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‘We are a community [but] that takes a certain amount of energy’: Exploring shared visions, social action, and resilience in place-based community-led energy initiatives.

In UK energy policy, community-led energy initiatives are increasingly being imbued with transformative power to facilitate low carbon transitions. The ways that such expectations for communities are manifesting in practice remains, however, relatively poorly understood. In particular, key conceptual developments in unpacking what constitutes ‘community’ that highlight the significance of ‘place’ along with important characteristics, such as shared visions, collective social action, and resilience, have yet to be comprehensively explored in the context of community-led energy initiatives. This paper uses an interpretive stance to engage with these conceptual ideas about community and provide insights into the nature of community and its meaning for developing energy-related initiatives and realising the wider goals of energy policy. The paper draws on data from in-depth qualitative, longitudinal interviews undertaken in two residential communities and one purely workplace-based community, which are engaged in community energy initiatives. We argue that there are difficulties and ambiguities in creating shared visions, achieving social action, and developing resilience that are related to the specificities of community in place, but that all three characteristics are likely to be important for the making of sustainable places.

Key words: community energy, sustainable places, social capital, civic engagement, social resilience.

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Introduction

The UK has clear policy aims to transition to a low-carbon energy system by 2050 (Department of Energy and Climate Change [DECC], 2011). Such transitions will be enacted within particular places and, as such, pose fundamental questions about the possibilities for sustainable place-making. Whilst numerous visions of energy transitions exist (e.g. Skea et al., 2011), these are often abstract and placeless, obfuscating the inherently geographical processes that underpin such transformations (Bridge et al., 2013), failing to take into account how transitions will manifest differentially in place and how the intricacies of place may impact such transformations. Despite this lack of attention to place, questions about the role of community-based initiatives in the development of low-carbon transitions are gaining increasing prominence. Indeed, it has been suggested that community-led engagement processes and ownership of energy developments might stimulate increased public acceptability for transitions (e.g. DECC, 2014), and thus encourage the development and uptake of ‘innovative niches with the potential for wider societal transformation’ (Seyfang, 2010: 7625). Community-led energy initiatives, then, are being imbued with a great deal of potential transformative power.

Community energy has, in the past, been heavily associated with (part) ownership of renewable energy developments, but there is growing recognition that it could have a much broader remit. Indeed, UK policy envisions that communities could become involved in four main energy activities: generating energy, reducing energy demand, managing energy supply and demand, and purchasing or switching suppliers as collective groups (DECC, 2014). This shift to a more pluralistic conception of the ways communities can be engaged in energy activities echoes calls for recognition that community energy is not (nor should be) tantamount to renewable energy production (Seyfang et al., 2013). There is also a burgeoning recognition that energy demand interventions would be more successful if targeted at communities and neighbourhoods rather than just individuals (Seyfang et al., 2013; Butler et al., 2013). In this regard, processes of ‘norming’ and the opportunities to build on existing relationships of trust have been pointed to as key aspects of what community-level interventions can offer (Butler et al., 2014). Additionally, the importance of examining differences between community contexts has been highlighted as an important issue in whether or not action enables or inhibits energy transitions more widely (e.g. Miller and Bentley 2012).

Increasing interest in community-based energy and sustainable transitions coincides with continual conceptual refinement of what is meant by the term ‘community’. In human

geography it is a fundamental principle that society and place are deeply intertwined and mutually constituted. Space and place are no longer seen as containers for society but as actively contributing to societal development and the identity of individuals and communities within their 'boundaries'. In their work on sustainable community development, Dale et al. (2008: 278) found that 'the sense of place [that] emerges within a community is shaped and informed by the geographical space that the community occupies'. As such, we recognise that the *where-ness* of community is integral to our understandings of how communities develop and can contribute to low-carbon energy transitions. However, we also recognise that 'community' can and does go beyond its territorial origins and specific relationship with locality (Seyfang and Smith, 2007) and the home. Importantly, to date research on community energy has tended to focus on residential, rather than other types of geographical communities including work-based communities of place (although there is a growing literature looking at energy practices in the workplace, for example, Hargreaves, 2008; Whittle, Forthcoming). However, analysis has pointed to the significance of workplace-based communities as 'communities of practice' (Lave and Wenger, 1991: 98). Focusing on such non-residential communities could offer further insights into the making of sustainable places.

A workplace-based community is not necessarily 'some primordial culture-sharing entity' (Lave and Wenger, 1991: 98). Nor does the use of community imply 'co-presence, a well-defined identifiable group, or socially visible boundaries' (Lave and Wenger, 1991: 98). However, what it does imply is 'participation in an activity system about which participants share understandings concerning what they are doing and what that means in their lives and for their communities' (Lave and Wenger, 1991: 98). Within our research design we incorporated a workplace-based geographical community as a basis for exploring the extent to which this community form was important in low-carbon energy transitions. By exploring this work-based geographical community and two other residential geographical communities, which are all highly distinctive, we develop an analysis of the role of communities in delivering low-carbon energy transitions and, more broadly, in facilitating the making of sustainable places.

