Does community ownership affect public attitudes to wind energy? A case study from south-west Scotland

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Abstract

This paper presents the results of a study of public attitudes to onshore windfarm development in south-west Scotland. Specifically, it explores the influences of different development models on attitudes to windfarms by comparing public attitudes towards a community-owned windfarm on the Isle of Gigha with attitudes towards several developer-owned windfarms on the adjacent Kintyre peninsula. The study, conducted in 2006, used a questionnaire-based survey (n = 106) to test the hypothesis that community ownership would lead to greater public acceptance of windfarms. It also examined the attitudes of both residents and tourists towards the impacts of onshore windfarms on landscapes and seascapes, including cumulative impacts. The data show that the Gigha respondents were consistently more positive about wind power than were the Kintyre residents. However, the differences were differences of degree rather than diametrically opposing viewpoints. The most significant concerns about windfarms were intermittent production and visual impact, but majorities in both areas nevertheless regarded their visual impact as positive. The data also indicate that local attitudes could become even more positive if future windfarms were owned by local communities. The fact that the residents of Gigha have affectionately dubbed their turbines ‘the Three Dancing Ladies’ is indicative of the positive psychological effects of community ownership. These results support the contention that a change of development model towards community ownership could have a positive effect on public attitudes towards windfarm developments in Scotland.

Introduction: windfarm controversies in Scotland

This study explores public attitudes to, and perceptions of, onshore windfarm development in south-west Scotland. Specifically, it examines the socio-psychological effects which different development models have on attitudes to windfarms by comparing public perceptions of a community-owned windfarm on the Isle of Gigha with attitudes on the adjacent Kintyre peninsula where several large (>15 MW) developer-owned windfarms exist. In addition, it investigates the perceptions of both residents and tourists concerning the impacts of onshore windfarms on landscapes and seascapes, including the cumulative effects of multiple windfarms.

Since the turn of the century, debates about the merits and impacts of onshore windfarms in the UK have rapidly intensified, becoming one of the highest profile environmental controversies. These arguments are particularly intense in Scotland for two reasons. Firstly, Scotland has a greater extent of wild land than other parts of the UK and is internationally renowned for its scenic beauty. There is therefore strong resistance to any development which is perceived as a threat to the ‘naturalness’ of its landscapes, not least because the reputation of the Scottish uplands as wild and beautiful is believed to be a prime reason why tourists visit the country. Secondly, Scotland has the best onshore and offshore wind resources in Europe, with almost a quarter of the total resource (Troen and Petersen, 1989), and there are numerous potential sites for onshore windfarms. This, together with positive governmental support (Scottish Government, 2008a), has inevitably led to large numbers of planning applications by private companies keen to capitalise on the potential. In turn, this has created fears that Scotland’s scenery, and the landscape settings of many rural communities, will be compromised. The problem is that the most favourable locations for windfarm development are, very often, precisely those exposed upland areas which are valued for their scenic qualities and which are frequently ecologically sensitive.

Public concerns have been exacerbated by the rapidity with which the onshore wind power sector is expanding in Scotland, with expansion outstripping the rate across Europe as a whole. In 2006 the overall growth rate was 23% whereas Scotland achieved 67% (EWEA, 2007). In part, such above average growth is possible because wind power started later and developed more slowly in Scotland than in many other European countries (Szarka, 2007).
so despite having excellent wind resources it has seen far lower deployment rates than countries with inferior resources (Toke et al., 2008). Cumulative capacity only passed 1 GW in 2007 (although this represented a six-fold increase in four years (SNH, 2007)). With 59 onshore windfarms operational, 68 consented or under construction and 103 in the planning process (BWEA, 2008), continued rapid development is assured. This pattern is not simply the result of market forces but is also being driven by strong policy support at European, UK and Scottish levels. Increasing concerns about anthropogenic climate change and energy security have catalysed a growing public debate about Scotland’s energy options (RSE, 2006). They have also led governments to adopt ambitious targets for increasing the proportion of electricity generated from renewable sources (DTI, 2006a, 2007; Scottish Government, 2008a): for the UK as a whole these targets are 10% by 2010 and 20% by 2020, whereas Scotland, with almost 60 GW of renewable generating potential (FCS/SE, 2007), is aiming far higher. Its targets for renewable electricity are 31% by 2011 and 50% by 2020. The Scottish 2020 target (which is not a cap) translates into a requirement for some 8.4 GW of generating capacity; for comparison, in 2008 the installed capacity was 2.8 GW (Scottish Government, 2008a). More ambitiously still, in 2008 the Scottish Government launched a Climate Change Bill incorporating a target of reducing greenhouse gas emissions by 80% by 2050 (Scottish Government, 2008b). This actively pro-renewables policy framework strongly favours wind energy which is the most advanced and competitive of the so-called ‘new renewables’ technologies.

