Peak wind: the social acceptance of wind energy in Cornwall

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Abstract

This report investigates the factors affecting the local acceptance of onshore wind energy in the UK. The research was part of the Wind2050 project, which was funded by the Innovation Fund Denmark to examine the local acceptance of on and off-shore wind energy projects in Denmark, the UK and Ireland. It focuses on Cornwall, a region in the South West of the UK, which has seen a recent rapid increase in the number and size of onshore wind projects. Drawing on document analysis and interviews, the research finds evidence of social and physical saturation of onshore wind energy, with the cumulative landscape impacts having a negative impact on local people's attitudes towards wind. It also finds that the benefits are perceived to have been accrued by outsider actors, while policy measures to ensure that the benefits are felt locally have not had the intended impact. Given an increasingly negative policy context, this report argues that the future of onshore wind energy in the UK looks ever more uncertain.

Contents

1. Introduction

Wind power systems contribute significantly to European renewable energy production. In 2015, wind energy contributed 11% of the European Union's renewable energy, accounting for 36% and 28% of Denmark and the UK's primary production of renewable energy in 2014 respectively (Eurostat, 2016). In the UK, wind energy's contribution to UK electricity has increased from 1% to 10% in less than a decade (Renewable UK, 2015). However, this success has brought with it political and social challenges. While public support for onshore wind remains high[1] (DECC, 2016a), at the local level the situation is less clear cut, and many wind farms face opposition from local communities (e.g. Devine-Wright, 2005; Walker and Devine-Wright, 2008). Despite initiatives aimed at increasing public participation and local acceptance, both public and private bodies continue to experience an increasing lack of local acceptance of wind power projects. The Wind2050 project aimed to examine the dynamics of local acceptance to on- and off-shore wind energy projects in Denmark, the UK and Ireland. This report represents one of the outputs of Work Package 2, which aimed to analyse the role of public decision-making processes and policy measures in local acceptance. This included an examination of the outcomes of specific policy measures aimed at promoting local acceptance, including community funds and ownership schemes.

This report focuses on local acceptance of wind energy in Cornwall, a county in the south west of England. Cornwall hosts the UK's first commercial wind farm, Delabole, which was commissioned in 1991, and repowered between 2009 and 2011 (Good Energy, 2017). In the thirty years since Delabole, the county has experienced a rapid increase in the number of onshore wind projects, partly driven by a national policy framework that favoured the development of renewable energy projects and limited the space for public participation in siting decisions (Cowell et al., 2011; Lee et al., 2012). However, in May 2015 the UK government announced that local people would 'have the final say on wind farm applications', indicating an apparent about-turn in policy. This research therefore took place at a time of considerable policy change: where once onshore wind was a national priority, these changes indicated that local concerns should now be prioritised in siting decisions. Although it is too early to ascertain what the impact of this shift will be for onshore wind energy, this research also sought to investigate the potential impacts of these new measures. To do so, it focused on Cornwall, a county located in the South West of England, which has undergone a rapid increase in the number of onshore wind farms. It drew on analysis of relevant national and local policy and planning documents, which were supplemented by face-to-face interviews conducted in Cornwall during April and May 2016. This research finds evidence of social and physical saturation of onshore wind in Cornwall, particularly driven by concerns about the landscape and visual impacts of wind farms. It argues that a lack of strategy has resulted in many of the benefits of wind energy in Cornwall being experienced by outside actors. Further, policy measures to ensure local communities directly benefit from wind energy developments, such as community funds and community ownership, have had little impact on acceptance.

The rest of the report is structured as follows: the next section sets out the policy context for onshore wind energy in the UK, and discusses the recent changes which indicate an increased emphasis on local concerns. Section 3 draws on the literature on community acceptance of renewable energy projects, highlighting the role of policy measures to promote the provision of community benefits.

[1] In a Public Attitudes Tracking Survey carried out in 2016, 69% of those surveyed expressed support for onshore wind energy (DECC, 2016). This support has remained more or less constant since the survey began in 2012.

Section 4 describes the methods used in this research before Section 5 introduces the study area - Cornwall. Section 6 presents an analysis of the acceptance of onshore wind energy in Cornwall, and uses the case of the Big Field Wind Farm to highlight how these issues are reflected in specific project developments. The concluding section reflects on the significance of the research for policy measures that aim to promote local acceptance of onshore wind in Cornwall and the UK more generally.

2. Wind energy policy in the UK

Successive UK governments have committed to the deployment of renewable energy technologies, driven primarily by concerns about anthropogenic climate change, and the imperative to reduce greenhouse gas (GHG) emissions. The 2009 Renewable Energy Directive (RED) has a target for the UK to obtain 15% of its energy from renewable sources by 2020 (EC, 2009). This translates into a 30% target for electricity demand (DECC, n.d.), and wind energy–both onshore and offshore–has enormous potential due to the country's location. In recognition of this potential, the policy framework promoting the use of wind energy in the UK has strengthened over time. The 2008 Planning Act, which is applicable only to England and Wales, placed onshore wind developments above 50MW on the list of Nationally Significant Infrastructure Projects (NSIPs) (HM Government, 2008). The Act, which was amended by the Localism Act in 2011 (HM Government, 2011), was introduced to streamline the decision-making process. Prior to the Planning Act, local planning authorities were the principal decision maker for onshore wind energy projects, leading to a perceived slowing down of deployment and a 60% refusal rate for planning applications for onshore wind farms in England and Wales (Cass et al., 2010). The Act removed decision making for large projects from local authorities, which rested instead with the Secretary of State for Energy. Lee et al. (2012) argue that this strong policy commitment to renewable energy development effectively limited the extent to which public(s) could contribute to and influence planning decisions.

However, after decades of an increasingly supportive policy framework for onshore wind, the planning process in England and Wales has shifted. In May 2015, the newly elected Conservative Government announced that it would introduce legislation to remove such schemes from the NSIP process, effectively removing the need for the Secretary of State's consent for onshore windfarms over 50MW[2]. The Energy Bill, which entered into force in 2016, decentralised decision making on new onshore wind farms. This meant that local authorities are once more the principal decision-maker, and developers must apply for planning permission under the Town and Country Planning Act 1990 (DECC, 2015). This shift in policy is in line with the Conservative Party manifesto pledge to 'halt the spread of onshore windfarms' and to ensure that 'local people have the final say on windfarm applications' (Conservative Party, 2015: 57). Further changes to planning guidance on onshore wind were announced in June 2015, by communities' secretary Greg Clark in a written statement[3]. The new guidance states that local planning authorities should only grant planning permission if two conditions are met:

- The development site is in an area identified as suitable for wind energy development in a Local or Neighbourhood Plan; and,

[2] HC Deb 18 June 2015 10WS
[3] HC Deb 18 June 2015 9WS

- Following consultation, it can be demonstrated that the planning impacts identified by affected local communities have been fully addressed and therefore the proposal has their backing.

Significant uncertainty remains about how this guidance will be interpreted. For example, the guidance states that whether a proposal has the backing of a community will be a matter of planning judgement for local authorities. Complicating the process is that few, if any, plans had identified suitable areas for wind energy development (Sell, 2015). The new guidance means that developers of 'significant' onshore wind applications must engage with local communities and planning authorities pre-application (Smith, 2015), thus increasing upfront costs. Combined with the closure of the Renewables Obligation[4] to new onshore wind by April 2016, i.e. a year earlier than anticipated, the policy and investment climate for onshore wind is increasingly uncertain. Since the policy changes were announced, applications for a number of onshore wind developments have been withdrawn[5]; for example, Vattenfall, the firm behind the (60MW) Nocton Fen scheme, which cited the increased risk of the proposed changes to planning policy as a rationale for withdrawal (Donnelly, 2015). These changes signify an apparent about-turn in government policy: where once onshore wind was a national priority, it is now local concerns that appear to matter most. This is also reflected in the 2015 Infrastructure Act, which makes provision about community electricity rights. Of relevance here is that the Act gives individuals the right to buy a stake in a renewable electricity development in or adjacent to the community (HM Government, 2015). This raises the critical question of whether these measures, driven by an apparent concern for local people to 'have a say', will increase local participation in and support for onshore wind developments. Having set out the policy framework for onshore wind energy in England and Wales, the next section explores the policy measures that have been developed to promote local acceptance of wind and other renewable energy projects in the UK.