Key Concepts for Thinking about 'Community'

There are a number of key concepts that are relevant to understanding community. For present purposes, we focus on shared values and visions, social action, and social resilience. Rae and Bradley (2012: 6498) note that 'a community (or a sense/feeling of community) tends to arise from the...shared values of those who populate it'. A shared vision may be grounded in

‘common needs and goals, a sense of the common good, shared lives, culture and views of the world, and collective action’ (Silk, 1999: 6). As such, a shared vision may imbue a community with capacity, endurance, commonality and mutually agreed goals, or may be experienced as constraining, creating tension between individual and group objectives (Miller and Bentley, 2012).

A further connected notion, in this regard, is that of collective or social action. Horvath (1999: 221) defines social action as ‘participation in social issues to influence their outcome for the benefit of people and the community’. Social action can, under favourable circumstances, produce empowerment, impact, or social change, and in many contexts, group and community-level actions can be more effective than individual acts. The concept of empowerment is relevant for social action and Horvath draws a distinction between grassroots and top-down varieties. Ewart (1991) suggests that empowerment is at once an individual and a social construct, referring to both a sense of personal control and power to effect change, and to a group’s ability to control community resources, engage in collective decision-making and achieve shared goals. Subsequently, collective empowerment can also help develop individual empowerment.

Finally, there has been significant debate about how to characterise and understand ‘community resilience’ as a distinctive concept that builds on the basic concept of resilience in social-ecological systems (Holling and Gunderson, 2002). Wickes et al. (2010: 2) define community resilience as ‘a complex, multi-layered process through which communities demonstrate a capacity to withstand and respond positively to stress or change’. In this sense, resilient communities are those that not only respond to adversity but can also reach a higher level of functioning post-event, via adaptation (Leach et al., 2010; Davoudi, 2012). In this context, Adger (2000) has suggested that social resilience is a more apt way to categorise the meaning of community resilience. Social resilience has been defined as ‘the ability of communities to withstand external shocks to their social infrastructure’, (Adger, 2000: 361), that can arise from environmental, ecological, social, economic, and political upheaval (Adger, 2000). This connects with discourses on community resilience that characterise it as a property that communities develop and exercise over time (Hopkins, 2008; Wilding, 2011).

This line of work suggests that resilience is not bestowed on communities top down from government but involves the wider ability of social systems to self-organise, adapt and learn. Accordingly, social capital is key to resilience. Social capital is ‘the intrinsic capacity within which

individuals and their social relationships can provide the means for community action capable of achieving shared objectives' (Peters et al., 2010: 7601). Arguably, 'intrinsic capacity' is highly reliant on 'civic engagement' (Hoffman and High-Pippert, 2010: 7569). In turn civic engagement is dependent on 'two mutually dependent issues: first, recruiting community members, and second, sustaining their participation' (Hoffman and High-Pippert, 2010: 7569), and in the context of resilience, ensuring this even during unplanned stresses and changes. Jones and Mean (2010) have argued that poor community resilience in the context of sustainable place making, has in part occurred due to policy interventions that do not engage with the values and aspirations of the community and as a result, individuals have felt disenfranchised potentially leading to difficulties in recruitment.

Given these conceptual developments, our analysis focuses on the extent to which these dimensions of community are evident across different settings, how they relate to the *where-ness* of community, and what this might mean for delivering energy transitions. Accordingly, the focus of our analysis will be to explore; 1) if, from the perspective of our communities, they have a shared vision, and whether this is perceived to prohibit or enable the groups to fulfil their aims; 2) the opportunities and challenges for community groups in engendering social action in the context of low-carbon energy transitions; and 3) how communities develop and exercise resilience, paying particular attention to the dimensions of resilience set out above (e.g. social capital, civic engagement). Overall, the paper considers the role of communities, and indeed communities within communities, in delivering low-carbon energy transitions and, more broadly, in facilitating the making of sustainable places. More specifically, the analysis aims to contribute to a growing literature on community energy initiatives and current debates regarding the potential opportunities and difficulties associated with community energy. Below we first outline the methods used to collect and analyse the data that underpins this paper. We then present the analysis structured around our case sites and informed by the concepts outlined above. Finally, in the concluding discussion we return to the themes of shared visions, social action, and resilience, to discuss the implications of our analysis for community-led energy transitions.

Methods

Approach and Sampling

Energy Biographies is a qualitative longitudinal, multimodal study using a community-based case study design to build in-depth understanding of the dynamics of energy use. Data were collected between December 2011 and June 2013 across four UK case sites, which encompass a range of

experiences according to the presence of energy system interventions. 74 people participated in an initial wave of in-depth semi-structured interviews (ranging from 15 to 20 participants per case site); most were individual interviews but a small number were conducted with couples. Across the four case sites, a sub-sample of 36 took part in two further individual interviews and multimodal activities. For the purposes of this analysis we focus on three of our case sites as this offers enough diversity to explore the relevant issues while maintaining sufficient detail and depth. Through the analysis that follows we use illustrative extracts from the first wave of interviews (conducted between December 2011 and May 2012) where issues related to community were discussed in detail, but overall the analysis is informed by the three rounds of interviews as well as ongoing ethnographic work undertaken throughout the research.