There has also been a rapid development of interest in distributed, community-based power generation (DTI, 2006a; Greenpeace, 2007; Patterson, 2007; Scottish Executive, 2007; Rogers et al., 2008), both in rural and urban settings (Kellett, 2007), a trend which is part of a broader concern to promote sustainable communities (ODPM, 2003). This growth in interest has stemmed partly from practical, instrumental considerations and partly from neo-communitarian discourses of local participation and empowerment (Walker and Cass, 2007; Walker et al., 2007). One result has been the emergence of the term ‘community renewables’ within mainstream energy policy (Walker and Devine-Wright, 2008). In common with most developed countries, Scottish society has grown used to a highly centralised energy infrastructure in which power stations are often remote from centres of population. Conventionally, the thinking was that ‘a better power station was always a bigger power station farther away’ (Patterson, 2007: 57). This spatial remoteness has created a psychological distance between people and energy generation (Devine-Wright, 2005b), but the conventional approach is now being challenged by the rise of renewable energy which is bringing power close to the people. Having been ‘end-of-wire captive consumers’, increasing numbers of individuals and communities are now forming new, active and participatory connections with energy generation and supply (Walker and Cass, 2007: 464) as they take on ‘energy citizenship’ (Devine-Wright, 2007). This is a new departure in a UK context in which energy policy and planning has long been centrally controlled.

The concept of harnessing renewable energy to meet the needs of remote rural communities has been actively explored in several locations around Scotland (e.g. Hanley and Nevin, 1999), but financial and planning hurdles have usually proved insuperable. However, the recent success of the community-owned windfarm on the Isle of Gigha (see below) has triggered an upsurge of interest across rural Scotland since 2005. For small, rural communities, wind power opens up a potential escape route from a dependency culture (Mackenzie, 2006), and there are now 28 community-based groups exploring the feasibility of replicating Gigha’s success (Gubbins, 2008), especially in the western Highlands and Islands. Understanding the social acceptability of such developments and their wider impacts on public attitudes is therefore a timely and important challenge.

Public reaction to windfarms has always been mixed. From the earliest days of wind power, surveys in many countries have consistently revealed strong overall public support for renewable energy generally and for wind power specifically (Elliott, 1994, 2003; Krohn and Damborg, 1999; SEI, 2003; Devine-Wright, 2005a; Wolsink, 2007a). A recent national survey in the UK, with almost 2000 respondents, revealed 85% support for renewable energy and 81% support for wind power, with the Scottish Highlands & Islands emerging as one of the regions most strongly in favour (DTI, 2006b). Indeed, in this region, 73% said that they would be happy to live within 5 km of a windfarm. Perhaps counter-intuitively, surveys have also found that the most strongly supportive attitudes towards onshore windfarms are held by those who live closest to them (Krohn and Damborg, 1999; Dudley, 2000; Braunholtz, 2003), a kind of ‘inverse-NIMBY’ attitude (Warren et al., 2005). However, despite this consistent overall support, windfarms have, equally consistently, always proved controversial in some quarters. In practice, they are not as socially acceptable as survey results would suggest (Wüstenhagen et al., 2007). The speed and scale of wind power expansion has triggered significant opposition motivated primarily (though not exclusively) by the perceived impact on ‘natural’ landscapes. Opponents not only highlight the scenic impact of the turbines themselves, but also emphasise the visual impacts of the associated construction and tracks, and the required upgrades to the electricity transmission grid, necessitating new (or enlarged) power lines in rural areas. As Pasqualetti et al. (2002: 3) put it, critics object to the transformation of natural landscapes into ‘landscapes of power’. Furthermore, objectors frequently assert that the landscape impacts of windfarms will damage tourism, and that they will also cause noise pollution, affect property prices and damage flora and fauna.