3. Community benefits in onshore wind energy developments

Despite continued strong support for wind energy at the national level, at the local level controversy and opposition have characterised many wind energy developments. A substantial body of evidence has shown that negative perceptions cannot be simply characterised as NIMBY ('Not In My Back Yard'); rather attitudes towards wind projects are affected by multiple social, economic, physical, political and cultural factors (e.g. Devine-Wright, 2005; Wustenhagen et al., 2007). Concerns about distributive and procedural justice also pervade the debate; for example, support for wind energy has been found to be lower where people perceive the costs and benefits to be unfairly distributed (Devine-Wright, 2005; Walker et al., 2007, 2010; Wustenhagen et al., 2007; Bristow et al., 2012; Parkhill et al., 2013). This points to a tension wherein the benefits of wind energy, (i.e. reduced GHG emissions which are felt nationally and globally), are separated from the people who pay the perceived costs (i.e. noise, landscape and visual impacts at the local level) (Cass et al., 2010). In terms of procedural justice, since the 1990s, strengthening policy drivers for wind have meant that the opportunities for public participation in siting decisions have been reduced. Lee et al. (2012) argue that the presumption in favour of development meant that only the 'how' was open to debate, and not the 'whether'. In the absence of meaningful opportunities to engage in the planning process,

[4] The Renewables Obligation is one of the main support mechanisms for large-scale renewable electricity projects in the UK. It came into effect in 2002, and closed to all new generating capacity on the 31st March 2017.

[5] HC Deb 18 June 2015 10WS

the provision of community benefits has been one way of addressing perceived issues of (in)justice, and generating local support for wind energy developments.

Community benefits have been a feature since the first commercial wind farms were commissioned in the early 1990s, but these were largely established on a case-by-case basis (Bristow et al., 2012). As the number of wind energy developments in the UK has increased, so too has the level of benefits provided to communities. By the late 2000s, most developers were providing benefits to communities as a matter of course (Cass et al., 2010; Cowell, et al., 2011). As a result, policymakers have sought to steer and guide the process of delivering community benefits, which as Bristow et al. (2012) argue reflects 'a desire to establish the legitimacy and transparency of their provision and, to an extent, to promote the practice' (p. 1109).

In 2014, the Department of Energy and Climate Change[6] set out best practice guidance for community benefits from onshore wind energy (DECC, 2014). The guidance outlined a number of mechanisms through which communities may benefit from the development of onshore wind, including:

- *Community benefit funds:* voluntary monetary payments from the developer to the community, usually provided via an annual cash sum. This now stands at a minimum level of £5,000 per MW per annum, although some projects will provide more than this[7]. Community funds may be managed by existing institutions, such as a community council, or trusts may be set up specifically.
- *Benefits in-kind*: other voluntary benefits which the developer provides to the community, such as in-kind works, direct funding of projects, one-off funding, local energy discount schemes or any other non-necessary site-specific benefits.
- *Community investment:* where the community has a financial investment in a scheme, including cooperative schemes and online investment platforms. Since the publication of the Community Energy Strategy in 2014, developers are legally required to offer local communities the opportunity to share in the ownership of their projects.
- *Socio-economic community benefits*: job creation, skills training, apprenticeships, educational visits and raising awareness of climate change.
- *Material benefits*: derived from actions taken directly related to the development, such as improved infrastructure.

Only the latter three types of benefit are considered 'material' to the planning process; these benefits can therefore be considered as part of the planning application. Conversely, the first two types of benefit are considered to be 'voluntary' undertakings, and should not be taken into account by planning authorities (DECC, 2014). Bristow et al. (2012) argue that there has been an increased formalisation of the arrangements to deliver community benefits – particularly community funds – and, as a result, they have become less ad hoc and more prescriptive. This raises the questions of whether this formalisation has led, or will lead to, the delivery of benefits better able to support community wishes and foster acceptance of wind energy projects.

'Community' has typically been taken to refer to a community of place, rather than a community of interest – although both may be relevant in the context of community benefits (Walker et al., 2007; Walker and Devine-Wright, 2008). This means that those who are able to participate in conversations

[6] In July 2016, the new Prime Minister, Theresa May, merged DECC with the Department for Business, Innovation and Skills, creating the Department of Business, Energy and Industrial Strategy (BEIS).
[7] The Delabole site in Cornwall, for example, contributes £9,200 per year which rises with inflation (Good Energy, 2017).

about a community benefits package tend to live or work near to the site of development. The guidance acknowledges that any given community will be diverse and comprised of multiple, sometimes competing, values, and emphasises that developers should aim for an in-depth understanding of the community who is hosting the wind farm in order to design solutions that work best for that setting (DECC, 2014). This is echoed in the wider literature on community acceptance of renewable energy; for example, Devine-Wright (2005) found that support for local energy projects was high when developers worked in partnership with communities, where the energy was used locally and profits were put back into the local community. Other authors have reached similar conclusions (e.g. Walker et al., 2007; Walker and Devine-Wright, 2008; Bristow et al., 2012). However, questions remain about what issues local communities are able to influence, and who is able to participate in the negotiation of community benefit packages. It is likely that only those actors who are best resourced – either in time, money, networks or knowledge – are able to contribute and shape the outcomes.

4. Methodology

The initial stage of the research consisted of a review of the academic and grey literature relating to community acceptance of onshore wind energy in the UK. This was combined with analysis of relevant policy documents, particularly focused on energy planning and guidance for community involvement in renewable energy developments in England. Since the project was focused on the factors affecting the local acceptance of wind energy, it was necessary to select a site or project for further investigation; limited time and resources meant that this was restricted to a single project.

There is a very large number of onshore wind energy projects in the UK. At the end of December 2014, there were 7,826 onshore wind sites generating renewable electricity, and 10,880 operational wind turbines (DECC, 2015). Given the differences in planning processes across the four devolved administrations, the research was limited to projects located in England. The Renewable Energy Planning Database (REPD) tracks the progress of renewable electricity projects through the planning process, and in March 2016 listed 466 onshore wind energy projects in England that have submitted a planning application since 2007 (DECC, 2016). In order to narrow the scope of the study, it was decided to focus on Cornwall, an English county located in the south west of England which has a long history of wind energy developments. It uses the case of the Big Field Wind Farm, a 38.5 MW development in northern Cornwall, to highlight some of the specific issues associated with onshore wind energy in the county.

The desk-based research was supplemented by face-to-face interviews conducted in Cornwall during April and May 2016. A total of eight semi-structured interviews were carried out with community energy groups (4), local government (2), developers (2), and a focus group with six local members of a national environmental NGO (1). The community energy groups were involved in setting up and managing local renewable energy projects (both wind and solar), including the associated community funds. In addition, these groups were involved in wider efforts to promote energy efficiency in their communities. The interviews explored a number of themes, including community engagement in the planning process, community benefits, and the potential implications of policy change on local acceptance of wind energy. Interviewees were selected on the basis of their involvement in wind energy planning in Cornwall and/ or the Big Field Wind Farm. Drawing on the literature review, three interview guides were developed – one each for developers, communities and local authorities – although there was some overlap between these; Appendices II-IV contain the final interview protocols. Whenever possible interviews were digitally recorded, and the detailed notes taken in interviews were supplemented with the recordings. The interviews were analysed

using both deductive and inductive approaches; some themes were identified through the literature and document analysis, while others emerged from repeated reading of the interview and documentary data. All comments by interviewees have been anonymised.

