Understanding community acceptance of a potential offshore wind energy project in different locations: an island -based analysis of 'place-technology fit'

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Abstract

Understanding the factors influencing community acceptance of renewable energy projects is important for achieving a transition to low carbon energy sources. However, to date community acceptance research has concentrated on responses to actual proposals, seeking to explain local objections. 'Upstream' research that investigates the 'place-technology fit' of a potential renewable energy project is scarce, yet can inform technology deployment by taking local knowledge and preferences into account. We address this gap in a study conducted in Guernsey, Channel Islands. Data was collected using a survey (n=468) co-designed with island policy makers presenting technical, economic and locational details of a potential offshore wind project. Results show that acceptance of the same project design differed significantly across alternative development locations. Regression analyses compared the roles of personal, place and project-related factors in explaining acceptance for each location. Common patterns in acceptance include significant effects for education (positive) and industrial place meanings (positive). Support for using wind energy for local electricity supply was the most important predictor, and this variable mediated the relationship between island energy security and community acceptance. We conclude that place matters for community acceptance and that future research should address interactions between place attachment and proximity, as well as issues of security and autonomy, in island and mainland locations.

Key words: community acceptance, wind energy, place, security, autonomy.

1. Introduction

In order to restrict global warming to 1.5 degrees, significant investments in climate change mitigation technologies such as renewable energy projects are required, consistent with rapid and far-reaching energy transitions (IPCC, 2018). However, a lack of social acceptance, manifest by repeated controversies over the siting of projects such as wind farms and associated infrastructure such as power lines, poses a significant challenge to this goal. Therefore, it is important to fully understand the dynamics of social acceptance relevant to different pathways towards the decarbonisation of energy systems (Foxon, 2013).

Offshore renewable energy projects are a crucial element of energy policies for many countries and a significant future pathway towards low carbon electricity globally. In the UK, 5.7GW of offshore wind capacity has been installed to date, due to increase to 10GW by 2020, and then to increase further by an estimated 10GW by 2030 (Department for International Trade, 2019). If achieved, this would generate approximately 20% of UK electricity supply (RenewableUK, 2018). Crucially, this is to be sited either offshore or in remote island contexts, deemed most suitable by policy makers for wind energy deployment (Department for Business, Energy and Industrial Strategy (BEIS), 2017). Accordingly, it is highly relevant to better understand acceptance of wind energy in offshore and island locations, which face higher costs for decarbonisation due to spatial distance and lack of grid connection.

Social acceptance is a multi-dimensional concept with inter-related socio-political, market and community aspects (Wüstenhagen et al., 2007; Devine-Wright et al., 2017; Wolsink 2018). This study focuses on community acceptance, while recognising the interactions between dimensions. Community acceptance research has been dominated by case studies of local responses to specific proposals, with a primary interest in identifying the factors influencing objections or support (e.g. Ellis et al., 2007; Devine-Wright and Howes, 2010; Gross, 2007; Upham, 2005). While these have been successful in drawing attention to the inadequacies of the 'NIMBY' (Not In My Back Yard) explanation to capture the complexity of issues involved (Burningham, 2000; Wolsink, 2006; Devine-Wright, 2011), *post hoc* research designs have inherent limitations in providing information about what potential future projects communities might accept, and why.

Understanding 'conditional' public support for low carbon energy projects has been a longstanding goal of literature on social acceptance (Bell et al. 2005; 2013; Graham et al., 2009; Devine-Wright, 2011, Wolsink, 2007). In this study, we compare community acceptance of a potential future offshore wind energy project in multiple locations a similar distance from the coast, with an emphasis on the symbolic meanings associated with both place and technology, described as 'place-technology fit' (Devine-Wright, 2009; McLachlan, 2009). Project details were identified through collaborative exchanges with policy makers, based upon extensive assessment of resource availability and environmental impact. The aim was to identify what attributes of people, place and project are most important in explaining community acceptance, informing local trajectories of technology deployment as well as providing broader lessons relevant to other geographical contexts.