While elements of NIMBY-ism exist in such arguments, the NIMBY idea is too simplistic a concept to explain the multi-faceted reasons for oppositional behaviour (Krohn and Damborg, 1999; Wolsink, 2006, 2007a, b; van der Horst, 2007). A multiplicity of other factors shape and influence public attitudes to wind energy developments (Ellis et al., 2007). These interacting factors, which are context-sensitive and time-dependent, include local perceptions of economic impacts, the national political environment, social influences, and institutional factors such as the perceived inclusiveness and fairness of the planning and development process (Birnie et al., 1999; Khan, 2003; Ek, 2005; Devine-Wright, 2005a; Toke, 2005a; Loring, 2007; Wolsink, 2007a; Zoellner et al., 2008). However, the factor which dominates all others in explaining people’s attitudes is their evaluation of the visual impact of windfarms on landscape quality (Pasqualetti et al., 2002; Warren et al., 2005; Wolsink, 2007b; Toke et al., 2008). The subjective and unquantifiable nature of landscape evaluation is one reason why consensus is so elusive in windfarm debates. Another, related reason is that the core matters of contention involve clashes of values (Ellis et al., 2007). While all these factors have been shown to be significant in determining the social acceptance of wind power, many unknowns remain. For example, Rogers et al. (2008) note that there has been little empirical investigation of public attitudes towards community renewables, while both Wüstenhagen et al. (2007) and Cowell and Strachan (2007) identify the link between community acceptance and ownership as an important question which needs to be investigated. The present study focuses on these specific issues, exploring the influence of community ownership not only in its narrow sense of legal ownership but also in its broader, more subjective meaning of ‘sense of ownership’.
The development approach adopted throughout Scotland for the promotion of renewable energy has been the private developer/public subsidy model, whereby public money is used to create a favourable economic framework for renewable energy developments. The policy instrument created to achieve this (under the Renewables Obligation (Scotland) 2002) is technology-blind, in that it simply obliges electricity suppliers to supply an increasing proportion of electricity from renewable sources. Nevertheless, wind power has so far been the primary beneficiary because it is amongst the least costly of the ‘new renewable’ technologies. In the context of the UK’s liberalised electricity market, this gives it a decisive edge. While this development approach has certainly facilitated the delivery of public policy goals (including the attainment, some three years early, of the Scottish Government’s 2010 target (SEDD, 2007)), it is an approach which has been widely criticised as one of the key factors which provokes public opposition. Critics have long contrasted it unfavourably with the community ownership model widely practised in some EU states, notably Denmark, Germany, the Netherlands and Sweden, where many renewable energy projects are funded and controlled by farmers and local wind cooperatives (Bolinger, 2001; Redlinger et al., 2002; Khan, 2003; Toke, 2005b,c).

In Britain, the complexity of the state support system for renewables makes it effectively inaccessible for local communities. In contrast, in countries such as Denmark and Germany which have a simple, low risk, fixed tariff, ownership by local residents has proved attractive (Toke, 2005b, 2007). In turn, this has built a constituency of support which eases the planning process (Edge, 2006). Whereas private sector developments are often perceived as invasion by ‘big business’, community-led developments are usually ‘owned’ (in both a legal and psychological sense) by local people. It has often been argued that local ownership not only produces more active patterns of local support and higher levels of planning acceptance but is also more equitable (Birnie et al., 1999; Krohn and Damborg, 1999; Strachan and Lal, 2004; Devine-Wright, 2005a,b; Toke, 2005a,b,c; Walker and Devine-Wright, 2008). Until recently, this hypothesis could not be tested in Scotland because of the absence of community-owned windfarms. However, in January 2005 the first grid-connected, community-owned windfarm in Scotland was commissioned on the Isle of Gigha, and for the first time it became possible to examine the relationships between ownership and public attitudes.

Study area, methodology and research questions

The study focuses on the Kintyre peninsula of south-west Scotland (Fig. 1), part of the Argyll & Bute Council area. Because of its...
upland topography, exposure to the Atlantic and low population density, Kintyre is ideally suited to wind energy development, and it was therefore one of the first parts of Scotland to see the construction of large windfarms. Three now operate on the Kintyre peninsula and a further two are under construction (Table 1). All are owned and operated by private companies (Figs. 1 and 2). A proposal for a large windfarm at Largie (6 km north of Deucheran Hill) was rejected in March 2007 due to its potential impact on migratory populations of Greenland White Fronted Geese. Cumulatively, the existing windfarms have a notable visual presence in the landscape, being visible from many places on the peninsula itself, from extended sections of the main public road down the west coast (the A83), and also from the ferry routes which connect Kintyre with nearby islands (Fig. 1). A wind turbine manufacturer operates a factory at Campbeltown (Fig. 1) and is a significant employer in the region. For these reasons, wind energy has an even higher public profile in this area than in rural Scotland as a whole.

Raising this profile still further has been the significant media attention given to the community-led project to develop a small windfarm on Gigha, an island which lies 4 km west of the Kintyre peninsula (Fig. 1). A wind turbine manufacturer operates a factory at Campbeltown (Fig. 1) and is a significant employer in the region. For these reasons, wind energy has an even higher public profile in this area than in rural Scotland as a whole.

Fig. 2. Aerial photograph of Tangy Windfarm from the west, with young commercial forest plantations beyond, March 2007.

Fig. 3. An aerial photograph of the Isle of Gigha from the south, March 2007, with the 3-turbine windfarm visible lower centre and the Kintyre peninsula in the background.

Maintained trend of population decline; from a total of 110 in the 2001 census, the population has now risen to about 150. Following the success of the buy-out campaign, the Gigha community started exploring the feasibility of utilising wind power to meet their electricity needs, and in January 2005, the 3-turbine, 0.7 MW windfarm was commissioned and connected to the national grid (Fig. 3). The Gigha and Kintyre communities are closely integrated. For example, they are both served by a single secondary school and they share the same local newspaper. Given their close ties, both communities have had similar experiences of wind power development. The only significant divergence has come recently through the experience of community ownership of turbines on Gigha. Because most other factors are closely similar, the Gigha development provides a specific opportunity to test whether the ownership of a windfarm affects public attitudes towards it.

