 | 2 ^b | 67 |
| United Utilities Office | 1 | 1 | 100 |
| Total | 10 | 9 | 90 |
| Grand total | 46 | 38 | 83 |
| <i>Other</i> | | | |
| Empty houses | 1 | N/A | |
| Camping barns | 2 | N/A | |
| Holiday cottages/apartments (let weekly) | 6 | N/A | |
| Hostel (disused) | 1 | N/A | |
| Total | 10 | N/A | |

^a Questionnaires distributed and returned by post.

^b One questionnaire from this group completed by telephone interview because respondent did not have time to meet researcher for face to face administration.

Table 2
Characteristics of households interviewed

| Interview number | Survey number | Household characteristics | No. of household members present |
|------------------|---------------|----------------------------|----------------------------------|
| I01 | R14 | Impact tenants, family | 2 |
| I02 | R15 | Impact tenant | 1 |
| I03 | R18 | Business | 2 |
| I04 | R20 | Impact tenants, family | 1 |
| I05 | R21 | Non-Impact, family | 3 |
| I06 | R26 | Impact tenants, family | 2 |
| I07 | N/A | Impact staff | 1 |
| I08 | R11 | Non-Impact, retired couple | 1 |
| I09 | R17 | Non-Impact, retired couple | 2 |
| I10 | R27 | Business | 2 |

aim and where qualitative findings are to be linked to quantitative data.

4. Findings

4.1. Support for a community energy project was more widespread than desire to participate

Respondents were asked whether they agreed with a series of statements representing increasing levels of commitment to proposals for a community sustainable energy project (Fig. 2). Nearly 85% of respondents wanted to see energy use reduced and renewable energy generated locally and almost 90% would support a community project to address these goals. Interviews showed that progress towards greater energy efficiency and use of

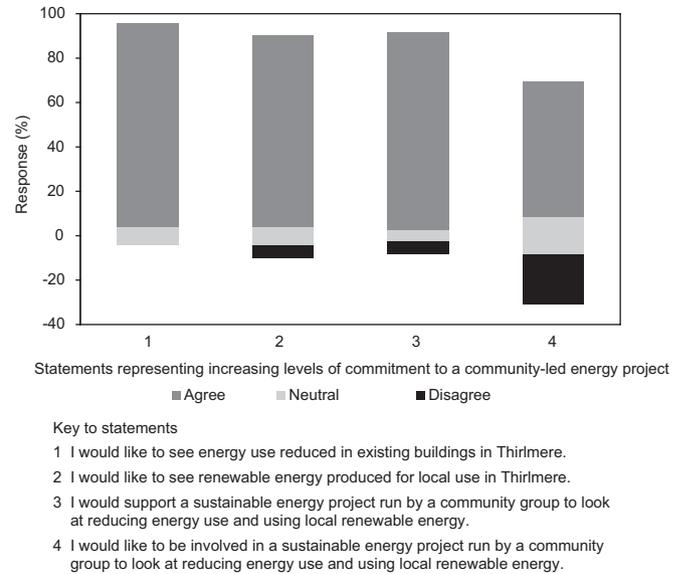


Fig. 2. Percentage of respondents willing to support sustainable energy measures and become involved in a community sustainable energy project ($n = 38$, each bar represents 100%). Responses aggregated into three categories from original five-point Likert-type scale (agree strongly, agree, neutral, disagree, disagree strongly).

renewables was seen as inevitable and desirable. Although the proportion who would actually like to be involved in a project was lower (63%), the findings overall show that sustainable energy issues are relevant to residents, a factor fundamental to the success of any community initiative (Letcher et al., 2007; Smith et al., 1999). By comparison, only a third of respondents in a survey of three East Midlands communities ($n = 163$) expressed willingness to be involved in potential community-based environmental projects (Blake, 1999). However, it is possible the pattern of responses—decreasing agreement with increasing commitment—could indicate that respondents have learned to ‘sound like environmentalists’ because they feel social pressure to do so (Barr, 2004; van der Horst, 2007). The idea that it is unacceptable to reject calls for sustainable energy measures was clearly expressed by one interviewee—“who can say no...to energy conservation?” and could underlie other residents’ support.