The aim of the research, as is typical of in-depth qualitative studies, was not to be statistically representative of the case site area(s), but to capture a diverse set of viewpoints. Sampling criteria were therefore based on theoretical considerations including for example, demographics (e.g. age, gender, employment and lifestyle factors) and people's involvement in the interventions that underpinned our case site selection, in order to draw out the issues and concerns that could emerge across a diverse sample of people (see Butler et al., 2014). Although we recognise the limitations of case study approaches in drawing general conclusions, we assert their continued relevance as a method for building understanding of the non-linear in-depth relations between multiple factors in context (Flyvbjerg, 2006).

Case sites

The first of our case sites is the Lammas ecovillage ('Tir-y-Gafel'); a low-impact off-grid development of nine households in Pembrokeshire¹. The ecovillage is the first of its kind in the UK to have planning permission, which requires residents to meet 75% of their basic needs from the land within five years. The second is an area in Cardiff – Ely and Caerau (a socially-deprived inner-city ward). A group within the community called Futurespace were active in campaigns about energy, particularly in relation to addressing fuel poverty. The group planned a scheme around the installation of solar photovoltaics (PV), however, plans for the solar PV schemes were influenced by a reduction in the UK's Feed-in-Tariff (FiT) during our research². Our third case site is workplace-based – the Royal Free Hospital ('RFH') in North London. Participants were employees of the hospital, which has a number of carbon reduction and

¹ Lammas is the name of the low-impact development organisation, whilst Tir-y-Gafel is the ecovillage itself.

² The Feed-in-Tariff is a UK Government subsidy to support the development of renewables.

energy-saving strategies. In this paper we focus on issues related to energy demand reduction, as this underpins many of the efforts across all case sites, in contrast to other issues (e.g. fuel poverty) that were only prevalent in some areas. Table 1 summarises the range of aims and energy-related activities in each case site.

Table 1.

Case Study	Aims	Activities (planned, undertaken & desired ³)
Royal Free Hospital Description: A large teaching hospital that employs approximately 10,000 staff.	Carbon reduction targets. Investment in technology to produce energy more efficiently and reduce energy consumption.	<ul style="list-style-type: none"> • Combined heat and power facility supplying a social housing estate near the hospital. • Cycle to work scheme. • Energy awareness week. • Energy information monitors showing energy consumption and energy saving information. • Best practice sharing with other hospitals. • Staff members who act as carbon champions to promote energy saving.
Futurespace – Ely & Caerau Description: A community group aiming to support sustainability and reduce energy demand or improve efficiency. Working in one of the largest housing estates in Wales, which has a population of around 28,000 people.	Help alleviate fuel poverty. Increase awareness about energy saving and environmental issues.	<ul style="list-style-type: none"> • Community Solar PV scheme. • Energy home surveys. • Energy education schools initiatives. • Energy neighbourhood competition.
Tir-y-Gafel (Lammas) Description: An off-grid, low-impact development of nine households aiming to make their living and meet basic needs from the land.	Pioneer an alternative model for living on the land and empower people to live a low-impact lifestyle.	<ul style="list-style-type: none"> • Building own low-impact housing. • Requirement to meet 75% basic needs from the land by end of year 5 (including energy and water). • Off-grid – hydroelectricity and solar PV. • Growing own food and developing the area's biodiversity. • Weekly publicity tours during Spring/Summer • Supporting other low-impact projects.

Analysis

This paper is underpinned by interpretive thematic analysis; data were organised and subsequently interrogated for themes and patterns within and between the interview transcripts

³ The community solar PV scheme is the only activity that was never fully developed. All others have been, or are in the process of being, undertaken.

(Miles and Huberman, 1994). For this a coding framework was created from relevant literature, our research aims and the transcripts themselves, and refined through an iterative process to ensure that the codes used remained salient and responsive to emerging themes. NVivo data management software was used to apply codes and to facilitate the rapid and systematic retrieval of data according to particular themes.

Findings: Community and (Energy) Sustainability in Place

Case study 1: Tir-y-Gafel

Our starting point for the analysis is an exploration of whether there is a shared vision and how this interacts with and affects the activities being undertaken. The initial development of Tir-y-Gafel was led by a ‘core’ number of residents who created the project and subsequently advertised for people to take up available land plots. The way the community manifested over time, however, was up to the ingenuity and vision of the individuals and families that came to take up plots on the site. As such, the vision and objectives for the community can be seen as evolving through an iterative process between those that initiated and fought for the site development during the planning application and those that took up plots in Tir-y-Gafel subsequently.