In the autumn of 2006 we carried out a questionnaire-based survey (n = 106) supplemented with semi-structured, face-to-face interviews with five key stakeholders. The primary aim of the survey was to test the hypothesis that community ownership leads to greater public acceptance. In the light of the issues highlighted above, an additional aim was to explore the perceptions of both residents and tourists concerning the impacts of onshore windfarms on landscapes and seascapes, including the cumulative effects of mul-

### Table 1
Operational and consented windfarms on the Kintyre peninsula and the Isle of Gigha.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date commissioned</th>
<th>Number of turbines</th>
<th>Turbine height (m)</th>
<th>Capacity (MW)</th>
<th>Developer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deucheran Hill</td>
<td>2001</td>
<td>9</td>
<td>93</td>
<td>15.8</td>
<td>Powergen</td>
</tr>
<tr>
<td>Beinn an Tuirc</td>
<td>2001</td>
<td>46</td>
<td>63</td>
<td>30.0</td>
<td>Scottish Power</td>
</tr>
<tr>
<td>Beinn an Tuirc 2</td>
<td>Under construction</td>
<td>19</td>
<td>100</td>
<td>38.0</td>
<td>Scottish Power</td>
</tr>
<tr>
<td>Tangy</td>
<td>2002</td>
<td>15</td>
<td>62</td>
<td>12.8</td>
<td>Scottish &amp; Southern Energy</td>
</tr>
<tr>
<td>Tangy extension</td>
<td>Under construction</td>
<td>7</td>
<td>75</td>
<td>6.0</td>
<td>Scottish &amp; Southern Energy</td>
</tr>
<tr>
<td>Gigha</td>
<td>2005</td>
<td>3</td>
<td>30</td>
<td>0.7</td>
<td>Gigha Renewable Energy Ltd.</td>
</tr>
</tbody>
</table>
multiple windfarms. As in many parts of rural Scotland, the relationship between wind power developments and tourism is important in this region because tourism is significant for the local economy and it is of critical importance on Gigha. Few data exist concerning the impact of windfarms on tourism, but it is frequently asserted that they have a negative impact. Consequently the three hypotheses tested in this study were as follows:

1. Community-owned windfarms are associated with more positive local attitudes than are windfarms owned by commercial companies.
2. Support for wind power is low in areas of extensive windfarm development, specifically as a consequence of visual impacts and cumulative effects.
3. Extensive windfarm development makes a region less attractive to tourists.

The questionnaires evaluating the attitudes of residents in Kintyre and Gigha were structured similarly but with minor adjustments to suit the relevant contexts. Responses were obtained from 68 local residents, 24 on Gigha and 44 on Kintyre. For Gigha, the sample represents 16% of the population whereas the Kintyre sample represents 0.4% of the peninsula’s population, so greater confidence can be attached to the Gigha results. A separate questionnaire was used to explore the perceptions of 38 tourists. All the questionnaires utilised the standard psychometric technique of a 5-point Likert scale. On the mainland, face-to-face surveys were carried out in the town centre of Campbeltown, the only sizeable settlement (population: 5500), and on the beach at Westport (Fig. 1), locations selected because they are focal points for both residents and visitors from all parts of the peninsula. On Gigha, the survey was carried out door-to-door around the island and at public gatherings. In order to reach a broader cross-section of people than was possible through face-to-face survey during working hours, the questionnaires were also made available on-line, and their existence was advertised in the local press and via a regional web-based discussion forum. Of the 106 completed questionnaires, 61% were conducted in person and 39% were completed on-line. Statistical checks revealed no consistent differences resulting from this contrast in survey technique. The sample was well balanced in terms of the gender, age and occupation of respondents.

Results

Attitudes of local residents

The results show that Gigha residents were consistently more positive about wind power generally and local windfarms specifically than were the Kintyre residents. Amongst the former, 96% of respondents supported increasing utilisation of wind energy in Scotland with none opposed, whereas the latter were less positive with 68% in favour and 7% against (Fig. 4). Moreover, the strength of positive feeling was far greater on Gigha. A similar pattern emerged with respect to attitudes towards an increase in windfarms in the local area, with greater support on Gigha (75% vs. 64%) and marginally greater opposition on Kintyre (12% vs. 8%), but with higher proportions in both locations expressing neutral views (24% on Kintyre and 17% on Gigha). When respondents were asked to identify their two greatest concerns about wind power, in both areas the largest response category was ‘no concerns’ (48% on Kintyre and 32% on Gigha). Worries voiced by more than 10% of either group were, in order of decreasing importance, intermittency of production, visual impact, bird strikes on turbines and habitat disruption. In all categories, Gigha residents expressed less concern than inhabitants of Kintyre. The issue of bird strikes, so often a motivation for opposition (Marris and Fairless, 2007; Bright et al., 2008), was raised by 11% of respondents on Kintyre and by 7% on Gigha. Turbine noise was mentioned by very few. Interestingly, even though aesthetic issues were identified as one of the main concerns, when questioned specifically about their opinion of the landscape effects of local windfarms, those who perceived the visual impacts as positive outnumbered those who saw them as negative by over 7:1 on Gigha and by almost 3:1 on Kintyre (Fig. 5).