4.2. Popularity of low-level participation

Respondents were asked to state whether or not they would be interested in five types of involvement (Fig. 3). Around half were interested in each option, and 39% suggested additional options. The most frequent suggestions in the ‘other’ category were to be kept informed (23%), and to contribute opinions or ideas, sometimes through a body such as the parish council (10%).

The most popular option was ‘look at making changes in own home/business’ but only two thirds of those interested in making changes would consider putting money towards them. This could indicate passivity—respondents would be happy to accept sustainable energy measures, but not pay for them. However, it is also likely to reflect the high proportion of rented property (over 50% of households). Because tenants do not ultimately see a return on investment in their property they may see energy-related alterations as a landlord’s responsibility. Tenants and non-tenants felt that tenants would only take limited responsibility for a project because of this and the fact they may not be as tied to the locality as private householders, although I05 suggested offering tenants part-ownership could address these issues.

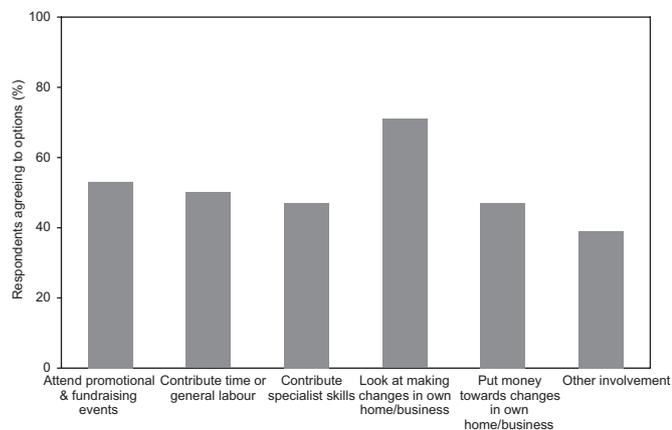


Fig. 3. Percentage of respondents confirming interest in different types of involvement in a community sustainable energy project (n = 38).

We're always aware of energy issues, but because it's not our own home, you sort of stop, you don't think any more about it (I01, Impact tenant)

the people in Impact houses aren't going to be interested because they see it as though they've no stake, they've no capital in their home (I05, Homeowner)

Interviewees expanded on participation options, suggesting residents should be kept informed by correspondence and/or regular public meetings. To I01 involvement meant the right to choose between renewable technologies from a pre-identified range, which amounts to consultation with limited decision-making power. Options for more active participation included awareness raising (I04), running project-related educational activities (I02), or producing a newsletter (I06). The data suggest that more reactive than proactive forms of involvement were expected and preferred.

4.3. Reasons for willingness and unwillingness to become participants

4.3.1. Desire to participate is predominantly related to local issues

The 24 respondents who agreed they would like to be involved were asked why; 23 responded and one declined to answer. Two of the six who were neutral towards involvement also gave reasons for wanting to be involved (Table 3). Fig. 4 shows that most categories can be associated with a local–global scale continuum, with the personal responsibility category occupying a central position as these responses make respondents' understanding of the link between local action and global concerns explicit (Table 3, Fig. 4). While the single category with the largest number of responses (environmental benefits) relates to the global theme, the local theme had a larger number of responses in total (19), suggesting that local issues are the most important motivators for residents' involvement. The case study thus appears to confirm recent findings that community energy projects are "strongly embedded in temporally and spatially... immediate needs" (Devine-Wright et al., 2007).