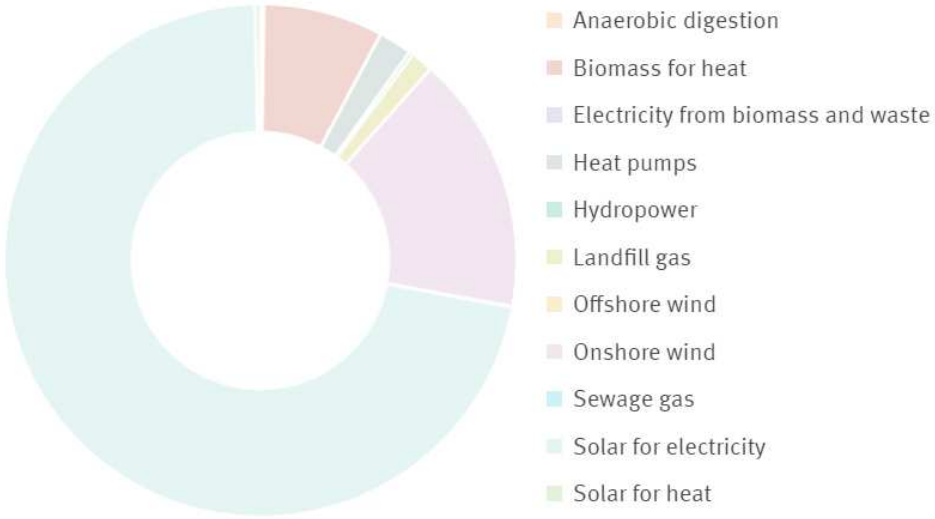
5. Study Area: Cornwall

Cornwall is a county located in the South West of the UK. It has a population of around half a million (ONS, 2011), and covers an area of 3,559 km^2, which means the county has one of the lowest population densities in the UK (CCC, 2015). Cornwall has a relatively high retired population (31% of the population are of pensionable age (ONS, 2014), and is also characterised as one of the least equal counties in the UK. Official measures of deprivation show some areas as having amongst the highest rates of poverty in the UK (DCLG, 2015). In 2013, an estimated 14% of households lived in fuel poverty (CCC, 2015). Despite this, average house prices are high, driven by demand from relatively wealthy retirees and second home owners (Dugan 2008; DCLG, 2010). Historically the county was dependent on mining (tin, copper and china clay), as well as agriculture and fishing, and Cornwall was inscribed as a World Heritage Site in 2006 for its mining landscapes. Today, Cornwall's economy is dependent on tourism, which contributes 11% of Gross Value Added (CCC, 2013). As much as 30% of the county is designated an Area of Outstanding Natural Beauty, and a further 24% is recognised as Area of Great Landscape Value (Land Use Consultants, 2011). While Cornwall's relative isolation is one of its attractions, it is also a factor in its poverty as infrastructure is limited. Public transport is limited, there is no motorway, and the county has only limited gas mains. One of the poorest regions in the UK, Cornwall is the recipient of substantial EU funding. In February 2017, the Cornwall and Isles of Scilly Growth Programme was worth €603,706,864; the region also received £9.4 million from the European Agriculture Fund for Rural Development (CCC, 2017a)[8].

Cornwall is a unitary authority, which is responsible for all local government services including energy planning. In recognition of the county's substantial potential, the development of renewable energy has been identified as a key strategic issue (CCC, 2013). Cornwall has been successful in its promotion of renewable energy, which has grown by 15% per year. In particular, Cornwall aims to realise the economic and social benefits of a decentralised local energy market, and places an emphasis on achieving local benefit through local ownership of generation. In 2009, Cornwall had an installed renewable electricity capacity of 57.8 MW, and by 2015 this had increased to 604.6 MW (RegenSW, 2009, 2015). In 2016, Cornwall was ranked fourth (out of the 56 English counties) for installed renewable energy capacity (both heat and electricity) (Green Alliance, 2016). The vast majority (72%) of this capacity was from solar energy, with onshore wind placed second (16%) (Figure 1). For onshore wind, Cornwall was ranked twelfth and had an estimated 140 MW of onshore wind capacity (Green Alliance, 2016; CCC, 2017). The county now generates nearly one third of its electricity needs from renewable energy sources (CCC, 2016e).

[8] In June 2016, Cornwall narrowly voted for Brexit, with 56.5% voting to leave the European Union.

Figure 1. Renewable energy capacity (%) in Cornwall, 2015.



Source: Green Alliance, 2016.

However, as will be discussed in Section 6, this remarkable increase in renewable energy capacity has not been without its critics. In anticipation of potential criticisms of wind and other renewable energy projects, the CCC has developed a number of documents to support and guide the development of potential projects. These include planning advice on renewable energy (CCC, 2016a), supported by an assessment of landscape sensitivity (Land Use Consultants, 2011), guidance on cumulative impact assessment (CCC, 2016b), and guidance on community-led energy developments (CCC, 2016c). The key piece of planning documentation is, however, the Local Plan. According to the Department for Communities and Local Government (DCLG), Local Plans are a key part of national planning policy and:

> "set out a vision and a framework for the future development of the area, addressing needs and opportunities in relation to housing, the economy, community facilities and infrastructure – as well as a basis for safeguarding the environment, adapting to climate change and securing good design. They are also a critical tool in guiding decisions about individual development proposals, as Local Plans…are the starting-point for considering whether applications can be approved" (DCLG, 2014: no page ref).

Therefore, Local Plans set out how an area is to develop over a period of ten to fifteen years, and where and when this will occur. The Cornwall Local Plan was formally adopted in November 2016, and has renewable energy as one of its core policies (CCC, 2016d). Policy 14 on 'renewable and low carbon energy' aims to:

> "promote renewable and low carbon energy resource development while ensuring that adverse impacts are addressed satisfactorily, including noise and cumulative landscape and visual impacts" (p. 54).

While the Plan acknowledges the 2015 Ministerial Statement on onshore wind, it states that the Council will not allocate sites but rather:

> "represents the policy framework against which planning applications will be considered, should they come forward as a result of a Neighbourhood Plan allocation, or as an application for repower of sites which benefit from extant planning consent" (p.55).

Only five Neighbourhood Plans have been adopted to date, and none allocate specific areas to be developed for renewable energy. Of those that mention energy, three do so in a context of energy efficiency and conservation. The only Neighbourhood Plan to discuss renewable energy projects in detail states that a survey of community opinion revealed a:

> "high level of support (88%) for 'other' carbon reduction options that had lower landscape impact than wind turbines or solar panels; 54% wanted no wind turbines on the Roseland and a further 30% wanted a limit on height" (Roseland Neighbourhood Development Plan Steering Group, 2014: p.14).

As will be discussed in the next section, the landscape and visual impacts of renewable energy projects remains a key concern for local people. This raises the key question of whether the recent changes to planning policy in effect places an unsurmountable barrier on the development of future wind energy projects in Cornwall. Having introduced the study context, the next section draws on the document analysis and interviews to examine the factors influencing local acceptance of onshore wind energy in Cornwall.

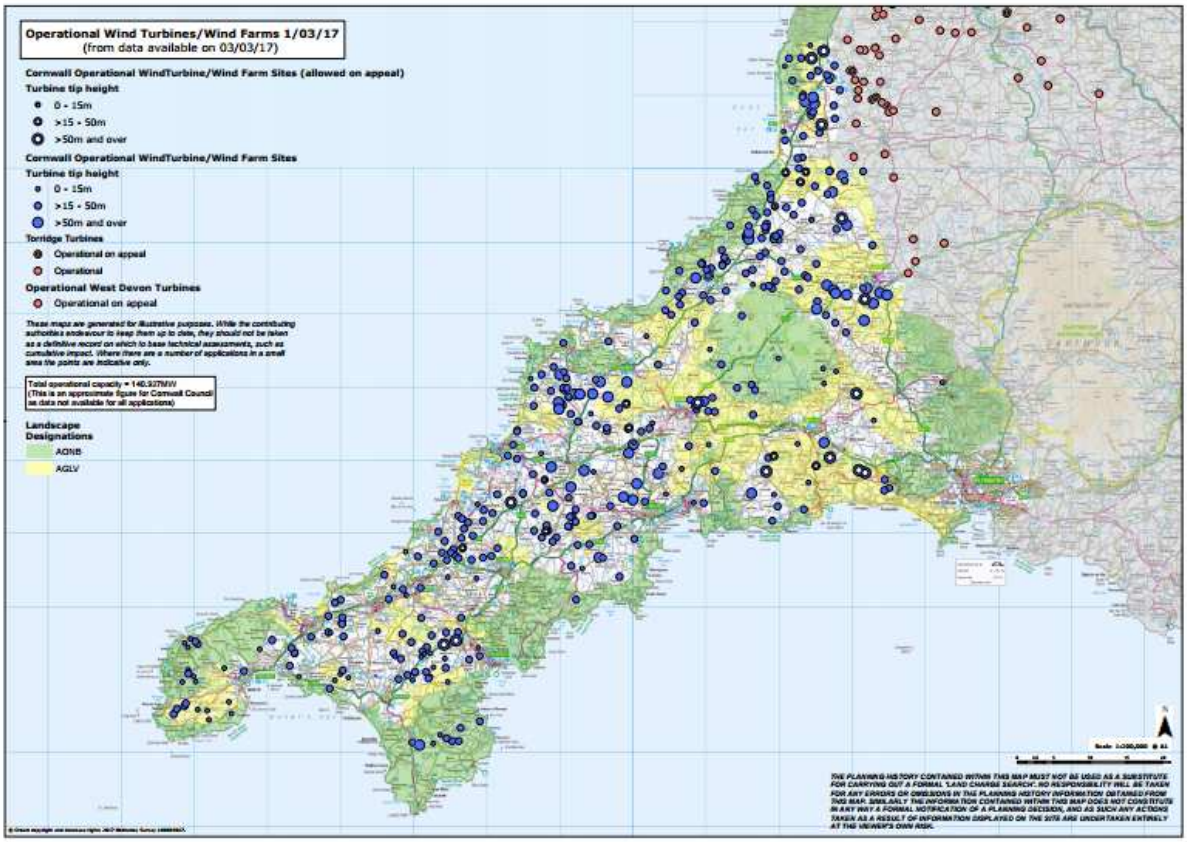
6. Local acceptance of onshore wind energy projects in Cornwall