Whilst the ecovillage necessitated some elements of communal infrastructure, such as tracks and water pipes, the social elements of community (e.g. shared values or ideals) had been deliberately omitted from the site ‘vision’, so as not to be too prescriptive. This was, in part, a reaction against the idea of being an ‘intentional’ community, which is a planned residential community with a high degree of social cohesion or strong communal ethic built in, that characterises other ecologically-guided projects in the region. The founders wished to create a sustainable place for living that in many senses operated as a normal, mainstream community:

‘Now I don’t really see Lammas or Tir-y-Gafel here as an intentional community in that it was always designed that anybody could move in...and that’s one of the kind of core principles...it attempts to marry the best parts of the alternative culture with the best parts of the conventional culture...’ (Peter, Tir-y-Gafel).

However, it is notable that ‘low-impact living’ and a ‘creating a sustainable way of life’ in place did loosely form a coalescing principle. Despite the absence of social elements from the vision, some spoke of their efforts to bring people together to develop a sense of community highlighting the effort involved in doing so:

‘[t]here are people here that want to makes us be a community or just have it in their mind that we are a community; [but] that takes a certain amount of energy...’ (Michael, Tir-y-Gafel).

As discussed above, a characteristic of community is the notion that there is a ‘shared vision’ (Silk, 1999). However, our Tir-y-Gafel participants’ narratives indicated varied reasons for choosing ecovillage living, which created challenges for developing a community ethos:

‘All communities can be really hard and there’s a lot of disparate and intelligent people here...who actually, when you look closely, are here for lots of different reasons that sort of float around “sustainable, low-impact, green” but that is not a combining ethos’ (Roy, Tir-y-Gafel).

This raises questions concerning whether a shared vision is necessary as long as the objectives of individuals are not diametrically opposed. That said, the decision not to prescribe a social structure and the ‘intent’ that residents should live relatively independently could itself be seen as a ‘shared vision’.

Alongside their varying visions of community, there was a strong awareness of an *external* perception that ‘eco’ was core to the community in Tir-y-Gafel. This, together with the social visibility of the village (i.e. through site tours and wider promotion), at times meant that residents felt their community was open to particular judgements from ‘others’:

‘[o]ne of those things about living here is that you are very open to judgement because it’s an ‘ecovillage’, so any visitor that comes can go “Well that’s not very eco is it?”’ (Graham, Tir-y-Gafel).

External visibility was characterised as being a positive by some residents, as it attracted different kinds of support to the village (e.g. volunteer labour) and could be empowering more generally to be viewed as a collective. In discussing the possible outcomes if the community failed to meet their five year planning targets, Joseph reflects on the role of outside awareness and support for the project:

‘I think ultimately it would go to court...I don’t think they’ll [planning authorities] get too heavy. I think also there’s so much support, I don’t think, cor, could they handle the protests [from all of the supporters of Tir-y-Gafel]?’ (Joseph, Tir-y-Gafel).

The high-profile nature of the ecovillage had, then, some positive implications for sustainable place-making both in terms of the direct support that facilitated its material development and the more general support that gave collective empowerment and social capital through political

power to the residents. However, it also created pressure for the residents that could be both positive and negative i.e. it fostered deeper levels of reflection on the sustainability of their actions but this level of scrutiny, at times, also made the ecovillage a difficult place to inhabit. This is an issue given that the development of sustainability more widely is likely to be contingent on the desirability of the kinds of sustainable places that are created.

Tir-y-Gafel differs from most community initiatives in that the small number of available plots restricted membership of the ecovillage. As such, their social capital, and in turn resilience, is less dependent on recruiting additional enthusiasts and more on the commitment of those who agreed to be involved. Tir-y-Gafel is also vulnerable in some respects. For example, in the initial phase of trying to secure planning permission, the project had very little in reserve in terms of intrinsic capacity in the event something went wrong:

‘It was incredibly frustrating, not least in the sense that the planners came up with this policy and then made it as obstructive as possible for anybody to actually realise a project under their policy ... I'm aware of the degree of detail that the Lammas people sent in; it was a 1200 page document ... and the attention to detail that was required and given was just phenomenal ... physically the toll [on individuals] was just incredible as well’ (Vanessa, Tir-y-Gafel).

Vanessa’s quote indicates the stresses felt by some individuals within the group. For all of our case site areas, the availability of time is an issue and our interviewees articulated that a key constraint is the busyness of everyday life. At Tir-y-Gafel, this was particularly relevant as residents there struggled with fulfilling both short-term objectives of everyday living and the spectre of their ‘superhuman, mission impossible type [75%] target’ (Joseph, Tir-y-Gafel). For example, residents were engaged in raising young children, building houses, developing land-based businesses and engaging with policy, as well as the ongoing work of developing a community.

‘Any one of those things is, would be a full time undertaking within itself. We’ve decided to do them all at once and we have agreed to meet...these kind of abstract targets within five years as well, so it blows my mind’ (Michael, Tir-y-Gafel).