These results show that differences in public attitudes do exist between the two areas. However, many of the dissimilarities are differences of degree rather than diametrically opposing viewpoints. Both communities appear broadly positive about wind energy even if there is somewhat greater enthusiasm for it on Gigha. Indeed, on Kintyre where the cumulative impact of existing and proposed developments might be expected to generate negative attitudes to new windfarms, and where a quarter of respondents are able to see turbines from their homes, 65% support more windfarms in the area and only 13% are against. This pattern is similar to the percentages of those who support and oppose windfarm development in Scotland as a whole (Fig. 4), a result which does not support the NIMBY thesis.

From comments made by Gigha residents, it appears that many would have expressed even stronger support for increased development of wind power if the island were larger and able to absorb more turbines. For example, one respondent said:

“I think that three sit nicely on the landscape. I wouldn’t mind a few more, but not too many.”

A similar comment was that ‘another couple would be the saturation point’. By contrast, comments from Kintyre residents made it clear that part of their reason for supporting further windfarm development was that the scale and topography of the peninsula’s landscape. 1 = Very negative, 5 = very positive.
upland landscape enabled windfarms to be sited unobtrusively, and that this would allow for further development without compromising scenic values. For example, one commented that ‘many of the turbines are away in the hills and are doing no harm to views’, and another that ‘there is probably room for several more windfarms in Kintyre yet’. Equally, however, there were those who felt that the region had already contributed its ‘fair share’ and that future developments should be elsewhere:

“We have enough windfarms on Kintyre. We have done our bit. It is time that others did theirs.”

Overall, then, perceptions of windfarms in the region are strongly (albeit differentially) positive. Nevertheless, a striking result is that local attitudes could become even more positive if future windfarms were owned by local communities. In Kintyre, 45% of residents would be more supportive of a new windfarm if it was community-owned, and none expressed a negative attitude. The reasons given for support included economic benefit, and a perception of greater fairness (equitable sharing of costs and benefits). In a mirror-image finding on Gigha, 65% said that their support for a new windfarm would decrease if it was owned by a commercial company. Their reasons for being in favour of their existing windfarm included income generation for the community, enhancement of the island’s ‘green’ image, and symbolic reasons; for example, the turbines were described by one as ‘a sign of the island’s success’, and by another as being beneficial for ‘our image as a progressive community with a sustainable future’. A strong sense of pride in what their small community had achieved was apparent. Perhaps most tellingly of all, the positive psychological effect of community ownership is revealed in the fact that the Gigha islanders have given their turbines an affectionate nickname: ‘the Three Dancing Ladies’. The positive connotations of such an appellation are unmistakable (graceful, aesthetically pleasing, a sense of belonging). Equally positive is the fact that the islanders have given Gaelic names to each turbine: Creideas, Dòchas and Carthannas (Faith, Hope and Charity). Such affirmative labelling contrasts radically with the language used by those who oppose windfarms on Kintyre who brand their installation as ‘rape’ or ‘desecration’ of the landscape.

Attitudes of tourists

The responses of tourists to the two areas are analysed here as a single group because most who visit Gigha have travelled through Kintyre, while many visitors to the peninsula also visit the island. Also, too few tourists (7) were surveyed on Gigha to make separate analysis meaningful. Tourists expressed a wide range of concerns about windfarms; only 20% had no worries about them at all. Virtually all had seen them during their visit, and almost a quarter said that they found them noticeable or very noticeable. The three concerns registered by 10% or more of respondents were habitat disruption (23%), visual impact (22%) and intermittent/insignificant energy production (10%). However, notwithstanding these negative perceptions, large majorities were supportive of wind energy in Scotland as a whole (79%) and in the study area specifically (64%). Moreover, nine out of ten people said that the presence of windfarms would have no bearing on the likelihood of their making a return visit. The remainder were split exactly 50:50 between those who said that the windfarms would make them more likely to return and those who said that it might make them stay away. At the two ends of the spectrum, strong views were expressed. At the negative end, some spoke of the area being ‘corrupted by windfarm development’ and of windfarms ‘ruining the countryside’ and ‘desecrating the landscape’, but such sentiments were counterbalanced by strongly positive descriptions of turbines as ‘peaceful, not unsightly’ and ‘visually appealing ... as a visitor attraction’. To reiterate, though, the presence of windfarms was not a significant factor for most tourists in their choice of destination.