6.1. The Wind Rush

One of the key themes to emerge from the interviews was that the scale and speed at which wind energy projects had been developed in Cornwall had affected people's attitudes. Whilst acknowledging Cornwall's industrial past, several interviewees referred to a new industrialisation of the landscape as a result of both wind and solar energy developments. Interviewees argued that this transformation of the landscape had been rapid, and had not given local people time to adjust and adapt to the changes that were underway. One interviewee argued that the speed at which the transition had taken place was a result of national government's failure to anticipate the need for renewable energy, which had meant the transition to a low carbon energy system had to take place at a more rapid pace (Community Energy 2, May 2016). Figure 2 shows a map of operational wind turbines in Cornwall.

The industrialisation had been worsened by government subsidies, specifically the Feed in Tariff (FiT) which came into effect in April 2010. Wind installations greater than 100kW, but not exceeding 500kW were paid 20.6 pence per kWh; the subsidy for the next category – turbines greater than 500kW, but less than 1.5GW – was 10.4 pence per kWh (Ofgem, 2010). This incentivised smaller, underpowered turbines, and resulted in a greater number of turbines than was economically or technically efficient. A developer (Developer 1, May 2016) explained that this categorisation resulted from a failure of government to consult with manufacturers when designing the Feed in Tariff (FiT), and meant that the policy supported an 'obsolete design' of 500 kW turbines while more efficient 850 kW turbines were engineered to be less effective. She explained that this had also coincided with the amount that farmers – at that time, the main developers of wind energy in the county – could borrow, and as a result Cornwall was full of 'stumpy, less efficient turbines'.

Figure 2. Operational wind turbines in Cornwall, March 2017.



Source: CCC (2017)

One interviewee felt that Cornwall was 'littered' with turbines (NGO, April 2016), a sentiment echoed by another participant who argued that attitudes to wind were not just about the installed capacity, but also the number of turbines (Local Government, April 2016). As one interviewee stated:

> "Strategically it might have been better… we only understood it when it was too late, was that for there to have been larger wind arrays on the best wind sites with minimum landscape impact. Because that does seem to have fed into [the perception that] that the whole countryside is blighted in some people's eyes by turbines" (Community Energy 1, April 2016].

However, industrialisation referred not only to the visual impact on the landscape, but also to the perception that wind turbines would result in permanent infrastructure and, in some instances, lead to a change in land use i.e. from agricultural to industrial. One participant argued that more needed to be done to address such misperceptions (Community Energy 2, May 2016); this will be discussed in more detail in the next section.

In addition to blaming the national government for not responding quickly enough to the need for a low carbon transition, interviewees also argued that the large number of turbines resulted from a lack of vision and strategy by the local planning authorities i.e. Cornwall County Council (CCC). Several participants argued that CCC had failed to think strategically about where wind developments could or should be sited and, as a result, developers had been able to site turbines where they wanted. However, a respondent from the local planning authority described how CCC had considered allocating sites for the development of wind projects, but explained this had elicited a negative response from developers. He went on further to explain:

> "…the rationale was we don't think you can do a good job. They didn't say that in as many words, but… I think they felt that in trying to allocate we might pick bad sites, not do a good job of the constraints assessment and stir a hornets' nest for particular proposals" (Local Government, April 2016).

This quote highlights the difficulties associated with assigning particular areas as suitable for wind energy developments, and suggests that it will be very difficult for planning authorities to meet the conditions set out by Government in June 2015. It also points to the concerns that developers and others have of advising potentially affected communities too early in the planning process for fear of opposition. This was echoed by a developer who argued that locally embedded developers have more to lose, and were more likely to withdraw applications if it seemed a project was going to be too controversial (Developer 1, May 2016). This raises a number of interesting questions about the timing and practices of community engagement (Aitken et al., 2016), which will be discussed in more detail in Section 6.2.

However, respondents felt that Cornwall had reached 'peak wind'. This argument had a number of facets: firstly, participants thought that all the viable sites had now been taken; for example, it was expected that the Big Field wind farm (see Section 6.5) would be the last large onshore wind development in Cornwall (NGO, April 2016; Developer 2, May 2016). As a result, existing wind farms, such as Delabole[9], were now being repowered, with smaller turbines being replaced by fewer, larger turbines. The second issue related to poor grid infrastructure. Several respondents mentioned that grid modernisation was urgently required to bring additional renewable energy capacity online. It was argued that the rapid increase in the number of solar and wind energy projects had brought the grid close to capacity, and that this represented a key barrier to new renewable energy projects in the county. This issue is not just limited to Cornwall, and grid issues represent a key concern for the industry across the UK with parts of the grid closed to new connections pending investment (BBC 2014; Eden Project, 2015; Farrell, 2015). One consequence of 'peak wind', and continued opposition to wind and solar, was an increased focus on 'newer' renewable energy technologies, such as geothermal, heat networks and wave energy, which were perceived to be less controversial. However, one interviewee questioned where the funding was going to come from for these new technologies, stating that she would

> "be keen to see the government putting their money where their mouth is, and actually investing in some research into these renewable energy technologies that our MP seems to think are the way forward" (Community Energy 2, May 2016).

Support for this 'new energy economy' (Local Government, April 2016) can also be found in the Local Plan (CCC, 2016), the Energy Island initiative (Eden Project, 2015), and the Roseland Neighbourhood Plan.

6.2. Attitudes to Onshore Wind Energy

Wind energy is an emotive issue that polarises opinions, and this polarisation was a key theme to emerge from the interviews. Participants from all actor groups argued that some people were opposed to wind 'no matter what' (NGO, April 2016), and that this 'anti' lobby was increasingly well organised and 'ruthless' (Developer 2, May 2016). The anti-wind lobby was comprised of groups that had emerged locally, such as Cornwall Protect[10], as well as national organisations, such as the

[9] Between 2009 and 2011, the Delabole wind farm was repowered and ten 400kW turbines were replaced by with four turbines, which more than doubled the total installed capacity of the site to 9.2MW (Good Energy, 2017).

[10] http://www.cornwallprotect.org/

Campaign for Rural England (CPRE). On its website the Cornish CPRE, for example, states that it is an 'enthusiastic' supporter of renewable energy, but that wind energy is 'in danger of… industrialising our landscape and wrecking Cornwall's key asset – its coast and countryside' (CPRE, n.d.). Participants argued that these groups were able to mobilise rapidly in response to proposed developments, and to provide support to those in the community who were against the development. The individuals running these groups were also politically astute and 'knew which buttons to press' (Community Energy 3, May 2016). Those individuals who were opposed to wind energy were caricatured as older, wealthier people – often second home owners from London – who had more time on their hands to dedicate to opposing developments. Conversely, those who were pro-wind were perceived to as 'meddling middle class do gooders' (Community Energy 2, May 2016). Reflecting this polarisation, wind energy proposals often led to divisions within a community. One institution that was highlighted several times for its opposition to local wind energy developments was Parish Councils. These were seen as highly conservative, parochial and reluctant to oversee any change in their communities. Participants spoke of a 'failure of imagination' on the part of the Parish Councils (Community Energy 1, April 2016), and a failure to understand the potential benefits of renewable energy (Local Government 2, May 2016). This is a key concern for future onshore wind energy developments in the county as it is likely that, in interpreting the 2015 guidance, CCC will take the opinion of Parish Councils as the 'voice' of the community (Local Government 1, April 2016; Community Energy 4, May 2016).