Such commitments impacted on their ability to engage with the longer-term aim of building some form of a sustainable place. Outside the ecovillage’s permanent residents, there is a wider community of interest. For example, there is some level of dependence on wider civic engagement in terms of volunteers who visit the site and assist the residents in their everyday activities in exchange for meals and opportunities to learn. The residents were clear that without

such transient membership, they would struggle to exist. However, some residents described how at times the volunteers also placed a strain on their activities:

‘...it’s hard enough catering for your children in strained circumstances and if you’ve got volunteers [you’ve got] to cook for them as well ...’ (Graham, Tir-y-Gafel).

Clearly it is the case that whilst social capital, including aspects of civic engagement and membership, can contribute to the overall resilience of a community, there is a fine balance to reach so it is not undermined by precisely those activities that are considered to contribute to community or social resilience (Adger, 2000).

As part of a commitment to being a low-impact sustainable development, residents had to think carefully about the availability, management and sources of energy. Energy was seen as a precious resource in relatively (compared to mainstream lifestyles) short supply:

I’m really aware that if there’s no lights or energy being used the inverter needs to be switched off and sometimes it doesn’t and I get really annoyed: “That’s precious energy that we’re using for tonight!” (Joseph, Tir-y-Gafel).

This was particularly the case as the development, due to a requirement of the planning permission, was off-grid and at the time of the first interviews the community hydroelectric scheme was not online. The provision of energy was the responsibility of each household and accounted for a significant part of their everyday work. Added to the other commitments involved in low-impact development, the provision and management of energy was a further source of both resilience and strain on people’s time. However, it was also a key part of work involved in ensuring the site is a sustainable place.

Case study 2: Futurespace – Ely and Caerau

The negotiation of community at Tir-y-Gafel contrasts with Futurespace, our community group case based in Ely and Caerau. Here the aspiration of being identified as a community group underpinned the vision from the beginning, with aims to reach out to and support action in the wider community of Ely and Caerau. Yet the shared vision was not static; similarly to Tir-y-Gafel, the initial aims and objectives of Futurespace evolved over time with the incorporation of ‘volunteers who became interested and started bringing in their own perspective’ (Steve, Ely and Caerau). It was clear that for many of the volunteers, sustainable place-making and particularly environmental aims were secondary concerns behind fuel poverty:

‘...when I first joined I probably thought that that was a good idea that I would help people in fuel poverty and then the environment would be secondary’ (Kelly, Ely and Caerau).

In Ely and Caerau, the desire to go beyond an environmental framing of issues is also reflected in the interviews with those within the wider communities who were interested in the solar PV scheme. Fuel poverty was again perceived as a pervasive issue in the area as ‘a lot of people in Ely are on benefits and... they’ve got young children, they struggle and people are on [pre-paid] gas cards and they are so expensive to run’ (Sally, Ely and Caerau). The potential wider benefits of the solar PV scheme were also, to some in the community, a source of enthusiasm. For example, one aim of the development was to generate a guaranteed income that could be invested into an array of community schemes not necessarily related to the environment or energy. Accordingly, the scheme was perceived as facilitating social action:

‘I was quite pleased to see it was going through because Ely is a bit, they say it’s a deprived area...but it was nice to see that somebody was going to be able to use some of the money for where we live’ (Vicky, Ely and Caerau).

Ely and Caerau was identified by members of Futurespace and other residents as having a strong sense of community and Futurespace members saw themselves as being a part of that community. However, for those interviewees who were Ely and Caerau residents but were not part of Futurespace, it is less clear how Futurespace was perceived. For example, in discussing the potential solar PV scheme, Caroline reflects a perception that the community group was a business:

‘...Futurespace would obviously get the tariffs but then if you’re in business you want to make money don’t you?...’ (Caroline, Ely and Caerau).

This viewpoint had important implications for how the group was perceived within the wider community in the aftermath of changes to the FiT. During the course of our research the FiT rates were dramatically lowered, which meant investors in the scheme no longer felt it was financially viable and Futurespace’s initial plans had to be abandoned. This had significant impacts on the resilience of Futurespace due to both civic engagement and how they had ‘recruited’ households to the scheme.

For Futurespace, recruitment had two dimensions: recruiting volunteers to Futurespace itself and subsequently recruiting participants to the group’s initiatives (e.g. the solar PV scheme). The initial group of volunteers consisted of fluid participation from 5-15 members, largely from the

local community. This fluctuated over time and often it was the lower number that could be considered ‘enthusiasts’ (Hoffman and High-Pippert, 2010), yet when it came to recruiting households to the solar PV scheme, a second tier of enthusiasts became involved. Using the social networks of Futurespace, volunteers acted as advocates of schemes. These advocates invited and encouraged others to get involved and in turn invite others they know – building on neighbourliness and existing trusted relationships (Hoffman and High-Pippert, 2010). In addition, the activities of Futurespace were repeatedly advertised in the local community newsletter *The Ely Grapevine*, which is disseminated to all households in Ely and Caerau.