Discussion

The results support our first hypothesis but provide little or no support for the second and third. In other words, community ownership is indeed associated with positive attitudes to windfarms, but support for wind power is not low in Kintyre, despite the extensive windfarm development, and windfarms do not seem to make the region less attractive to tourists. Arguably the most significant finding concerns the positive influence of ownership on the attitudes of communities towards wind energy projects, a finding which supports the long-held supposition that a change of development model could increase public support for windfarms in Scotland and other parts of the UK. This suggestion was based partly on extrapolations from the experience of community-owned wind power developments in other European countries, Denmark in particular, where resistance to windfarms has (until recently) been minimal, and partly on UK studies which investigated attitudes to hypothetical or proposed developments (Birnie et al., 1999; Bolinger, 2001; Strachan and Lal, 2004; Devine-Wright, 2005a,b; Toke, 2005a). It was a reasonable but untested supposition. Scotland’s first experience of a community-developed, community-owned windfarm suggests that this development model is indeed likely to be associated with enhanced public support and reduced opposition.

The survey of residents on the Isle of Gigha revealed a strong sense of pride in and connection with ‘their’ windfarm project, perceptions which contrast markedly with the apparent disconnection and (for some) alienation engendered amongst Kintyre people by the development of commercial windfarms in their hinterland. On Gigha, the sense of ownership felt by the community is evocatively revealed in the naming of the turbines, an act which implies that they are perceived as a physical embodiment of community cohesion and confidence. Such naming, though novel in contemporary Scotland, was historically traditional for Dutch windmills, and it was commonplace in the early days of wind power development in Sweden when a name and a gender was given to each new turbine (Hammerlund, 2009). The attitudes held by the Gigha community reinforce Devine-Wright’s (2005a) contention that perceptions of windfarms are shaped not only by their physical attributes but also by symbolic, affective and socially constructed aspects. Further, these findings suggest that, as Toke (2005c) has argued, bottom-up projects can deliver a range of benefits which do not materialise from top-down, corporate developments. More generally, they also support Kellett’s (2007) conclusion that bottom-up approaches to carbon reduction, with benefits flowing directly and obviously to the community, may be more effective than conventional top-down, demand–supply logic.

The Gigha windfarm is noteworthy as the first Scottish demonstration that a workable alternative to the large-scale, commercial development model exists, and that this is feasible for small communities. The financial model which enabled the community to raise the capital cost of £440,000 comprised a three-way mix of grant funding (from the National Lottery and Highlands & Islands Enterprise (HIE)), commercial loan finance (from Social Investment Scotland) and equity finance (from HIE and the Isle of Gigha Heritage Trust). This apparently robust model has the potential to be replicated across Scotland. It is currently being pursued by communities on the islands of Tiree, Lismore, Mull and Islay, while on the community-owned Isle of Eigg a ‘renewables grid’ pow-
ereed by wind, hydro and photovoltaics was switched on in February 2008 (Gubbins, 2007, 2008). This model is also demonstrably able to generate significant cash flows. The gross annual income from the Gigha windfarm is £180,000, yielding a net profit of about £85,000 (Gubbins, 2008). While wind power companies in Kintyre disburse some of their profits to local people in the form of community payments, in 2005 these payments totalled less than £26,000 throughout Kintyre (Campbeltown Courier, 2006). This figure equates to £369 per turbine, compared to over £28,000 per turbine generated for the Isle of Gigha Heritage Trust. Such a stark contrast highlights the potential economic benefits which can flow to locals from community ownership. On Gigha it has led to a renaissance involving job creation, in-migration and growing numbers in the local school. Wind power can thus equal renewal as well as renewable. It can be part of the capacity building which is needed in many coastal communities (Barker, 2005).

For these and other reasons community energy is being actively supported by the Scottish Government and HIE through HiCEC – the Highlands & Islands Community Energy Company – which is aiming ‘to build a nation of enthusiasts from the bottom-up’ (Gubbins, 2008). Government grants are also available throughout Scotland via the Scottish Renewable and Household Renewables Initiative. The Gigha approach, in which the windfarm is wholly owned by the community, represents one end of a spectrum of models of community participation which involve different degrees of mixed ownership, different development processes and different objectives (Gubbins, 2008; Walker and Devine-Wright, 2008). Another approach is the energy cooperative model, and this is being pursued in various parts of the UK under the umbrella of the Energy4All Group (Toke, 2005c), including six projects in the Scottish Highlands: the first of these, a 7-turbine development at Boyndie airfield in Aberdeenshire, was commissioned in 2006 (Energy4All, 2007). Still another permutation – one which builds a bridge between two very different models of ownership and development – is exemplified by the community of Fintry west of Stirling which owns one turbine of a nearby commercial windfarm. Attitudes to wind power in Fintry echo those on Gigha, with one villager describing their turbine as ‘totemic’ for the community (Scotsman, 2008). Although the term ‘community renewables’ can be interpreted and implemented in varied (and sometimes contested) ways (Walker and Cass, 2007; Walker and Devine-Wright, 2008), and the schemes themselves may exhibit great diversity in their purpose and process (Walker et al., 2007), all such projects are wholly distinct from the private developer model which remains dominant in the UK.