4.3.2. Potential participants are deterred by personal, social and institutional factors

Fourteen respondents gave 20 reasons why they did not want to be involved in a community energy project. This includes the eight respondents who disagreed with involvement, four who were neutral towards involvement and two who agreed with involvement but gave reasons why they would not want to be involved *in addition* to reasons why they would. The categories

Table 3

Categories of reasons for wanting to be involved in a community sustainable energy project (41 reasons from 25 respondents)

| Category | No. of responses | Theme |
|--|------------------|--------------|
| Environmental benefits | 9 | Global |
| Future sustainability | 4 | Global |
| Entitled to have a say as a community member | 4 | Local |
| Save money | 4 | Local |
| Strengthen community | 3 | Local |
| Personal responsibility | 3 | Local/Global |
| It makes sense | 3 | N/A |
| Local resources should be used | 2 | Local |
| Strengthen market for renewables | 1 | Global |
| Renewables better for public health | 1 | Global |
| Warmer homes | 1 | Local |
| Homes more affordable | 1 | Local |
| Personal interest in renewables | 1 | Local |
| Proud of community | 1 | Local |
| Fits with business aims | 1 | Local |
| 'I've got kids' | 1 | Local |
| There's no alternative | 1 | N/A |
| Total | 41 | |

were assigned to themes following Blake's (1999) classification of barriers to involvement in community sustainability projects (Table 4).

The most frequent reasons were lack of time, interest or ability (due to ill health), which make up 45% of responses. These categories were not overtly critical of the project proposals, but reflected residents' lifestyles and priorities so were grouped into a 'personal' theme. It may be difficult to engage some members of this group, for example R32 stated she was happy with her existing energy supply (coal), but for others (e.g. R8) circumstances might change in future:

The priority is to get the house and garden sorted this year. Maybe next year (we'd get more involved) (R8)

The remaining categories were critical of the proposals: respondents didn't want to be involved because they disagreed with aspects of a potential project. These responses are divided into responsibility and institutional themes. The reasons in the responsibility theme relate to respondents' views on who should take action to deliver sustainable energy measures. The categories 'community aspect of proposals won't work' and 'favour individual action' represent scepticism about the potential for community members to work together effectively. Institutional categories comprised concerns about developing a community project within current structural constraints, such as availability of funding and the size of the local community:

Everybody does the talking but in the end it costs so much you're back to square one. You can't raise the sort of money that's needed (R5)

4.4. Expectations of a community energy project

4.4.1. Expected benefits: increased socio-economic sustainability

Respondents were asked whether they thought there would be any benefits to Thirlmere from a community energy project. Three said no and two did not know. Of the 33 who answered affirmatively, five did not name a specific benefit but 28 listed one or more potential gains (44 in total). Response categories were assigned to themes based on the three strands of sustainable development (Fig. 5).

The distribution of responses between themes shows that residents expect a sustainable energy scheme to improve social