1.1 Social acceptance

Driven by interest in social conflict over the siting of renewable energy projects, researchers for several decades have been attempting to clarify why such conflicts arise (Bell et al., 2005; Kempton et al., 2005; Wolsink, 2007; Devine-Wright, 2005). In addressing widespread academic scepticism over the value of the the NIMBY concept (Burningham, 2000; Wolsink, 2006; Devine-Wright, 2011), social acceptance has provided an alternative pathway for social science research into low carbon energy deployment (Ekins, 2004; Wustenhagen et al., 2007). Social acceptance is often conflated with public or community acceptance (Wolsink, 2018); however, it is more accurately described as a concept that encompasses multiple socio-cultural, political, market and community dimensions (Wustenhagen et al., ibid, Batel, 2018; Devine-Wright et al., 2017; Wolsink, 2018), even if empirical research tends to concentrate upon one specific dimension (see Scherhaufer et al., 2018 for a notable exception).

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Community acceptance refers to the responses of local stakeholders, particularly residents to renewable energy projects sited nearby (Wustenhagen et al., ibid). In part due to the relevance of community acceptance for the NIMBY concept, many studies have attempted to validate NIMBY assumptions (e.g. concerning spatial proximity as a determinant of local attitudes – Swofford and Slattery, 2010) or to find alternative explanations that go beyond specific problems with the concept. Along this latter pathway, one can identify studies that focus on justice aspects (procedural, recognition and distributive, e.g. Gross, 2007) and trust (Huijts et al., 2007) as important determinants of community acceptance. Other studies have pointed to the importance of 'place-technology fit' (Devine-Wright, 2009; McLachlan, 2009), which refers to the role played by symbolic beliefs about the local landscape or seascape and the degree to which a given technology project is interpreted to be suited or 'out of place' in that context.

Research has consistently shown that beliefs about landscape and place, conceptualising place as a locus of meaning and a locus of attachment (Williams, 2014), play an important role in shaping community acceptance, across case studies of nuclear power (Venables et al., 2012), hydro-energy (Vorkinn and Riese, 2000), offshore wind energy (Devine-Wright and Howes, 2010), tidal energy (Devine-Wright, 2011b), power lines (Devine-Wright, 2013) and shale gas (Jacquet and Stedman, 2014). More broadly, it has been shown that societal acceptance of wind energy projects varies systematically across landscape types, with projects considered more acceptable when located in industrialised or military locations and less acceptable in locations regarded as pristine or wild (Wolsink, 2010; Gee, 2010). In part, this has been shown to derive from a tendency to 'essentialise' symbolic meanings about places and landscapes as 'natural' in character, and therefore unsuited to the siting of large-scale energy infrastructure interpreted to 'industrialise' or spoil that landscape (Batel and Devine-Wright, 2015).

Although this literature has enriched our understanding of community acceptance, there remains an important gap that research has tended to overlook. Most studies adopt a *post hoc* research design that follows the announcement of a particular proposal and attempts to understand why residents have taken certain views or act in certain ways in response. Relatively few studies have taken place prior to specific projects being proposed. *A priori* studies may have greater impact on policy makers, industry and civil society since findings can inform pathways of local low carbon energy deployment consistent with the IPCC call for rapid and extensive climate mitigation (2018). This is by no means inevitable for *post hoc* studies, whose findings may be regarded as particular to that community, place and moment in time.

The offshore wind energy sector receives strong policy support in the UK, with intentions to increase capacity to a total of 20GW by 2030 or 20% of national electricity demand (Department of International Trade, 2019). Government funded research suggests strong socio-political acceptance of offshore wind - 79% of public respondents in large-scale nationally representative surveys have expressed support for offshore wind energy, with little gender or regional variation (BEIS, 2018). However, local opposition to specific proposals has still occurred, arising from concerns about the visual impacts of large-scale projects on seascape character, the tourist economy, and distributional and procedural justice (Haggett, 2008; Devine-Wright and Howes, 2010; Devine-Wright 2012). Kerr et al. (2014) recommmended more research on public attitudes towards marine renewable energy, including investigation of the drivers of public attitudes and the importance of socio-cultural context, a point also made by Wiersma and Devine-Wright (2014). Some 'upstream' (i.e. *a priori* to specific development proposals) research on social acceptance of offshore wind energy has taken place. One example is a study that used a survey to investigate the impacts of community benefit framings on community support for a hypothetical offshore wind farm near a coastal town in South West England (Walker et al., 2014). While the study showed that different framings of financial benefit (i.e. as a bribe to influence the community) have significant impacts on community acceptance, it neglected to investigate other conditions that might provide a more comprehensive explanation of acceptance (e.g. number of turbines, distance from shore).