Needless to say, community involvement is not a ‘magic bullet’, providing a complete and easy solution to wind energy development problems. For one thing, the development process is, in practice, ‘an obstacle race, requiring gritty determination to succeed’ (Gubbins, 2007: 82). Moreover, the clear advantages of community initiatives are balanced by some notable disadvantages (Bolinger, 2001). The potential advantages are numerous and significant, including fewer planning refusals, access to new sources of investment capital (sometimes at lower cost), electricity price stability and increased public support, as well as harnessing the benefits of distributed generation (Greenpeace, 2007; Patterson, 2007; Scottish Renewables, 2007). However, these have to be set against some major drawbacks which, as Bolinger (2001) points out, are fewer in number but perhaps just as large or larger in impact. Chief amongst these are the reduced economies of scale and the greater administrative burden relative to large, private sector windfarms. These financial and practical realities mean that, even though the concept of community renewables is appealing, it may not be a realistic option for many rural communities (Rogers et al., 2008). Nevertheless, existing evidence suggests that the hitherto exclusive policy focus on private sector development could helpfully be broadened to include and support community-led developments more actively. There is evidence that this is beginning to happen, both in policy and in practice (DTI, 2006a; Gubbins, 2007; Scottish Executive, 2007). It is also apparent that local ownership can help to smooth the path towards planning consent (Toke, 2005c). In part, this is because countries where local ownership is widespread typically have active networks of wind power supporters but these are notable by their absence in the UK (Toke et al., 2008). The promotion of a community-orientated approach may not only facilitate the attainment of government targets but may also help to engender a more informed, involved public debate about energy futures, not least by dispelling the popular notion that electricity simply comes from plug sockets (Devine-Wright, 2005b; Toke et al., 2008).

While Kintyre residents emerged as less enthusiastic about wind power than those on Gigha, it is striking that such large majorities are nevertheless supportive, both of wind power in Scotland generally and also of local windfarms. Given that this region has been (and remains) a focus of wind energy development, and that there have been vociferous anti-windfarm campaigns, the surveys might have been expected to reveal significant opposition, whereas in fact only small percentages of people expressed negative opinions. Indeed, many would be happy to see further developments, believing that new, well sited windfarms could be situated within the landscape without undue impact on landscape aesthetics. This concurs with the conclusions of earlier studies which have suggested that familiarity with windfarms in the landscape seems to breed contentment (Dudleston, 2000; Braunholtz, 2003; Warren et al., 2005; DTI, 2006b; Warren and Lumsden, 2008). Time and again, surveys have found that people’s fears about the prospect of windfarm development have proved to be largely unfounded, and that the reality is less visually intrusive, noisy and despoiling than they had expected. Indeed, it has been shown that attitudes to windfarms have a longitudinal dimension, typically following a U-shaped progression through time (Gipe, 1995; Devine-Wright, 2005a; Wolsink, 2007a,b): initially positive responses (when no nearby schemes are planned) are replaced by more negative assessments (when a local windfarm is proposed) and then these in turn are followed by a return to positive attitudes once locals have gained personal experience of the windfarm in operation. This survey also found this pattern emerging, exemplified by the Kintyre resident who commented: ‘Initially I was very sceptical, but I have found the sites in Kintyre to be unobtrusive’. The crucial determinant is sensitive siting within the landscape, as stressed by Wolsink (2007b). Respondents who criticised the visual impacts of windfarms identified those close to sea level at Tangy and on Gigha as the worst offenders because of their effects on much-loved coastal vistas, whereas the windfarms in the upland ‘spine’ of Kintyre which are, to a considerable extent, ‘out of sight, out of mind’ were not mentioned. In fact, the greatest visual impact of the Kintyre windfarms is not from the peninsula itself but from the sea and from the nearby islands of Islay, Jura and Arran (Fig. 1), affecting views from the ferries and from the islands themselves.

Critics of windfarms often assert that their landscape impacts will damage Scottish tourism, but the results reported here lend no support to such claims. For most tourists, the existence of windfarms was not a factor in their decision-making, and while 5% did say that turbines in the landscape might make them stay away, this figure was exactly balanced by those who found the windfarms a positive draw. Although the number of tourists interviewed was small, the results indicate that windfarms are, at present, having no net impact on tourism in this region. The fact that visitor num-
bers to Kintyre have been increasing since 2004, and that some tourists choose to visit the windfarms (TIC, 2006), supports the conclusions of other studies that windfarms are unlikely to damage Scottish tourism (Scottish Government, 2008c). For example, a large study by NFO System Three (2002) of the potential tourist impacts in Scotland found that some visitors do find windfarms off-putting, but that this is counterbalanced by positive reactions, and that far more visitors associated windfarms with clean energy than with landscape damage. This implies that sensitively sited windfarms could help to promote Scotland’s reputation as an environmentally friendly country. Projections suggest that, even in a worst case scenario, windfarm development is likely to have minimal economic impacts on tourism, reducing both revenue growth and employment by less than 0.2% by 2015 (Scottish Government, 2008c). An earlier study by Hanley and Nevin (1999) indicated that tourists would have more positive attitudes to a windfarm if they knew that it was owned by the local community. This effect was not examined in the study reported here, but, if confirmed, it would be a further factor in favour of community wind power developments.