A member of a community energy organisation, which aims to help people to engage with and take control of their energy use, argued that in trying to promote acceptance of wind energy the debate was 'not for the extremes of the population' (Community Energy 4, May 2016). He explained:

> "There's no point preaching to the converted, because they all want to go out and build turbines anyway. There's not a lot you can do about the other extreme who are against it and don't like anything that spoils the landscape. So the whole idea [is] to make the discussion, the conversation mainstream".

This was echoed by another participant who argued:

> "There's a lot of myths and half-truths, and untruths, so separating fact from fiction is key… If you really want to affect meaningful, embedded change, you've got to do something about people's attitudes and part of that, I think, is education and making people aware of what the realities are is so important to discussions about energy" (Community Energy 3, May 2016).

This highlights the importance of myths and efforts focused on myth-busting in the wind energy debate. Participants raised several misconceptions about wind turbines, including the links to bird deaths, renewable energy being to blame for energy price increases, and turbines being perceived to be 'not working' when they were not rotating. However, there were also some more insidious lies used by those who were opposed to wind; one developer had received a phone call from a distressed pregnant woman who had been told the turbine would cause autism in her unborn baby (Developer 2, May 2016). The role of the media – both local and national – in promulgating these myths was commented on by several interviewees, who thought the wind industry had not done enough to counteract the negative press. However, it was also acknowledged that it was easier to sow the seeds of doubt than it was to tell a positive message.

Overwhelmingly, participants pointed to the landscape and visual impacts of wind farms as the key concern for most people. Although interviewees thought turbines were 'attractive' (NGO, April 2016) and 'aesthetically pleasing' (Local Government 2, May 2016), they recognised that it was the visual impact that moved most people. As one participant explained:

> "People are affected by what they can see… I think I've got a lovely view – I can see Delabole from where I live and on a clear day I can see the turbines turning and I like that, but people do object" (Community Energy 3, May 2016).

The visual impacts of wind turbines were related to a perceived reluctance, and indeed resistance, to change. Participants argued that, despite its industrial past, Cornwall was perceived as rural, tranquil and undeveloped. As a result, there was a real fear of change, which those promoting wind energy had been unable to counter. However, participants also highlighted the presence of other infrastructure, particularly pylons, which they felt was no less visually intrusive but people had become accustomed to their presence. This again points to the speed and scale of the roll out of wind farms in Cornwall as an important factor in acceptance. While the academic literature has found little empirical support for NIMBYism (Devine-Wright, 2008), it was nonetheless cited by participants as a factor in opposition to wind turbines. A developer described how her organisation had done a lot of engagement with local communities, receiving 3,500 letters of support and just 300 against; 'the NIMBYs' had however been 'ruthless' in their approach, and the developer had decided to withdraw the application (Developer 1, May 2016). Another participant thought that most people rarely got involved until a development was going to affect their locality, he explained:

> "at the local level generally people say actually if there's a benefit to us economically we're in favour, we like the idea of going green, and then you come to the issue of a development within a few hundred metres of their home, and that's when it starts to change quite fundamentally" (Local Government 1, April 2016).

The impacts on tourism was also discussed as a factor in acceptance, although the focus group participants thought that, if anything, the impacts on tourism were likely to be positive (NGO, April 2016). In response to concerns about the impacts of wind energy on tourism, in 2013 Good Energy commissioned a study to examine visitor attitudes to renewable energy installations, which found no evidence of negative impacts on local tourism (Good Energy, 2014a). Nonetheless, the impacts on tourism remains contested. Another important issue was the unequal distribution of costs and benefits; farmers and national and international developers were perceived to have been the main beneficiaries of wind energy in Cornwall with local communities largely being bypassed. According to a representative of local government, the majority of wind farms in Cornwall were owned by farmers, partly operated by farmers and commercial wind providers, or owned by utilities (Local Government 1, April 2016). Participants argued that wind energy had provided an important means for farmers to diversify livelihoods. Wind farms provided an additional source of guaranteed income at a time when farming in the county was under considerable pressure, particularly because Cornwall had a lot of comparatively small, family farms (Local Government 2, May 2016). One focus group participant, however, observed that although farmers gave the impression that they were interested in renewable energy and were keen to be seen to be 'green', the economics were a more important driver (NGO, April 2016). When asked whether local people were generally supportive of farmers benefiting from renewable energy, interviewees were unsure. One interviewee argued that a common objection to wind energy projects was that the benefits went to individual farmers (Community Energy 1, April 2016); this was echoed by others who felt that there was little understanding amongst the wider population of why farmers needed to diversify.

One other theme related to attitudes that emerged from interviews was that of resource extraction. Some likened the exploitation of wind and solar in the peninsula to a resource boom during which time Cornwall had essentially sold off its natural resources. National and international developers were thought to be the other main beneficiaries of wind energy developments in Cornwall. Here, the drivers were perceived to be economic with developers looking to make a profit, without delivering

meaningful local benefits. As discussed above, the failure of CCC to provide a strategy and means for benefits to be fed back to communities was widely criticised. One interviewee explained that a failure to anticipate how quickly wind and solar would take off meant that it was the large (international) developers who had been able to move in and capitalise once the policy environment became favourable (Developer 2, May 2016). As a result, the development opportunities had gone to outside actors and not enough of the value of renewables had stayed in Cornwall. Another participant agreed, arguing that:

> "It's a crying shame that a lot of the value is being extracted from the county by national and international developers, who… take all the profits" (Community Energy 4, May 2016).

This is an interesting perspective that is not normally associated with industrialised economies, but which links back to theories and debates on resource extraction and the relationships between central and peripheral regions (e.g. Wallerstein, 2004). Here, Cornwall is perceived as a peripheral region from which resources are extracted for the benefit of the core (i.e. elsewhere in the UK, especially the South East). The promotion of Cornwall as an 'energy island' was viewed as one way of ensuring that the value of renewable energy remained in the region rather than being exported elsewhere in the UK. This had been promoted by the Eden Project (2015) with the aim of creating a 'local, renewable, distributed and demand responsive system' (p.2), that would ensure the benefits stayed in Cornwall. The benefits that renewable energy could provide to local communities – with the right incentives – was a common theme in the interviews, as the next section discusses.

6.3. Community benefits

The guidance on community benefits (DECC, 2014) highlights several ways in which communities may benefit from onshore wind developments. However, interviewees only referred to two: community funds, and community ownership.

6.3.1. Community funds

Community funds were the most widely known form of community benefit. An audit of community benefits from wind energy conducted in 2014 revealed that there was in excess of £10 million committed or paid in Cornwall in terms of agreements in place, and a substantial amount which was in the pipeline (Local Government 1, April 2016). This was a significant amount with the potential to make a real difference to communities in Cornwall. However, participants were uncertain about whether beneficiaries of community funds were aware that the money came from wind energy, and thought more could be done to raise awareness.

Two of the participants were involved in the administration of community funds and both argued that it was important that funds were available to a wide range of projects, and not just those related to energy and environment. As one interviewee explained:

> "our whole reason for initially getting involved in community funds, was that we're trying to help people see that energy isn't just about a narrow channel, it can be about all kinds of things and it is a revenue stream to do whatever people want and think is worthwhile" (Community Energy 1, April 2016).

As a result, the community funds administered by the participants had been dispersed to a wide range of projects, ranging from food banks to local festivals, and support for a rape and sexual violence service to the provision of LED lights in a school. Another participant expressed concern that over time it could become more difficult to spend the fund locally as low hanging fruit were obtained; however, he also thought this provided opportunities for more targeted funding, which would achieve greater impact (Local Government 2, May 2016). The use of community funds to

address inequalities within Cornwall was considered important by interviews, although this would be constrained by the requirement to spend funds locally. Further, wind turbines can only be sited where there is adequate wind resource, which is not necessarily the poorest parts of the county. Another challenge for using the funds to addressing inequalities related to the application process. One participant stressed that the writing grant applications meant that community funds were accessible only to those who had the skills and expertise to apply and, as a result, were unable to reach those individuals and organisations who were most in need (Community Energy 2, May 2016). Nonetheless, it was argued that community funds would benefit a wider set of people than ownership, which would be limited to those who could afford to invest.