Another notable study by Kreuger et al. (2011) used a choice experiment methodology to study public support for potential wind farms off the North Eastcoast of the United States. Of relevance to this study is the way that the research took account of different offshore locations and distances from the coast, using maps integrated within the survey to depict different spatial areas and photo simulations to indicate changes to the seascape. The study showed that the majority of participants' attitudes did not vary by location but did vary by distance, becoming more favourable at greater distances from the coast. Similar findings about the impact of spatial proximity show that hypothetical offshore projects are typically favoured over onshore projects, and distant over nearshore (e.g. Ek, 2006; Jones and Eiser, 2011; Ladenburg, 2009; Ladenburg and Dubgaard, 2009; Ladenburg and Lutzeyer, 2012). However, there is some variation in findings. For example, McCartney (2006) found that participants preferred an onshore to an offshore location when that offshore location was a specific marine park area. In sum, to fully understand community acceptance, quantitative indicators of distance, which conceptualise space in a Cartesian, objective manner, need to be complemented with qualitative indicators of place meanings and attachments, derived from a perspective on spatiality described as an 'ethic of the particular' (Drenthen, 2010).

Given UK policy support for offshore and island based wind energy projects, the socio-cultural context of islands as locations for low carbon energy projects is important to consider. De Groot and Bailey (2015) studied the drivers of public attitudes towards marine renewable energy in three UK island locations drawing on data from surveys and interviews. While local attitudes to marine energy were typically positive, based on awareness of wind, tide and wave resources, there was also considerable uncertainty about their potential impacts. Concerns about island remoteness, vulnerability and high cost of living, as well as positive attributes such as tranquility and natural beauty were seen to provide a suitable social, economic and environmental context for the acceptance of energy projects, provided that technology proposals were seen to complement these place-based values. The authors concluded that there was a '*need for attitudinal research on renewable energy to pay greater attention to understanding local impacts and, hence, the local factors affecting how impacts are perceived, rather than assuming these to be generic' (p91).*

It is crucial therefore, to develop our understanding of the role of place in shaping community acceptance of offshore and island based energy projects. Gee (2010) argued that the sea possesses its own unique sense of place distinct from the mainland, which must be taken into account in empirical research. Bidwell (2017) found that beliefs about the sea or ocean were crucial in understanding acceptance of a proposed offshore wind farm near Block Island, off the state of Rhode Island in the United States, drawing on survey data from residents and tourist visitors. He argued that drawing out multiple symbolic meanings associated with the coast or sea associated with offshore energy projects was an important basis for future technology deployment, serving to identify, if not enable, consensus between alternative opinions of how the ocean should be managed or used. Similar findings were reported in a study of the same project that compared pre-installation and post-operation opinions amongst island and coastal residents (Firestone et al., 2018). The authors concluded by recommending future research into place meanings and its relationship to responses to offshore wind energy projects, using quantitative statistical analyses. The broader context of energy systems and policies has also been shown to be relevant. Acceptance of a specific offshore wind project varies depending on whether it is perceived as a one-off development or part of a wider programme of technology deployment, with the latter more strongly supported (Firestone and Kempton, 2007). However, few empirical studies to date have investigated ways that community acceptance of a wind energy project in an island context might relate to broader contextual issues such as economic vulnerability or autonomy in governance.

In sum, there is a need to undertake research into community acceptance of offshore wind energy that takes account of the diverse meanings associated with place and technology in island socio-cultural contexts. We argue that the plausibility and relevance of 'upstream' acceptance research will be enhanced through a process of continuous engagement with local policy makers across the research process. This can lead to the co-production (Howarth and Monasterolo, 2017) of research that draws on credible technical, environmental and economic characteristics of a potential technology project(s) (i.e. the likely conditions of acceptance, Bell et al., 2013). By doing so, social science research can reveal levels of acceptance of alternative socio-technical configurations, and feed this information back to inform public debate and policy making.