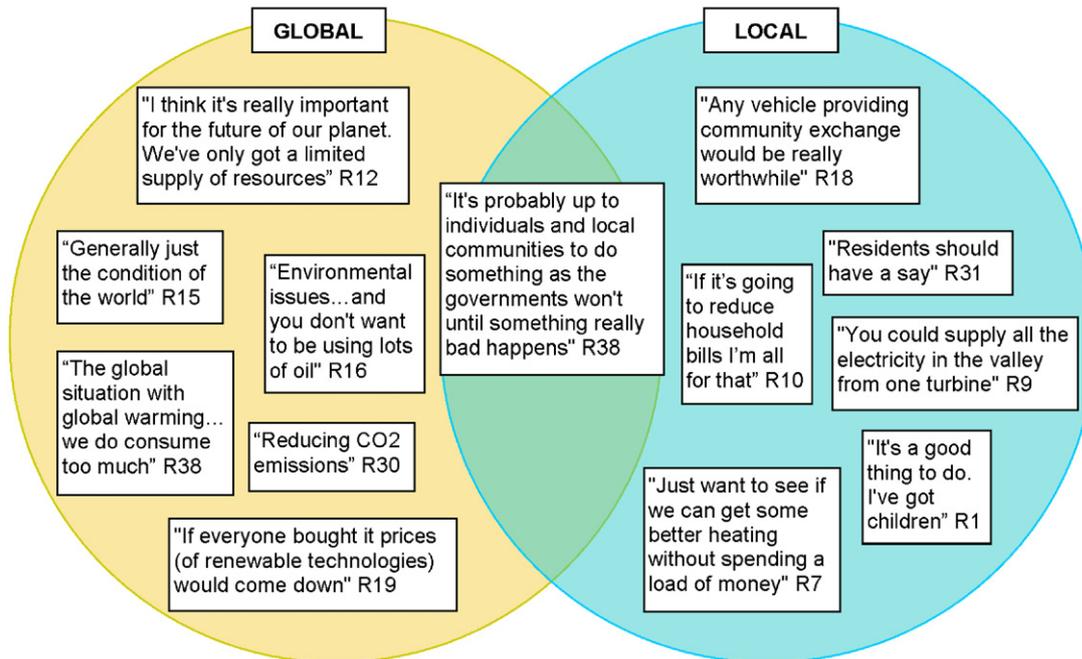


Fig. 4. Examples of reasons for wanting to be involved in a community sustainable energy project, showing relationships to global and local themes.

Table 4
Categories of reasons for not wanting to be involved in a community sustainable energy project (20 reasons from 14 respondents)

| Category | No. of responses | Theme |
|--|------------------|----------------|
| No time | 5 | Personal |
| Community aspect of proposals won't work | 3 | Responsibility |
| Ill health | 2 | Personal |
| Favour individual action | 2 | Responsibility |
| No interest | 2 | Personal |
| Would not have any influence over project | 1 | Institutional |
| Not given enough information | 1 | Institutional |
| Insufficient funding available for project | 1 | Institutional |
| No community in Thirlmere | 1 | Institutional |
| Already work hard for community, others should contribute | 1 | Responsibility |
| Environmental problems are global—no point in local action | 1 | Responsibility |
| Total | 20 | |

sustainability in particular. There was also a strong expectation of direct benefits for residents, in terms of money saving and improved living conditions. In the long term the project was anticipated to deliver indirect benefits by making the area “a bit more prosperous” (R36). I04 and R19 expected more visitors, creating demand for local services. However, even though this question asked specifically about *local* issues, 9 respondents referred to the wider issues of energy or resource conservation. This indicates residents are already aware of the relationship between local energy use and global sustainable energy issues. In addition several respondents mentioned a project’s potential to educate and serve as an example to others, which is one of the assumed benefits of community energy identified by Walker and Cass (2007):

In the short term mainly education, it’s good for kids to grow up in an environment where people think about energy conservation (R2)

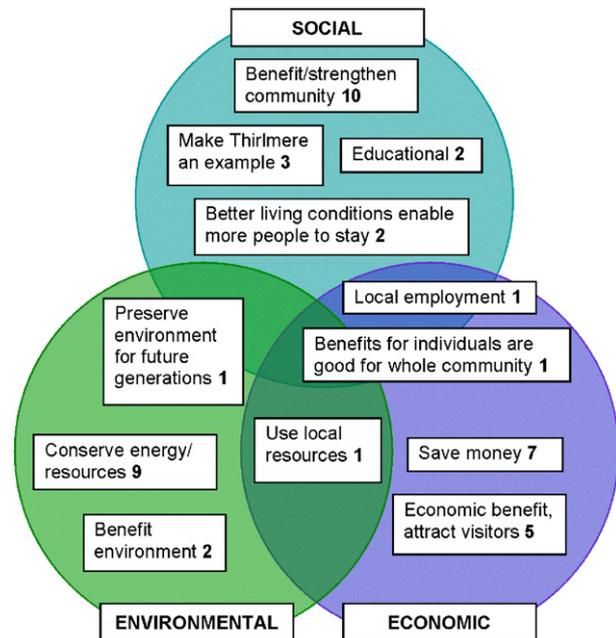


Fig. 5. Benefits of a sustainable energy project for Thirlmere (44 benefits from 28 respondents) showing relationship of categories to social, environmental and economic themes. Numbers denote total responses in each category.