This approach proved extremely successful for Futurespace with 500 households expressing an interest in the solar PV scheme, and 100 of these signing the lease agreement before the scheme collapsed. Yet, such approaches also left the advocates in a vulnerable position; once the scheme collapsed, volunteers felt those they had recruited held them accountable. As such, social trust was eroded and for a while Futurespace struggled to engage with the wider community of Ely and Caerau when turning their attentions to energy demand reduction initiatives. However, interviews with those in the wider community suggest they were not wholly unsympathetic to the group’s position:

‘But I know they were devastated you know because they did such a lot of work and it’s a bit heart-breaking really for them, I felt really sorry for them...’ (Caroline, Ely and Caerau).

The scheme collapsing had multiple impacts for Futurespace that go beyond investment for solar PV. This included not being able to facilitate social action that the FiT would have underpinned (e.g. supporting other community groups and initiatives in the area). Undoubtedly the FiT collapse had a lasting effect, damaging Futurespace’s morale, and gave them the perception that momentum had been lost. Nevertheless, the group were eventually able to refocus their efforts on energy demand reduction to help alleviate fuel poverty. This included taking forward ideas developed earlier, such as training Futurespace volunteers to undertake home energy surveys, and offering this service to local residents. As such, Futurespace could be seen as exhibiting resilience by being responsive and adapting to changing circumstances (Miller and Bentley, 2012).

Rae and Bradley (2012: 6498) argue that ‘hardship or unifying resistance to an external threat to a shared environment’ can lead to the development of a sense of community. For Futurespace, the difficulties involved in responding to a quickly changing energy policy landscape through the

FiT reductions also seemed to intensify the camaraderie and internal group cohesion. Indeed, when members of the group became too preoccupied with the failure of the PV scheme or a perceived lack of progress, other members of the group were quick to point out their collective achievements and the value each person brings to the group. This is suggestive of the adaptive capacity that communities have to find in creating sustainable places, and is indicative of the need for policy learning that can be responsive to realities 'on the ground'. Developing capacity for learning from the ways that communities mobilise energy policy in particular places and how this contributes to low carbon transitions, could be highly important in realising ambitions for community-led low carbon energy transitions.

Case study 3: Royal Free Hospital – London.

As noted above, the Royal Free Hospital (RFH) is rather different to the other case studies discussed thus far; it is a workplace-based rather than a residential community. However, some of our participants felt that those in power at the RFH were attempting to engender a conventional sense of community across the hospital, principally through recreational activities, although they also describe having difficulties in finding the time to act on such invitations:

'I think they probably try hard to foster a sense of community and there are some things like ... a Fun Run type thing and that type of thing, so I think they kinda try but I think it's probably minimal engagement from the staff ... I think in general people just get a bit wound up and you go to work and you do your job and then 'get out of there' kind of and there's probably not a lot of time to enjoy a sense of community' (Kirsty, RFH).

For some participants who had worked in several departments across the hospital, a wider sense of community and connectivity was engendered through the social networks they had established:

'Even going from my office from one ward around to the next ward to the stationery cupboard, I can't go and get a block of paper and it will take me three minutes. I'd be gone best part of half-an-hour because I will bump into somebody, if not two or three people ...' (Scott, RFH).

Although many of our interviewees described being part of a community at the RFH, this was often restricted to the department or team they currently worked in, rather than the hospital as a whole:

'It's more like a little community to ourselves. I mean saying that I know other people in other departments you know, people you know that I would deal with but it is more them and us... [it's] still kind of like your own little village' (Russell, RFH).

This is important, as it is within those teams that shared understandings of their roles and aims (Lave and Wenger, 1991) are likely to be engendered. However, this also has important implications for the hospital's ability to reach NHS targets of cutting carbon emissions. Achieving such aims, including through reducing energy consumption, requires the support and engagement of staff across the hospital. Whilst not necessarily discounting the importance of these objectives, efficiency schemes were largely seen as being developed at the higher administrative levels of the hospital, as participants referred to decisions taken by 'powers that be'. For example, even when Paula describes being involved in a programme designed to promote cross-hospital learning around energy saving and recycling she points to others taking forward the ideas:

'Well we learnt quite a few things, you know, but to transfer that to our organisation, that's probably down to higher bosses and not us' (Paula, RFH).

Crucially, though the hospital estates department had made efforts to disseminate information and advice to employees across the hospital, there was not an identifiable community coalescing around or connected to energy, due to individuals feeling that they had little power to affect change in this regard. As such, the drive for social action on energy issues and social capital (built through civic engagement and recruiting members) to enact such action was limited.

A lack of engagement in energy reduction could also be linked to a limited awareness that this is a prominent issue in the hospital directly connected to workplace practices. Whilst energy underpins everything the hospital does, energy demand reduction is not its *raison d'être*; instead the focus is understandably on healthcare. However, what was clear from the interviews is the *potential* for departmental communities to facilitate energy demand reduction:

'Whenever I get a new job I ask them what they do. So I say things like "do you turn your computers off when you go home?" and most people say no. And then I just follow their protocol' (Paula, RFH).