Participants were uncertain whether or not community funds had affected local acceptance of onshore wind energy. Several interviewees thought it was too early to tell, since community funds were relatively new; although one argued that some entrenched opposition to wind energy meant that some were unwilling to accept that there may be any local benefits from wind (Community Energy 3, May 2016). However, the participant who managed community funds mentioned that they had received applications from individuals who had been vehemently opposed to the wind farm (Community Energy 1, April 2016). This suggests that although attitudes to wind may or may not be affected by community funds, that opponents are nonetheless willing to make use of available funds.

6.3.2. Community Ownership

There was widespread support for community ownership in principle; one interviewee called it ‘potentially transformational’ (Local Government, April 2016), although another thought that community ownership was a ‘harder message’ to get across than community funds (Community Energy 4, May 2016). However, in practice it had proved difficult to implement. Although by law developers are required to offer local communities the opportunity to share in the ownership of a project, there is no obligation to follow through once the project is in development. In other words, while it is required by law to offer community ownership if, once planning permission has been given, this falls through there is no penalty for developers. A developer explained that it was possible to comply with all the best practice without actually providing community ownership (Developer 2, May 2016). According to an academic, while there had been lots of calls for community ownership there had been very little take-up of the equity offered (A. Smith, personal communication). Interviews with participants working on community energy revealed possible reasons for this lack of take up. Firstly, such organisations needed to be certain that there were no risks associated with potential developments. Discussing a failed investment opportunity, one interviewee described how due diligence had revealed a slight risk in the access road, which the organisation had been unable to resolve in time to meet the developers timetable. This highlights that communities may need additional support in order to realise the potential opportunities from wind energy developments. Furthermore, as one developer argued communities will need strong economic incentives to invest in wind energy, because they are unable to achieve the same economies of scale as a commercial developer (Developer 2, May 2016). Further research will be required to assess the impacts on communities and their acceptance of renewable energy.

6.4. National Policy

A final theme to emerge from the interviews concerned the influence of national policy on renewable energy in Cornwall. In general, participants expressed their dismay that, after years of a policy framework that supported the development of renewable energy in the UK, the goalposts had shifted. A participant from local government explained how prior to 2010, the steer from Government had been to push local authorities to drive low carbon transitions by setting targets for renewable energy and developing supportive policies. However, 2010 saw a change in government, which was

followed by the publication of the National Planning Policy Framework (NPPF) in 2012 and signalled both a more cautious policy framework around renewables and a gradual drift away from local control. He described how 2015 was a 'watershed year' which had made it much more difficult for local planning authorities to have a positive strategy for renewables and a positive impact on the low carbon transition (Local Government 1, April 2016). Participants thought that while there had been mistakes made (for example, the FiTs incentivising underpowered of turbines), in general it had created a supportive policy environment for wind and other forms of renewable energy. Conversely, the current Government was perceived to be anti-renewables, with one participant stating that people had 'given up on wind in England' (Developer 2, May 2016). Another interviewee argued that the current framework was:

> "absolutely appalling and short-sighted. Because you've got onshore wind starting to be now competitive in terms of cost, but its competitiveness being undermined by the onerousness of the planning system, the withdrawal of key exemptions by government, and by continuing subsidy of fossil fuel and nuclear. So it's almost, a kind of policy shift that is so bad it's difficult to understand. I really can't understand it. And then you compare that with the erosion of rights to do with fracking" (Community Energy 1, April 2016).

While Government rhetoric signalled a return to localism, participants were critical of the changes to the planning framework for wind in 2015, which they argued had worked against community energy and made life increasingly difficult for community-based energy initiatives. It was against this backdrop that the Big Field Wind Farm was applying for planning permission, and it is to this case that this report now turns.

6.5. The Big Field Wind Farm

The Big Field Wind Farm is a proposed 11 turbine development located on farmland in north Cornwall (Figure 3), near the villages of Week St Mary, Jacobstow, Warbstow, North Petherwin and Whitstone. The developer, Good Energy, plans for it to be the UK's first onshore wind farm to operate without subsidy and, if given planning permission, could be operational by 2018. Founded in 1999, Good Energy was until recently the UK's only renewable electricity supplier. The company administers more than 112,000 Feed-in-Tariff sites and owns and operate six solar sites and two wind farms, including Delabole in Cornwall (Good Energy, 2015). It is currently developing two additional wind proposals, one of which is the Big Field Wind Farm.

Figure 3. Map showing the location of the Big Field Wind Farm.

Source: Good Energy (2014b). Areas shaded in green show Areas of Outstanding Natural Beauty.

The original proposal for the Big Field Wind Farm was for 11 turbines with a maximum tip height of 125 metres and a total installed capacity of just over 25MW. It was to be located in an area of 'moderate' sensitivity, on land currently used for agricultural purposes and, according to the Environmental Impact Assessment (EIA), would occupy less than 2% of the area within the Site Boundary (Good Energy, 2014b). Since the development was located in a natural basin, project documentation argues that the visual impact of the wind farm would not be significant and that, although the turbines would be visible from a number of properties, for no household would the impact be 'dominating or overbearing' (Good Energy, 2014b: 11). It also finds 96 operational and consented wind farms within 15km of the Big Field site, 94 of which were small-scale (i.e. one or two turbines), providing additional evidence of a landscape 'littered' with turbines. During the pre-planning phase, Good Energy also undertook a public consultation and community involvement programme, which involved household and public surveys, public consultation, stakeholder meetings and presentations to local groups, such as Parish Councils. Opinion on the development was typically negative; for example, a public consultation questionnaire with 112 respondents revealed that 50% were either in support or indifferent, while 49% were opposed to the development, while a second consultation revealed even less support with 72% of respondents opposed (Good Energy, 2014a). The initial planning application was submitted in March 2014.

Comments on the project provide further evidence of the largely negative response to the project. Of the 972 comments received from members of the public, 684 (70%) opposed and 273 (28%) supported the development. Analysis of the comments reveals that those who opposed the wind farm were concerned about the scale of the development, the impact on the landscape, negative impacts on house prices, and the financial benefits accruing to an outsider actor. The following comments are illustrative of these concerns:

> "We are not against renewables, but, this area is already saturated with enormous solar parks and turbines seem to be sprouting by the day. At what point do we need to stop and think about what is happening to the county we love".

> "Cornwall is a poor County and the main source of income is tourism. No-one wants to come to this beautiful County to see wind farms round every corner. You are slowly but surely ruining the views and the natural beauty by allowing these monstrosities to be erected willy nilly. Half of them are not working because of the high winds we have here".
>
> "My own concern is that we are destroying what makes Cornwall beautiful, just so outsiders who rarely step foot here, and a handful of farmers, can make a killing. In five years' time, when the countryside has been ravaged, people will say, whoops, how did we let this happen? By then, it will be too late. No more land-based renewables in Cornwall!"

The most vociferous opposition, however, came from Communities Against Rural Exploitation (CARE), a group formed by local residents to oppose the development. CARE objected to the Big Field Wind Farm, primarily on the basis of the visual impacts arguing:

> "The addition of the proposed turbines would mean that collectively wind and solar energy would come to have a defining impact on the overall experience of the landscape, both within the local area and further afield. Such a change would be contrary to the guidance contained within the sensitivity study for the host landscape character area" (CARE, 2014: 2).

Conversely, those who supported the proposal cited the need to take action on climate change, the positive economic impacts for the region (particularly on tourism), and trust in the developer.

> "The Big Field Wind Farm could be an example of the kind of thinking that could become a sustainable alternative that is capable of growing the unique sense of place that is Cornwall, while contributing to cutting back on unsustainable practices that contribute to climate change".
>
> "Good Energy are an established company with a good track record. The local energy tariff and community benefit will ensure that some of the income from this project stays in Cornwall and in particular in the Weeks St Mary area. This should be encouraged and used as a model elsewhere".