4.4.2. Expected concerns: negative environmental impacts and practicalities of project development

When asked if they would have any concerns about an energy project in Thirlmere, 13 respondents said no and two declined to respond but 23 voiced a total of 38 concerns (Table 5). The most common related to local environmental impacts, with a third referring to visual impacts or wind turbines, showing that the existing local landscape is highly valued. However, although a few respondents did not want to see any change, almost all qualified

Table 5

Concerns about a community sustainable energy project (23 concerns from 14 respondents)

| Categories | No. of respondents |
|---|--------------------|
| Visual impact on character of area | 8 |
| Organisational issues | 6 |
| Averse to wind turbines | 5 |
| Technical issues | 4 |
| Project could be all talk and no action | 2 |
| Community is too small | 2 |
| Would be hard to get a consensus | 1 |
| How much disruption would it cause? | 1 |
| Harm to environment | 1 |
| Noise pollution | 1 |
| People are only interested in individual benefits | 1 |
| What is the motivation behind it? | 1 |
| Could exclude people | 1 |
| How sustainable would it be? | 1 |
| Difficult to sustain community interest | 1 |
| How many people will it benefit? | 1 |
| Won't get planning permission | 1 |
| Total | 38 |

their concerns about visual impacts with comments about appropriate scale and location. New infrastructure could be considered, if sensitively designed and not causing environmental damage:

Possibly-the bad impact-what type? If it was wind turbines, where would you put them? ...But if you want to do renewable energy, if you want to help the planet, then you have to look at the pros and cons (R19)

No, only that it wouldn't be unsightly, would suit the local area, if it would blend in (R16)

These extracts show there is little outright rejection of renewable energy development, even in the sensitive landscape context of a national park. It is clear though that the success of an installation would depend on how it is planned and proposed-residents are open to negotiation but a plan devised and imposed without taking their conditions of acceptance into account could attract opposition. This supports others' findings that it is how projects are developed, more than what is developed, which causes opposition (Devine-Wright, 2005b; Upreti, 2004). A second key concern theme focussed on the practicalities of implementing a project, particularly renewable energy generation. Many questioned the way a project might be managed:

If it was set up, who would control it? (R4)

It's all well and good but how many houses will really benefit and at the end of the day who decides what type of renewable energy is used in each house? (R14)

These quotations probably reflect the lack of detail in the early proposals, but they also suggest that the concept of a community energy project was unfamiliar; I10 specifically commented that community and co-operative projects are not the norm in Britain and that it would be unclear how to assign responsibilities or share out benefits.

4.5. Cross-cutting themes

A number of cross-cutting issues emerged from the analysis of survey and interview data and are explored here as they are likely to influence the way community energy projects can develop in Thirlmere and similar rural communities.

4.5.1. Sense of community and community capacity

Many respondents perceived the proposed project as a potential focus for community members to work together, which might create a "better spirit among people" (R25). Interviewees' opinions about this were assessed in more detail. Considering the current state of the community, they felt that people generally got on well and gave examples of mutual support between neighbours. However, overall Thirlmere was seen as a weakly functioning community, without much current shared activity and only a patchy track record in running successful community projects:

If it were in Threlkeld for instance... it'd work there wouldn't it, no doubt it would. But here it's different, it's never been that sort of community has it?...No real nucleus (I05)

You're starting from a base of very little community activity anyway here so it's not like... you've got this community that's already used to this type of thing and can pick up an energy project and go with it because they're used to doing that, here we're starting from a base of nothing (I06)

Several survey respondents and four interviewees (age categories 25–45 and 46–64) compared this situation to higher levels of community activity in the past when there was much more local employment:

They lived and worked in the valley, so they went to school here, and there was a true community. Now over the years that has dwindled and what you've ended up with is only the elderly people that were from that era still did all the community stuff like using the village hall (I06)

Desire to re-invigorate the community was frequently expressed, and seven interviewees did view the proposed energy project as a possible catalyst. However, I05 doubted an energy project would promote collective activity because of the focus on individual properties:

I think it's the spurious idea of community that sort of trips me up a bit really, because it's one thing to have a community hall, or if there was still a school there, yeah, but whether it'd work for people's houses or not I don't know, I don't think you'd get the communal effort (I05)

I05 advocated encouragement and support for individuals or groups of households to install renewable technologies independently as a more viable alternative.

Previous studies have reported that the success of community projects is related to the strength of existing community frameworks, for example Smith et al. (1999) found that sustainability projects in areas without strong networks relied on outside agencies' input. Similarly, Walker et al. (2007a) concluded that while community energy projects can foster trust and co-operative working, whether they do depends heavily on pre-existing community dynamics. Data collected here reflect these findings: while residents looked forward to an energy project enhancing 'community spirit', this ideal was contrasted with the current low level of shared activity—almost two thirds of residents, including most Impact tenants, are not currently engaged in any Thirlmere-based groups or activities. This implies that to be effective, calls for participation in a community energy project here must be more than the "knee-jerk...generalised appeals" for participation warned against by Blake (1999).

4.5.2. Difficulty of establishing community energy project

A second recurrent theme was the perceived difficulty of setting up a community energy project and a lack of confidence in

the community's ability to lead it. Project leadership was seen as "a lot of trouble" (I04) and a generally daunting prospect:

if I wanted to come up with the idea it would take a lot of hard work and a lot of co-ordinating to...you know, if someone came along and said 'you've got a chance to get a grant, but we'll have to fight for it and we'd have to you know, have to come up with maybe a dossier of this that and the other' I'd go, 'oh my God' (I01)

I would have a fear myself of taking charge of anything...there are probably people around that could take total charge of (an energy project) but I wouldn't know who they are (I02)

Many residents referred to the village hall committee's successive failures to secure refurbishment funding: I09 described 2 years' work on a bid featuring sustainable energy measures, which was eventually rejected in 2007. Bids were rejected on the grounds the number of people served did not justify costs, leading to conclusions that Thirlmere doesn't tick the boxes (I06 and I09). Hence residents thought a community-led project would struggle to attract funds.

Also interviewees did not feel they had the necessary specialist skills in either renewable energy, fundraising or community development to successfully lead a project. Reference was made to the need for "some sort of trouble-shooter" (I04) and "some sort of proper expert that'll tell us what can be done...and how much it will cost" (I07). No-one knew who could or should provide such expertise and I06 felt obtaining independent advice about different technologies would be a major difficulty. The only potential advice source named (by I07 and I09) was Cumbria and Lancashire Renewables (CLAREN), the local branch of the Community Renewables Initiative.² However, this ceased to exist in April 2007. Previous work has indicated that the CRI's support was important in the development of community renewable energy projects in England and its discontinuation has been described as a 'retrograde step' (Severn Wye Energy Agency, no date; Walker and Devine-Wright, 2008).

5. Discussion

This study has enabled a detailed exploration of the contextual social factors that may affect development of community energy projects in small rural settlements. Although small, the sample (38) represents the majority of the total population and is comparable with a Scottish study of 45 households' attitudes towards a rural community energy project (Hanley and Nevin, 1999). The strong support for action to tackle sustainable energy issues at the community level supports the promotion of community energy projects by government and other agencies as a popular and relatively non-contentious means of increasing renewable energy capacity. Residents identified environmental, social and economic aspects of life on which they would expect a community energy project to have a positive effect and the majority not only supported the proposals but were interested in becoming involved. The rural context may have contributed to the high support: Hain et al. (2005) demonstrated that rural respondents were more likely than urban dwellers to accept high impact wind/hydro projects and to say they were 'actively

involved' in supporting renewable energy. The Thirlmere findings suggest residents would consider accepting some landscape impacts to benefit from local renewable energy generation.