Studies of marine spatial planning have called for greater input of public and stakeholder values and preferences in order to manage potential synergies and conflicts from different forms of land and sea use (e.g. Strickland-Munro et al., 2016). There remains potential to better join up in-depth research into community acceptance, using methods such as questionnaire surveys and focus group discussions, with procedures of marine spatial planning including collaborative and participatory modes of engagement. It is also important to attend to issues of researcher positionality, avoiding the framing of research as instrumentally addressing so-called 'NIMBY' deviance or objections (Aiken, 2010; Devine-Wright, 2011). This study addressed these issues using survey data from a representative sample of adult residents (n=468) on Guernsey, Channel Islands, as part of a multi-method, collaborative research project (Wiersma, 2016). Specific research questions include:

1. Does community acceptance of a potential nearshore wind project vary by location?
2. What are the most significant factors explaining acceptance, encompassing personal, place (including spatial distance) and project-related aspects?
3. To what extent does the significance of these explanatory factors vary across different sites for development?

2. Methodology

2.1 Context

The study was conducted on Guernsey, an island situated 115km south of England and 50km west of Normandy, France (see Figure 1; States of GuernseyGovernment, 2017). Although not part of the UK or EU, it is a self-governing British Crown Dependency where the British Queen is head of state. The island has a total population of 62,000 and is densely populated at 995 people/km^2 with centres of population in the east and north and relatively more sparsely populated, natural areas to the west and south (States of Guernsey, 2017). It is relatively small in scale, with a total area of 38 square kilometres (15km length and 5km width approximately), meaning that the coastline is accessible to the island's population. Annual consumption of electricity is 350GWh with supply managed by a state-owned electricity company, via an undersea cable from France and a diesel-fuelled power station sited to the north east of the island. Faults to the cable occur occasionally (e.g. December 2018), requiring the diesel power station to meet total demand, which has raised public concerns over system expense, environmental impacts and security of supply (Guernsey Press, 2018).

2.2 Procedure

A survey was used to collect data, following earlier qualitative phases of research. Questionnaires were distributed through a drop and collect method to households across the island, with vouchers offered to increase response. To ensure a spatially representative sample, surveys were distributed to a predefined number of households randomly selected in 26 target zones across Guernsey's 10 parishes (see Figure 1). Questionnaire distribution took place during January-March 2015, using two methods. 638 questionnaires were delivered in person, of which 418 were returned. 17 questionnaires were excluded from the dataset due to missing data or concerns over data quality (e.g. all responses were 'strongly disagree', Jones and Hidiroglou, 2013). The final number of 401 represents a 63% response rate for this phase. A further 513 questionnaires were posted by the researcher (without return envelope) to households during visits. Of the 513 questionnaires distributed this way, 67 were returned, all of which were included in the dataset – a 13% response rate. The final sample size of 468 represents an error rate of between 4 and 5% (at a 95% confidence interval). Data from drop and collect and postal distribution were compared, and no significant differences were found on key variables, so all responses were included in the final dataset (N=468), an overall response rate of 41%.