A number of criticisms can be levelled at this study. The most obvious is that it does not compare like with like in terms of the scale of the windfarms concerned. The Kintyre windfarms all have a far greater capacity than the Gigha development, and consist of taller, more numerous turbines (Table 1). Part of the positive reaction to the latter may simply reflect this contrast. Certainly it has been suggested that the typically smaller scale of community-owned windfarms is part of their attraction (Bollinger, 2001). Unfortunately, however, it is currently impossible to separate the influence of scale from the influence of ownership because no community-owned windfarms exist in Scotland which are comparable in scale with the private sector ones. The only overlap is at Fintry where the community owns one turbine of a large nearby windfarm, and where – perhaps significantly – public attitudes towards wind power are strongly positive (Scotsman, 2008). Equally, this study did not attempt to apportion the components of Gigha residents’ positive attitudes to likely contributory factors such as tangible benefits (e.g. cash flow from windfarm profits) and intangible benefits (e.g. green symbolism, community pride). Nevertheless, the answers to the questions which specifically probed attitudes concerning community ownership indicate that giving local communities a stake in wind power development, of whatever scale, is likely to augment public support and minimise opposition. The experience on Gigha is thus significant in confirming the predicted potential of community ownership to engender positive local attitudes. Because of the plethora of negative media stories about windfarms in Kintyre specifically and Scotland generally, this study adopted the commonly-used ‘barrier orientated’ approach to research; that is, it was primarily designed to investigate the reasons for the negative attitudes that were anticipated. In practice, however, positive perceptions predominated. Although some explanations for these were found, future work could usefully explore the detailed reasons further, in particular the weightings attached to tangible and intangible benefits, and the scales (both spatial and temporal) at which those benefits apply.

This raises a final and more general methodological issue, namely the question of the appropriateness of employing this kind of survey-based research for investigating public attitudes to renewable energy developments. To date, most studies of public attitudes have utilised ‘hard’, empirical survey data, but some recent work has employed a qualitative, hermeneutic approach to provide revealing insights into the social construction of public attitudes (Devine-Wright, 2005b, 2007; Ellis et al., 2007). Clearly both approaches have strengths and weaknesses, with the former, for example, offering greater breadth and repeatability, and the latter greater depth of insight into ‘the dynamic subjectivities that frame windfarm disputes’ (Ellis et al., 2007: 521). When research resources allow, it would clearly be advantageous to adopt a multi-method approach to harness the strengths of each.

Conclusion

The research reported here provides the first empirical evidence from a Scottish context that public attitudes are more positive towards windfarm developments in areas where local communities have a direct involvement in them than in areas where they do not. Such a pattern, commonly observed in other European countries, has not previously been observed in Scotland simply because of a lack of comparable grid-connected, community-owned windfarms. However, the results of this study show that community ownership does not transform an overall negative view of wind power into a positive one; attitudes in the wider population are already broadly positive. What it appears to have done is to amplify these pre-existing positive attitudes and suppress the negative ones. Therefore, the promotion of a more locally embedded approach to wind energy projects (whether through community ownership or energy cooperatives) could help to reduce the incidence of damaging and divisive controversies which currently afflict wind power development in Scotland. In turn, this could help to facilitate the achievement of renewable energy targets.

However, it is unlikely that community-scale wind power in Scotland will ever make as significant a contribution to national electricity needs as it has in some other European countries, notably in Denmark where most wind power capacity has been locally owned (Toke, 2005c). There, the deployment of wind power from the late 1970s grew in tandem with the development of the wind industry itself. The small size of the early turbines nicely matched the small-scale, community-led character of most projects, and this facilitated the popular adoption of wind turbines as an integral part of the cultural landscape (Nielsen, 2002). Most recently, however, the nature of the Danish wind power sector has been changing, partly as a consequence of the rapidly increasing size and cost of turbines; large multinational companies have begun to displace individual farmers and small local cooperatives as the main players, and, for the first time, significant public opposition has emerged. The wind industry has outgrown community involvement, implying that the temporally specific Danish model cannot be exported (Möller, 2008). Since Scotland – and the rest of the UK – missed the window of opportunity in the early days of the modern wind industry, it may be that the potential for community-scale wind power is now rather limited. On the other hand, even if its niche remains small in terms of megawatts, its contribution to the sustainable development of local communities across Scotland could nevertheless be significant, as the experience of the Gigha islanders shows.

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References

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