However, willingness to become involved in the proposed project was considerably lower than willingness to support it. This pattern may reflect the 'value-action gap' frequently identified in pro-environmental/sustainable behaviour research (Barr, 2004; Blake, 1999; Lorenzoni et al., 2007); although there is high awareness of energy-related problems such as climate change, few people are prepared to accept significant change in their lives to mitigate these problems (van der Horst, 2007). Value-action gaps arise not only from individuals' attitudes and priorities, but from the social and institutional context for action (Blake, 1999; Lorenzoni et al., 2007), and a more detailed investigation of their causes has been called for (van der Horst, 2007). The qualitative data from this study are valuable because they suggest why people are disinclined to become participants in a community energy project despite a stated interest in local sustainable energy issues. Apart from personal circumstances, major causes of reluctance to become involved were the perceived difficulty of establishing an energy project, especially regarding the technical aspects of renewables and community size/capacity, and a lack of resources in terms of funding, experience and institutional support.

These reasons for lack of desire to participate link to other key findings about residents' perceptions of participation in a community energy project. Exploration of the types of participation anticipated by residents revealed many were expecting to receive information, be consulted about different options and in the case of Impact tenants, accept energy-related home improvements. Few were apparently keen to take on more active roles in project development. According to hierarchies of participation such as Arnstein's (1969) ladder of participation, these types of involvement would be categorised as relatively low-level participation, inherently inferior to community initiation and control of projects, which is deemed necessary for 'empowerment' and increasing social inclusion. A study of sustainable community projects across the UK by Smith et al. (1999) also found that although the overall aim was to give communities a degree of real control over projects, community members were often reluctant to assume responsibility and looked to outside agencies for leadership.

However, hierarchies of participation have attracted criticism for failing to recognise that a conscious choice of non-participation, or peripheral participation, can be as valid and empowering as the choice to participate actively (Hayward et al., 2004; Silver and Campbell, 2005). These authors suggest participation is not always a positive experience and since Thirlmere residents saw active participation as difficult and time consuming, their requests for low-level participation options should be noted. It appears that involvement in community energy projects may not have to be at the level of 'citizen power' for residents to feel engaged and derive benefits from a project. Research into the effects of domestic renewable microgeneration by Dobbyn and Thomas (2005) indirectly supports this conclusion; people living in houses with microgeneration were found to have above average engagement with sustainable energy issues (which led them to change their patterns of energy consumption) whether they had actively installed the equipment, or just been provided with it/moved into a house with it ready-installed. Similarly, the research presented here suggests many Thirlmere residents believe they could gain benefits from involvement in a community energy project, whether it is led by an outside organisation or directly controlled by community members.

Walker et al. (2007a) found that the involvement of the local community in tasks—for example meeting attendance or

² The Community Renewables Initiative (CRI) was a government-funded scheme piloted in England in 2001. It was a network of branches providing independent advice and support to community groups on all aspects of renewable energy projects. Limited capital funds contributed to funding groups' activities e.g. public meetings and feasibility studies (Natural England, 2006). Central funding for the scheme was discontinued in April 2007 and while some branches have found alternative funding sources, others, including CLAREN, have been lost.

construction work—organised by a small co-ordinating group was a key success factor in a community energy project based in another rural village in Cumbria. This project was contrasted with one in Wales: although both were led by community members, the Welsh example had less community involvement and was much less successful in terms of fostering trust in the project organisers, gaining local public acceptance and bringing the community together. The information gathered on Thirlmere residents' expectations of participation supports this, showing opportunities for involvement are desired. It is also valuable because it reveals *how* residents envisage themselves participating and could be used by a project steering group as a starting point for organising activities and further dialogue with community members.