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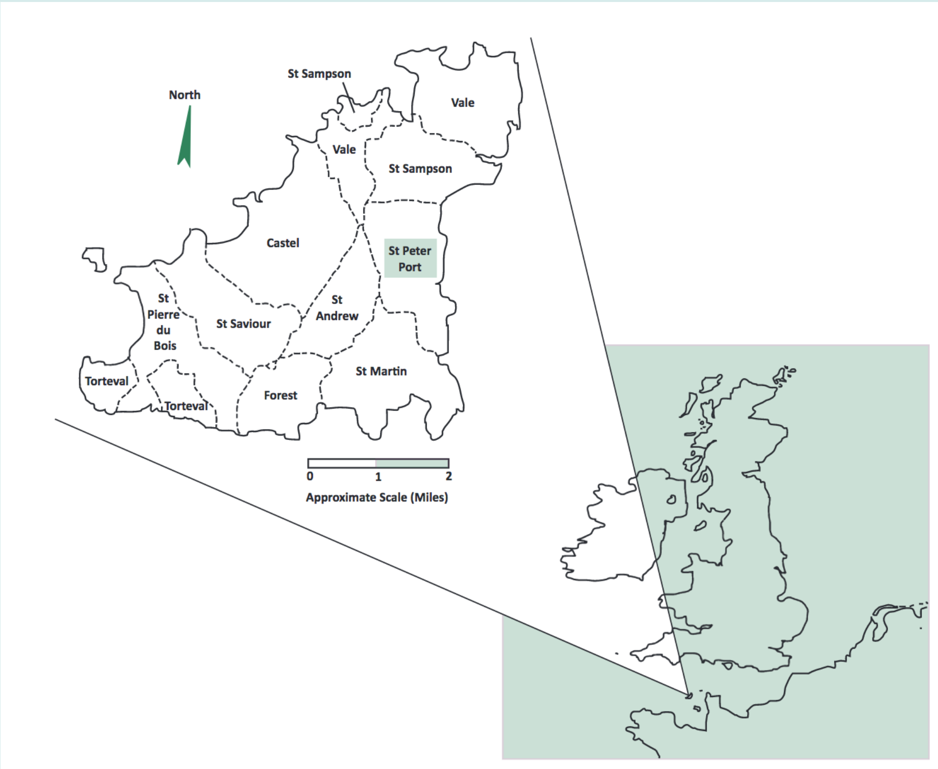
Figure 1: Map of Guernsey showing parish boundaries and proximity to the UK and France



2.3 Sample
The study aimed to achieve a sample representative of the adult population of the island. There was an even gender split and a slight oversampling of those aged between 50 and 69, and an undersampling of those aged 18-29 (see Table 6). The sample was diverse in education, income and whether or not respondents grew up in Guernsey, although no data were available on a population level to check the representativeness of the sample on these aspects. The sample was reasonably representative according to spatial distribution across the island's parishes, with the exception of St. Peter's Port (under-representation) and St. Sampson and Vale (North) (over-representation)(see Table 1).

Table 1: Spatial distribution of respondents in comparison to actual population data across island parishes (averaged from 2001 Census data and 2013 Population Bulletin Data)

Parish	Population data	Sample data	
	% of population	Number of respondents	% of valid responses in sample
Castel (West)	14.1	72	15.6
South East	14	69	15
St. Peter's Port (East)	30.1	119	25.8
St. Sampson (North)	14.5	84	18.2
Vale (North)	15.3	60	13
South West	12	57	12.4
Subtotal	100%	461	100%
Missing data		7	
Total		468	

2.4 Survey design

The questionnaire was co-produced by the research team following extensive engagement with government officials and included details of a potential offshore wind project that was considered most likely by the policy makers to be proposed in the future. Details about size, location, costs and ownership were presented with the following text: '*In the future, an offshore wind farm could be developed near Guernsey, which would make its electricity supply more diverse and secure, and reduce its carbon emissions. One option could be to build a group of 10 wind turbines like the one pictured here (each 100 meters tall)'.* Figure 2 shows the image in the survey used to exemplify an offshore wind turbine.