Echoing the findings of the interviews, these quotes reveal a complex picture of the multiple factors influencing acceptance and demonstrate that the same argument can be used both by those who support and oppose particular developments. The Big Field Wind Farm has also polarised local opinion, and created divisions amongst local populations, as the following comments illustrate:

> "a direct result of the turbine [is that] a once peaceful community at Jacobstow is now divided, angry and almost dysfunctional"
>
> "Small but highly motivated groups of objectors are spreading unfounded fears amongst the local population. I suspect that this has more to do with social inertia than rational analysis of the impacts on individual properties."

The community divisions were also raised in the focus group discussion, with one participant stating that those who expressed their support were 'pariahs' in their villages (NGO, April 2016).

The proposal was rejected by the planning authority in October 2014 on the basis of landscape and visual impacts. Soon after the proposal was rejected, the Government announced that it would be slashing subsidies for onshore wind. Rather than cancelling the project, the developer made two key changes to the proposal which would enable it to become the UK's first wind farm to be built without subsidy. Firstly, Good Energy has worked with Community Power Cornwall to enable the wind farm to become majority-owned (74.9%) by a range of local investors, including residents, community groups and others (CPC, 2016; Good Energy 2016). The second revision was to increase the

efficiency of the turbines from 2.5 to 3.5 MW resulting in an installed capacity of 38.5 MW. Good Energy has also proposed a community benefits package which would include: a community fund with a combined value of £5,000 per MW per year rising with inflation for the lifetime of the project; and, a local energy tariff which would offer residents within 5km of the wind farm a 20% reduction on their electricity bills (Good Energy, 2016). An appeal was lodged in June 2015, with an inquiry heard in April 2016. The final decision about whether the development will be given planning permission will be made by the local planning authority i.e. Cornwall County Council.

Despite these changes, the proposal remains highly controversial. Indeed, the first day of the appeal was marked by public protests from community members both supporting and opposing the development (The Post, April 2016). It has also created divisions within the Cornish Church with the Diocese of Truro supporting the development on the grounds of climate change, while the local vicar is passionately opposed to the plans on the basis of the impacts on the landscape (BBC, 2016). At the time of writing, a decision was still pending. However, given that the visual impacts of the wind farm have not changed and that opposition to the development is as vociferous as in the initial application, it remains to be seen whether the prospect of a subsidy-free wind development will be enough to sway the local planning authorities. If it is, the Big Field Wind Farm may provide a model for future onshore wind energy developments; however, if it is not approved, the future of wind energy in the UK looks bleak.

7. Discussion and Conclusions

In the space of a decade, the operational capacity of wind in Cornwall increased from virtually none to around 141 MW (CCC, 2017). However, this very rapid and large-scale uptake of wind energy has led to a transformation of the Cornish landscape that has been challenging for some to accept. At the same time, recent changes in Government policy have made it increasingly difficult for wind projects across the UK to get planning permission without explicit local support. The combination of these two factors have created a sense that ‘peak wind’ has been reached in Cornwall. If given planning permission, it appears likely that the Big Field Wind Farm will be the last commercial wind energy project in the county – for the time being at least due to social and physical saturation. It remains to be seen whether with increased exposure over time wind farms will become more acceptable to local people, as has been posited in the wider literature on the social acceptance of renewable energy (Wolsink 2007; Wüstenhagen et al., 2007). However, this research suggests that it is not wind energy per se that has been the issue, but rather the scattered approach to the siting of wind turbines that has affected community acceptance of further wind energy projects. An important component of increasing local acceptance will be to address the myths and untruths associated with wind energy. Who should have responsibility for this is unclear; while local groups are embedded in, and generally trusted by, the communities they serve, they are underfunded and with the disappearance of EU funding – which has been so important to regions such as Cornwall – this situation is only likely to worsen.

The issue of who has benefitted from the massive increase in onshore wind energy in Cornwall is also key to acceptance. At present, it is large developers and individual farmers who are perceived to have benefitted the most. While there is some sympathy for farmers, particularly given the constraints under which farmers in the county operate, the majority of the economic benefits are felt to have flown out of Cornwall to outside actors. There is a similar story to tell regarding the energy generated, which is perceived has benefited the rest of the country while energy bills continue to rise in the region. Renewable energy is rarely associated with resource extraction in the UK, but this research has revealed that even amongst those who support wind energy there is a sense that

Cornwall has sold off its natural resources. This raises important questions about whether current efforts to ensure local communities benefit from wind energy developments have gone far enough. Although communities have benefitted – primarily through the establishment of community funds – these are limited to those located near to wind turbines. The opportunities that renewable energy offers to empower local people via local and distributed energy generation (Walker et al., 2008), have not yet materialised, as evidenced by the limited uptake of community ownership to date. There is a perception that energy is something that is done to, not for or by, communities.

Whose voices are heard in decision making is important for procedural justice and yet in Cornwall 'backing' from affected local communities (the second condition in the planning guidance on onshore wind) is likely to be taken as support from Parish Councils. These were perceived as traditional, reluctant to oversee change, and anti-wind by participants, suggesting that future wind energy developments will find it very difficult to comply with planning conditions. Concern for distributive justice – with global and national concerns trumping those of local people – also pervades this debate; while energy technologies must be situated somewhere, the question of how to mitigate the impacts on local people has yet to be addressed satisfactorily. The approach of the current government has been an ostensible turn to localism wherein local people have been given the 'final say' in decision making on wind farm projects. However, this localism appears to be limited to particular energy technologies, specifically onshore wind, while Government support for fracking has seen local concerns in other regions of the UK overruled (e.g. Gosden, 2016). This raises key questions not only about the Government's support for localism, but also its continued commitment to a low carbon energy transition.

The future of onshore wind in Cornwall is uncertain. While CCC continues to express its support for renewable energy in Cornwall, for example through the Local Plan, as this research suggests this is unlikely to involve much more onshore wind or indeed solar. However, where the funding for newer sources of renewable energy, such as wave and geothermal energy, comes from remains to be seen. With the future disappearance of EU funding and lukewarm support from central government, renewable energy policy in the UK is entering a period of increased uncertainty. Providing local people with the opportunities to participate in decision making and directly benefit from wind energy developments will be vital to promoting future acceptance of renewable energy technologies.

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Appendix I. Information Sheet

Wind2050: Information Sheet for Research Participants

We would like to invite you to participate in an interview as part of a project focused on local acceptance of onshore wind energy developments in Denmark and the UK

The UCL Institute of Sustainable Resources (UCL ISR) is a partner on Wind2050, a three-year project funded by the Danish Council for Strategic Research. Wind2050 aims to understand the factors shaping local acceptance of onshore wind energy in Denmark and the UK. It investigates how project planning, public decision-making and policy measures may influence engagement with wind energy developments. In the UK, this research is taking place at a time of changes to the planning process for onshore wind, which provides an opportunity to examine some of the early outcomes of this shift in policy. As part of the research, we will be conducting interviews with local stakeholders to investigate the potential impacts of these new measures. We are seeking views from different members of the community involved in local wind projects, and your perspective is really important for the success of Wind2050.

Interview Process. During April 2016, Dr Julia Tomei, a research associate at UCL ISR, will be carrying out interviews in your community. Julia will have some specific questions on topics such as the history of the development, the process of community engagement, and the potential implications of policy change on local acceptance. We would also welcome any comments or thoughts that occur to you during the interview. We anticipate that the interview will last approximately one hour. Please note:

- The interview is voluntary and can be stopped at any time
- The interviews will be recorded and transcribed
- The recorded material will be deleted after 12 months
- Transcripts will have personal data removed and will be stored according to UCL data security protocols
- Your information will be anonymised in publications, so your name will not be linked to the data when it has been analysed
- You can withdraw the data you have supplied to the research project at any time, which will include deletion of the interview recording and transcript
- We will be happy to provide you with a copy of any publications arising from this research.

Please feel free to discuss the information above with others. If you have any questions or comments about this study, please do not hesitate to ask – Julia's contact details can be found at the bottom of this information sheet. We would really appreciate your involvement in the research, and look forward to hearing from you.

Yours sincerely,

Julia Tomei & Chiara Armeni

Appendix II. Interview guide – developer.

Thank you for agreeing to participate in this study and for taking the time to talk with me today. I am sure you are aware of the aims of the project, but briefly UCL are working with various Danish organisations to understand the (policy) factors shaping local acceptance of onshore wind energy in Denmark, Ireland and England.