Paula's quote outlines a powerful moment where intervention could occur; a practice of unnecessary energy use is transmitted, yet there appears to be potential for energy saving measures to be passed on in a similar way. In contrast, the current methods of disseminating and engaging staff in energy demand reduction (e.g. emails, energy information monitors displaying information about the hospital's energy use and 'energy week') were often seen as being a kind of white noise:

‘...if people are in a rush and they’re walking past, how much are they actually going to take from that [energy information monitor]?’ (Sarah, RFH).

These energy information screens bear some similarities to in-home displays (IHDs), which depict domestic energy use. Strengers’ (2011) research on IHDs questions to what degree such screens engage consumers of energy. In particular, Strengers argues that a key aspect related to whether or not her interviewees acted upon the information provided by the IHD was dependent on ‘what energy...practices they considered negotiable’ (2011: 330). However, whilst some of our participants felt powerless to effect change, other interviewees believed that particular individuals should be made responsible for encouraging and enforcing the shut-down of equipment and lighting:

‘...whoever is the head of any department should say “last person out make sure you switch everything off”’ (Marie, RFH).

Other interviewees felt that it would be inappropriate for them to intervene in what they recognised as bad practice as there was a feeling that trying to persuade others would contravene social norms. Yet some talked about how they would assist colleagues who repeatedly forgot to shut down their equipment:

‘[y]ou’d be lucky if Zoe even closes her computer down. It’s usually me that has to do that for her...she’s always running out of the door or she’ll phone me and say, “I’ve forgotten to switch off, so do it for me”. Which is fine’ (Scott, RFH).

For the hospital, motivations for energy reduction could be seen largely in terms of cost and carbon saving for the NHS trust, which may not be motivating for members of staff who work there to change their patterns of energy use. In addition, some participants indicated that beyond cost saving, they did not understand why they should reduce energy use:

I know that I should recycle and I know that it’s really bad not to ... But I don’t know why it’s not good to not use lots of energy, I actually don’t know why you know I feel like no one has actually told me ... I kind of understand carbon emissions aren’t good for the planet and climate change so I do understand that so I guess that’s from cars and stuff like that so I do understand that but I don’t understand why I wouldn’t use lots of energy... (Kirsty, RFH)

Communicating the wider benefits of energy saving may be important for encouraging employees to adopt energy saving measures, which is something that could potentially be embedded in an existing management role, as outlined above. The centrality of energy to community workplace practices, that is some level of a shared vision around these issues, may therefore be significant in engendering social action so that such communities can be an effective

conduit for energy demand reduction and the creation of sustainable workplace-based communities. In some ways the capacity of the hospital to formulate ‘community’ appears to be limited by it being situated as purely a place of work, contrasting with those where home or residences were a key part of the community (e.g. Tir-y-Gafel; Ely and Caerau). Moreover, the hierarchical structure of work-places suggests an important need for leadership in these contexts to overcome issues that are identifiable in the designation and legitimation of roles and responsibilities. These represent key differences apparent in this work-place based community case site, compared to the more residential communities.

Concluding discussion

We began this paper by outlining three key dimensions of community that are useful for exploring the opportunities and challenges faced by residential or workplace-based community-led energy initiatives, in contributing to the making of sustainable places. These were: 1) shared visions or values; 2) social action; and 3) community or social resilience, linked with social capital and civic engagement. For our concluding discussion we engage with these characteristics, re-examining them with reference to our analysis and drawing out implications for understanding the importance of place and the role of community in delivering wider transitions envisioned in UK energy policy.

Our case site analysis indicates that some level of a shared vision is perhaps necessary to facilitate social action and indeed social resilience in community-led place-based energy developments. Whilst the shared vision does not have to be all-encompassing, some level of sharing allows an organising principle to be developed, providing community members with clear reasons why certain aims or actions are desirable. This need for some level of sharing appears to be related to the places in which communities were created, and particularly the difference between our residential and workplace-based community. For example, in our workplace-based community the need for energy demand reduction was not felt to be a core part of workplace practices. As such, participants in the workplace-based case site struggled to understand the salience and benefits of energy demand reduction initiatives and their role within them; they were not empowered. In our residential case sites, though developing shared visions still presented challenges, we were able to find evidence of such visions and identify their significance for facilitating social action. In our Futurespace Ely and Caerau case site, community group members and the wider community were able to coalesce around a shared concern about fuel poverty, directly related to energy demand and its reduction. Equally, in Tir-Y-Gafel a

community formed, however loosely, around a set of concerns that might be termed ‘eco’, which was further solidified through external scrutiny. The particular nature of the workplace, however, as somewhere to be left promptly at the end of the day and where issues related to energy were not core to people’s job roles contributed to difficulties that were evident in creating any sense of shared vision and, subsequently, galvanising action in pure workplace based ‘communities’.