Figure 2: Image provided in the survey of an offshore wind turbine

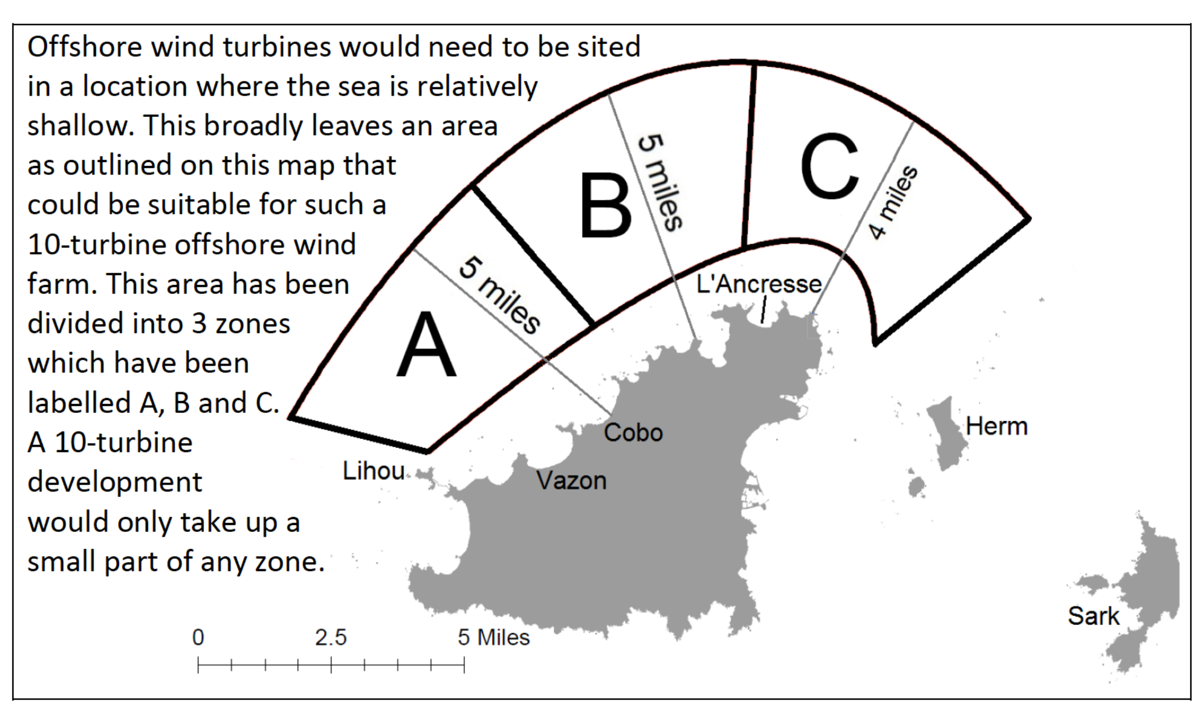
Further details were provided of the proposed project in the survey and these are presented in Table 2, indicating the number and hub height of turbines, ownership structure, contribution to electricity demand, impact on the cost of average annual electricity bills and Environmental Impact Assessment (EIA).

Table 2: Socio-technical characteristics of the wind energy project

Characteristics of a wind energy project	*Details presented in the survey*
Scale of deployment (size and number of turbines)	10 turbines, each 100m tall above the water
Visual design/appearance	Conventional horizontal rotor design
Ownership model	States of Guernsey/locally owned
Supply mode	Local 'on island' use
Capacity/generation potential for the island	25% of island demand
Impact on the annual average electricity bill	5-10% increase (£45-£90)
Planning	Subject to full Environmental Impact Assessment

Three locations or 'zones' of potential development were identified (see Figure 3). Each was a similar distance from the coast in the nearshore area. These had been identified by previous engineering and ecological research as technologically and biophysically suitable for offshore wind energy (e.g. resource availability, depth of sea-bed, avoiding exclusion areas). For the survey, the zones were designed to be relatively similar in area, with borders between them based on place meanings of different sections of the coast garnered by the two preceding qualitative studies (see Wiersma, 2016 for details). Local place names (e.g. Lihou island, Cobo beach) were added to enable participants to identify the location of each zone based on familiar landmarks.

Figure 3: Map of locations for a potential offshore wind energy project in Guernsey



The questionnaire was piloted with 15 residents of varied age who completed the questionnaire first, then during an informal face-to-face discussion talked through their answers and pointed out anything that needed clarification. This led to a few minor changes to the information provided, question wording and design of the maps in the questionnaire.