However, it is also possible that the opportunity for community control has not been fully considered by respondents. The concept of increasing public participation in local policy and decision-making has only really gained prominence in the UK over the last 10 years (Burgess et al., 1998; Macnaghten and Jacobs, 1997; Smith et al., 1999) and more widely, there is often a lack of understanding of what participation actually entails and what it is for (Hayward et al., 2004; Michener, 1998). As a result, both the public and organisations/authorities may be unsure how to move towards more community controlled projects. Public participation specifically in energy planning, with a view to encouraging 'energy citizenship', is an even newer idea in the UK as there is a long history of centralised control of energy policy and planning (Devine-Wright, 2007). Consequently there is likely to be much uncertainty about the potential roles and responsibilities of different parties in a community energy project.

Walker et al. (2007b) state that UK community renewable energy schemes are currently characterised by their diversity in purpose and process. While they describe this diversity as a strength because the lack of fixed elements means projects are adapted to local circumstances, it also means there is no common understanding of the term in the public mindset. Although this research may have promoted the idea in Thirlmere that community-led energy projects are possible, the issue should ideally be opened up for further debate if the proposals are to be taken forward. The community could learn from other groups who have set up successful projects: I05, the most sceptical interviewee, would have been more positive had he known of working examples:

I'm all for giving everybody the opportunity to muck together and get more ecologically friendly or less carbon footprint business, yeah definitely, but a communistic sort of enterprise I think is doomed. Unless I can be shown it's happened elsewhere and worked marvellously, but I don't know about it if it has...(I05)

First hand experience of other community energy projects, including those initiated and led by community members, might enable residents to respond to various options for involvement from a more informed position. Similarly, knowledge of deliberative participation processes such as citizens' panels or juries might lead residents to consider these as desirable methods of involvement. Petts (1995, 2007) has considered the value of deliberative public participation in developing local environmental management strategies and reported positive impacts. Such processes enable residents to 'have a say' but because they are facilitated by professionals, do not require the community leadership interviewees felt was unfeasible in Thirlmere. However, like community-led energy projects, deliberative public participation is not widespread so residents were unlikely to have been aware of this as potential means of participation.

6. Conclusions

Overall, the data show that while community renewable energy is a popular concept and people do find the participant role attractive, local control of projects may not be a realistic option for many rural communities. Although two thirds of households were interested in participation, no respondents seemed to identify with the role of project leader. When asked to consider community control, interviewees tended to state this was not a viable option; partly because other local initiatives have had limited success, and partly because even residents interested in the possibilities did not know how they could gain access to specialist knowledge and skills or develop these themselves. These are legitimate concerns: Letcher et al. (2007) state that community initiatives to address climate change require access to a 'trusted resource base' with expertise in both community development and technical issues. Support in co-ordinating and directing a project would be useful to guide communities interested in sustainable energy issues but lacking the skills and experience, confidence or time to develop a project independently. This support could include help to structure opportunities for involvement, in consultation with community members. However, since the closure of CLAREN, there is no obvious resource base that can provide independent advice, support, finance or training to communities wishing to develop a renewable energy project. A new grant scheme has recently been introduced to fund community renewable energy feasibility studies and capital costs, but unlike the former CRI, or the ongoing Scottish Community and Household Renewables Initiative (SCHRI) scheme, there is no associated network of advisors and applicants are advised to refer technical queries to technology installers (Community Sustainable Energy Programme, 2008).

In conclusion, the findings point to the benefits of providing support for the development of community-based energy projects and local renewable energy provision. There is likely to be enthusiasm for such initiatives and desire for participation but the structural barriers identified here show that more institutional support from organisations such as Impact or local authorities will be required to facilitate both projects and participation. A clearer framework or more standardised process, together with demonstration to raise awareness of the possibilities for different types of projects and participation, are likely to be needed for a wider range of communities to undertake projects.

Appendix A. Supporting Information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.enpol.2008.07.028.

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