This interview should take no more than one hour and will focus on a number of key issues. As I mentioned when I contacted you to arrange this meeting, any information you provide will be kept anonymous and neither you or your organisation will be mentioned by name in any project outputs, unless you specify otherwise. Would you mind if I recorded this interview?

Background

- Could we begin with you telling me a little bit about yourself and your role within [developer]?

- How much experience does [developer] have in the development of wind farms?

- Turning now to the [DEVELOPMENT], how and when did [developer] first become involved in the wind farm? What first attracted [developer] to the site?

Community engagement

The Wind2050 project is particularly interested in how communities are engaged in the decision-making process, so we have a few questions about how [developer] engaged with communities during the planning phase of [development].

- Firstly, what was the process of community engagement?
    - How did you decide which communities to engage with?
    - At what stage in the process did you contact them?
    - How were they contacted?

- What was the general attitude to the project?
    - How much support for the development was there?
    - What were people's main concerns about the project, and how did you propose to address these?
    - Were there differences between different members of the community? How has [developer] negotiated these differences?

- What kinds of community benefits will [development] provide? How were these arrived at?

- In your opinion, how does the provision of community benefits affect the local acceptance of wind energy projects?

- I understand that since planning permission for [development] was refused there have been a number of changes to the proposal. One of these relates to the energy output of the turbines, and the other to the benefits offered to communities, principally that it would be majority-owned by the local community. How did [developer] arrive at these new proposals?

- What is the value, if any, of [developer] interacting with the public?

- What are the best ways of interacting with the public? What improvements could be made?

- What counts as a good outcome?

Policy

- What has been the impact of the 2015 changes to planning guidance on the wind industry? And [developer] in particular?

- How should the 'community backing' guideline be interpreted?

- To what extent do you think the new guidelines will promote (local) acceptance of onshore wind energy?

- How important do you think measures to increase community benefits (such as the Infrastructure Act (community electricity rights) and Community Fund), are to increasing local acceptance?

- Many projects appear to have been put on hold in response to the policy changes, why did [developer] decide to pursue [development]? Especially in the face of so much opposition.

Thank you again for your time – talking with you has been very interesting. Finally, is there anything else that you would like to mention that hasn't been discussed during our conversation?

THANK YOU AND CLOSE

Appendix III. Interview guide – local authority.

Thank you for agreeing to participate in this study and for taking the time to talk with me today. I am sure you are aware of the aims of the project, but briefly UCL are working with various Danish universities to understand the (policy) factors shaping local acceptance of onshore wind energy in Denmark, Ireland and England.

This interview should take no more than one hour and will focus on two, or possible, three themes or issues: the Local Plan, and the role of wind energy within it; national wind energy policy; and, community engagement. As I mentioned when I contacted you to arrange this meeting, any information you provide will be kept anonymous and neither you or your organisation will be mentioned by name in any project outputs, unless you specify otherwise. Would you mind if I recorded this interview?

Background

- Could we begin with you telling me a little bit about yourself, your role within [local authority], and how long you've worked here?

The Local Plan and the role of Renewable and/ or Wind Energy

- Could you tell me about the process of development of the Local Plan (Core Strategy)?

- What is the role of renewable energy, and specifically wind energy, within the Local Plan?
    - What are the (most important) policies surrounding the development of wind farms? [Prompt: National, local authority, neighbourhood]
    - Who are your policy stakeholders (national/ local)? Who has been involved (e.g. Environmental Agency) in developing the Local Plan?
    - How do you work together with policy stakeholders on this? Do you have working groups? Who leads on this?
    - Who was consulted with in developing the Local Plan?

- How will the broad vision/ aspirations of the Local Plan be translated into site specific allocations?
    - Are there any Neighbourhood Plans, and what is their role within this translation process?
    - What is the process for approval of a neighbourhood plan?

National Policy

- What has been the impact of the 2015 changes to planning guidance on onshore wind on [local authority] Local Plan?
    - Have the 2015 changes to planning guidance on onshore wind had an impact on [local authority] Local Plan? How?

- How should the 'community backing' guideline be interpreted? How is it likely to be interpreted?

- The guidance also states that the project should only grant planning permission if the 'development site is in an area identified as suitable for wind energy development in a Local or Neighbourhood Plan'.
    - How feasible is this requirement for local authorities?
    - Given that few Local Plans identify particular areas as suitable for wind energy, what does this mean for the future of wind energy in [local authority]?

- To what extent do you think the new guidelines will promote (local) acceptance of onshore wind energy? *Prompt: within [region], the UK*

- How important do you think measures to increase community benefits (such as the Infrastructure Act (community electricity rights) and Community Funds), are to increasing local acceptance?

- Have public attitudes towards wind energy in [local authority] changed over time, and with experience? How? Why?

- Has the attitude of the Council towards wind energy in [local authority] changed over time, and with experience? How? Why?

Community engagement [if involved]

The Wind2050 project is particularly interested in how communities are engaged in the decision-making process, and the next set of questions focus on this issue.

- What are the best ways of engaging with communities, and the wider public, about wind energy developments?

- What factors influence whether or not community engagement is 'successful', i.e. builds local acceptance of/ support for wind energy?
    - Can you provide me with any examples of where developers of wind/ renewable energy projects that have been particularly good at engagement? [This doesn't need to be about specific projects, but rather general lessons that might be learnt]
        - Did this generate greater local support for the development?
    - What about any developments that have been less successful?

- In your opinion, how does the provision of community benefits affect the local acceptance of wind energy projects?
    - Are some types of benefits more popular than others? Why?

Thank you again for your time – talking with you has been very interesting. Finally, is there anything else that you would like to mention that hasn't been discussed during our conversation?

THANK YOU AND CLOSE

Appendix IV. Interview guide – community energy.

Thank you for agreeing to participate in this study and for taking the time to talk with me today. I am sure you are aware of the aims of the project, but briefly UCL are working with various Danish organisations to understand the (policy) factors shaping local acceptance of onshore wind energy in Denmark, Ireland and England.

This interview should take no more than one hour and will focus on two themes: community engagement with wind energy, and the wider policy and planning. As I mentioned when I contacted you to arrange this meeting, any information you provide will be kept anonymous and neither you or your organisation will be mentioned by name in any project outputs, unless you specify otherwise. Would you mind if I recorded this interview?

Background

- Could we begin with you telling me a little bit about yourself and your role within [organisation]?

- As you may be aware, the government has targets for renewable energy. Wind – both on and offshore – is expected to play a big role in meeting these targets. In general, what is your opinion on renewable energy? And wind energy in particular.

Community engagement

The Wind2050 project is particularly interested in how communities are engaged in the decision-making process on onshore wind energy, and whether this increases local acceptance. So we have a few questions about how [developer] has engaged with local communities during the planning phase of [project].

- When and how did you first learn about the proposed development?

- What was your initial reaction to the proposal? Why?
    - What about more generally in your village? And further afield?

- What were local people's main concerns about the project, and how did the developer propose to address these? Was this satisfactory?

- What was the process of community consultation/ engagement with the development?
    - How did [developer] communicate with you/ how were you kept up to date with the project as the application progressed? Did they provide you with sufficient information?
    - Did they make sufficient effort to listen to and engage with local people?
    - In your opinion, do you feel [developer] were open and transparent?

- What kinds of community packages did [developer] offer?
    - How was this developed?
    - What was your view on the proposed package?
    - Did it influence the way you felt about the development?

- In response to the rejection of the initial planning application, [developer] has made a number of changes to the application. One of these relates to the energy output of the turbines, and the other to the benefits offered to communities, principally that it would be majority-owned by the local community.

  - What is your opinion of these changes?
  - Do they address your concerns about the project?

- Is there anything that [developer] could/ should have done differently when consulting with you and your communities about [project]?

Policy & Planning

- What is your view about the way in which planning decisions are usually taken in your area? Do you feel able to influence how planning decisions are usually taken?

- Do you think the planning process for [developer] has been fair?

- Finally, what would need to happen to ensure that planning for onshore wind energy is fairer? And enables local people to influence the planning process?

Thank you again for your time – talking with you has been very interesting. Finally, is there anything else that you would like to mention that hasn't been discussed during our conversation?

THANK YOU AND CLOSE