2.5 Measures

The survey included items on personal characteristics (e.g. age, gender, education, income relative to the average on the island, residential location), leisure activity (e.g. use of the sea), place attachment and identities, energy system beliefs, meanings associated with each place and project characteristics. Residential location was measured using information about the parish where each respondent's home was situated. Although ten parishes were captured in the survey (see Figure 1), since some parishes were very small in area and numbers of respondents, smaller parishes were clustered by area for further analyses. Respondents from Forest (n=11) and St. Andrew parishes (n=27) were clustered into a 'South East' area of residence variable. Respondents from St. Peters (n=23), St. Saviour (n=14) and Torteval (n=9) parishes were clustered into a 'South West Parishes' residence variable. These variables were added to the larger parishes (Castel, St. Peters Port, St. Sampson, Vale) to form six area variables for further analyses.

Place attachment was measured using nine items capturing different varieties of relations (Lewicka, 2011a) with the island. Principle components analysis (see Table 3) revealed a three factor structure explaining 67.87% of the variance. Factor one consisted of five items that indicated traditional attachment with Guernsey. A high score on this measure indicates someone who is strongly attached to Guernsey with little interest in living anywhere else. Factor two consisted of three items that represented active attachment with Guernsey. A high score on this measure indicates someone who is strongly attached to Guernsey and who actively keeps up with local changes and experiences. Factor three consisted of one item indicating the variety described as Placelessness, where a high score indicates that feeling attached to Guernsey is not of personal relevance.

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Table 3: Pattern matrix for principle components analysis of place attachment with Guernsey

Item	Factor 1 'traditional'	Factor 2 'active'	Factor 3 'placelessness'
Even if there are better places, I am not going to move out of Guernsey	.899		
I cannot imagine leaving Guernsey for good	.873		
I have never considered if living somewhere else would be better	.784		
It wouldn't bother me to leave Guernsey and move elsewhere	-.761 (recoded)		
There are many places in Britain and the world where I could live	-.606 (recoded)		.338
I like to explore Guernsey and discover new places		.831	
I often take photographs of various places in Guernsey		.761	
From time to time I discover Guernsey anew		.698	
It's more important to me how I live than where I live			.945
Cronbach's alpha	.85	.64	n/a

Six items were used to capture diverse place and social identities, including the parish, Guernsey, Channel Islands, English, British and European. Principle components analysis revealed a two factor structure that explained 68.45% of the variance. Factor one consisted of four items that represented local identity (e.g parish, Guernsey) with a high level of internal reliability (Cronbach's alpha = 0.81). A high score indicates someone who strongly identifies themselves as a Guernsey type of person. Factor two consisted of two non-local items (British, English) with a low Cronbach's alpha of 0.56, therefore the two labels were used separately in further analyses.

Beliefs about the island's energy system were captured using nine items, with content drawn from previous qualitative research. Principle components analysis revealed a three factor solution that explained 62.9% of the variance (see Table 4). Factor one consisted of four items that represented support for greater autonomy and security in island energy supply. Factor two consisted of two items that represented the view that electricity on the island was too expensive (Pearson's $r = 0.23$, $p<.000$, $n=466$). Factor three consisted of three items indicating satisfaction with the current energy system and the feeling that it does not need to change.

Table 4: Pattern matrix for principle components analysis for energy system beliefs

	Factor 1 'security'	Factor 2 'expensive'	Factor 3 'satisfaction'
Guernsey should not rely as much on other places for its electricity	.803		
Guernsey needs to become more self-sufficient for its electricity	.780		
Guernsey should make use of its natural resources (e.g wind, tide, sun, wave) to generate electricity locally	.691		
Being dependent on others for electricity is part and parcel of being an island	-.622 (recoded)	.435	
Electricity in Guernsey is unreasonably expensive		.779	
Guernsey should not be using fossil fuels (which cause climate change) to generate its electricity	.423	.517	
The current electricity system is in need of change			-.893 (recoded)
I am happy with the current electricity system			.886
Guernsey's electricity supply is vulnerable			-.643
Cronbach's alpha	.74	R = .229	.75