The importance of civic engagement for the success of initiatives has been highlighted in previous research (e.g. see Walker and Devine-Wright, 2008). In this regard, our analysis points to the importance of being able to see the relevance of the endeavor and feeling empowered to achieve it, as well as the significance of ‘neighbourliness’ (Hoffman and High-Pippert, 2010) in the facilitation of civic engagement and thus the building of social capital (also see Walker et al., 2010). Indeed, our analysis of the RFH suggests that encouraging advocates from the departmental communities already existing within the hospital, and thus drawing on existing trusted relationships, might garner more success than initiatives that attempt to draw together the whole hospital. This finding builds upon previous research that has indicated that energy reduction initiatives should be targeted at groups and neighbourhoods rather than just individual households (Seyfang et al., 2013; Butler et al., 2014) and is inline with suggestions to develop neighbourhood champions (Cinderby et al., 2014).

The analysis presented here has further insights concerning interconnections between the ability to take social action and social resilience. Our case studies show that social resilience can be rather fragile leading to communities experiencing difficulties in adapting in the event of plans needing to change in response to external stresses – as in the case of Futurespace following the FiT changes. Although this does not mean community groups were not able to take action, it is clear that community groups struggled to adapt in a timely manner and as part of this, they also struggled to maintain civic engagement. As such, levels of social capital and, by association, the social resilience of a community group fluctuates in response to both the intrinsic capacity of the group and events outside of the groups’ control. This issue of interactions across different scales and, in particular, their effect on adaptability – the capacity of human actors within a system to manage it for resilience – is central to much resilience thinking more widely (Berkes and Folke, 2002; Adger, 2000). Enforced change at national level can threaten local resilience and adaptability, but stability or rigidity at this scale can also be a powerful barrier to change. Community resilience can thus be threatened by action at other scales (e.g. at the scale of

national policy), but it could also be supported and enhanced there.

For both Tir-y-Gafel and Futurespace, policy opportunities (e.g. the FiT for Futurespace; planning policies for Tir-y-Gafel) could be said to be individually and collectively empowering at certain points. However, the communities were also at times disempowered by these same policies, Futurespace by the FiT reduction and Tir-Y-Gafel due to attempting to fulfill the many commitments the planning permission demanded of them. Perceived rapid changes and refinements to policy instruments can have detrimental impacts on community energy groups, somewhat undermining current policy narratives (e.g. DECC, 2014) that speak of the need to empower and draw upon community groups to facilitate sustainable place making. This would suggest a need for policy transformations to take into account that, while community groups are able to adapt, it is perhaps at a slower rate than the policy review process. These findings also indicate that planned phased policy exits over a longer term are necessary ‘to promote a legacy with the community to embed change’ (Cinderby et al., 2014: 64).

In turn, this indicates that policy makers need to take into account processual aspects of policy delivery, and not just policy targets, including reflecting on the situatedness of community endeavours and the social systems they are engaged with (Cote and Nightingale, 2012). In addition, these findings would also indicate there is a need to reflect on what sort of ‘supportive governance’ mechanisms can be developed outside of specific policy interventions to facilitate the continued development of social resilience within communities (Cinderby et al., 2014; also Cote and Nightingale, 2012). In this respect, it has been asserted that in the face of large-scale disruptions or changing external conditions that make system reorganisation desirable or necessary, diversity of local circumstances is an important component of adaptability (Berkes and Folke, 2002; Cote and Nightingale, 2012). We find evidence of such diversity in our residential community settings that support such calls; for example, the shift to focus on demand reduction initiatives in Ely and Caerau. However, it is also clear that with (always) limited social and financial capital available to direct toward these challenges, ensuring such diversity is a difficult task. As much as there are imperatives for communities to build resilience (e.g. through diversity, developing social capital, and so forth), of equal importance is the need for policy learning with regards to ways that policy is mobilised and implemented in place. Understanding this may represent an important part of the path toward realising ambitions to achieve wider policy aims (i.e. low carbon transitions) through community-led initiatives.

Whilst some of our findings, for example the importance of time, social capital, and social resilience, have been noted previously in the community energy and sustainable communities literature (e.g. Dale et al., 2008; Walker et al., 2010), what is novel about the current analysis is the focus on community-led energy demand reduction initiatives, the diversity of case studies covered and, that such issues were pervasive in all of the case studies. The majority of the literature on community energy initiatives has focused on those groups attempting to develop a renewable energy project. However, our case sites and subsequent analysis have brought into view community energy ventures related to demand reduction in different spatial contexts and the associated challenges in sustainable place-making. In addition, whilst the importance of social capital has previously been recognised in resilience literature (e.g. Adger, 2000; Cote and Nightingale, 2012; Wilson, 2012), we have more thoroughly explored the dynamic relationship between social capital, shared visions, civic engagement and social resilience, revealing their underlying complexities in different situated contexts.

A final important point to note is that whilst some of our case site areas activities coalesced around energy and energy demand reduction, we have also made clear that this was not the only imperative underpinning their activities. Although community energy initiatives are (Tir-y-Gafel and Futurespace) or could be (RFH) a significant focus of everyday community life, it is often not their sole concern. As such, initiatives and policies developed to support energy communities need to be sympathetic to the multiple obligations community members are under whilst they attempt to facilitate the making of sustainable places.

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