A single item was used to measure perceptions of the sea around the island as a resource to be utilised. Meanings associated with the coastal areas near each wind farm location or 'zone' were measured using seven items that were devised from previous research (e.g. Wolsink, 2007) and the qualitative research on the island that preceded the survey, which were similarly applied to the three zones. Principle components analyses were conducted separately for each zone. For zone A, two factors were identified that explained 65.38% of variance. Factor one consisted of five items indicating a place of natural beauty and fantastic views, with an alpha of 0.85. Factor two consisted of two items indicating a place that was perceived as quite industrial and not pristine (Pearson's r = .281, p<.000, n=419). For zone B, analysis indicated a two factor solution that explained 67.06% of variance. Similar to zone A, the factors indicated a place of natural beauty and fantastic views (four items, alpha = 0.86) and a place that was considered industrial/not pristine (Pearson's r = .340, p<.000, n=419). For zone C, a two factor solution was identified that explained 68.05% of variance. As with the other zones, factor one consisted of four items indicating a place of natural beauty and fantastic views (alpha = 0.88) and factor two indicated a place that was industrial/not pristine (Pearson's r = .431, p<.000, n=418).

Beliefs about the wind energy project were measured using 9 items, drawn from the previous qualitative studies. Principle components analysis of the items revealed a three factor structure that explained 65.77% of the variance (see Table 5). Factor one indicated support for generating electricity for local use from the wind. Factor two consisted of two items that represented the belief that electricity on the island should be locally owned, with an inter-item correlation of 0.514 (p<.000, n=459). Factor three consisted of four items referring to negative impacts of the wind project on wildlife.

Table 5: Pattern matrix for principle components analysis of wind project items

	Factor 1 'local electricity from wind'	Factor 2 'local owner-ship'	Factor 3 'negative in-dustrial im-pacts'
I like the idea of this wind development generating electricity only for Guernsey	.879		
I like the idea of using this local resource (the wind)	.863		
This development would look visually attractive	.670		
I would prefer this wind development to be owned by an investor outside Guernsey		-.903 (recoded)	
I would prefer this wind development to be owned by people living in Guernsey		.817	
I would worry about its impact on wildlife			.702
This wind proposal would industrialise Guernsey			.680
I would not support a development that increases electricity pric-es by 5-10%			.621
This wind development would make Guernsey less unique	-.494		.534
Cronbach's alpha	.78	Pearson r=.514	.66

Acceptance was measured separately for each zone. Participants were asked to indicate whether they agreed with two statements in relation to each: '*I would support this 10-turbine wind farm/I would accept this 10-turbine wind farm in location [A-C]'* with responses on a Likert type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Very high correlations were observed for the pairs of items across the three locations (r>.95, n>410, p=.000), therefore items were summed to create a single measure of acceptance applied to each location.

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Conclusions

Feedback of results to policy makers challenged pre-existing assumptions in a number of ways. First, they have challenged assumptions about low levels of community acceptance for offshore wind in comparison to other marine energy technologies, therefore providing evidence that opens up a potential trajectory for low carbon energy previously assumed to be too controversial (Wiersma, 2016). Second, findings provide evidence about the importance of location and spatial proximity in influencing community acceptance, over and above technical indicators of suitable sites. In doing so, the findings underscore the interdependencies between socio-political and community dimensions of social acceptance (Wüstenhagen et al., 2007) that deserve investigation in future research, particularly concerning perceptions of the value of different social science methods (focus groups, surveys) as sources of evidence about community acceptance to legitimise policy change. In this case, the large and representative sample was considered essential by policy makers, supporting previous research showing the greater appetite of policy makers for large-scale quantitative findings by comparison to small n research (Valentine, 2006).

To conclude, the findings of this study show that acceptance of the same project design differed significantly across alternative development locations. Regression analyses compared the roles of personal, place and project-related factors in explaining acceptance. Greatest variance was explained for the location that was also the most acceptable. Common patterns in acceptance across locations include significant effects for education (positive), industrial place meanings (positive) and local resource use (positive). Using wind for local energy supply was the most important predictor, and mediated the relationship between island energy security and community acceptance. We conclude that place matters for community acceptance and that future research should address interactions between place attachment and spatial proximity, as well as issues of security and autonomy, in island as well as mainland locations.

Full text journal article:

Devine-Wright, P. and Wiersma, B. (2019) Understanding community acceptance of a potential offshore wind energy project in different locations: an island-based analysis of 'place-technology fit'. *Energy Policy.* https://doi.org/10.1016/j.enpol.2019.111086

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