The University Of Sheffield.

The Democratic Deficit in Wind Farm Siting:

An interdisciplinary model of community mobilisation around onshore wind farm siting in England

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Abstract

Reportedly, a sizeable majority of the UK population are favourable to the use of wind power yet many specific wind farm proposals are delayed or curtailed because of active local opposition, especially in England. A novel and so far insufficiently researched explanation of this paradox is the democratic deficit hypothesis, which argues that if an oppositional minority can advocate their opinion more actively and effectively than a more positively inclined majority then the planning outcomes will not reflect the actual will of the public. The studies in this dissertation were looking at whether or not the relative actions of supporters (i.e. actual numeric majority) and opponents (i.e. actual numeric minority) in relation to onshore wind farm siting projects might be a product of a misperception about the relative numbers of supporters (i.e. perceived numerical minority) and opponents (i.e. perceived numerical majority) within the host communities, and whether this is evidenced by a greater presence of opponent viewpoints within the local news media. The findings indicate that project support was actively delegitimised while project opposition was actively legitimised in journalistic discourse, project opponents were more actively engaged in the planning process than project supporters, and project supporters correctly perceived themselves as a numerical minority group while project opponents incorrectly perceived themselves as a numerical majority group. The relative difference between the two groups' levels of engagement in the local wind farm siting process can only be partly explained by project supporters' perceived minority position, yet the reasons for project opposition are related to a general-level dissatisfaction with national renewable energy policies and to objections stemming from local-level impacts.

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Chapter 1

The Democratic Deficit In Wind Farm Siting

A widely cited and influential article about public policy responses to wind energy by Bell et al. (2005) opened with the following sentence: *"If approximately 80% of the public in the UK support wind energy, why is only a quarter of contracted wind power capacity actually commissioned?"* (p. 460). Bell et al. (2005, 2013) called this paradox the social gap in wind farm siting, which refers to the discrepancy between the low levels of planning success of specific wind farm proposals in the face of general support for wind energy seen in public opinion polls. The authors provided four possible explanations for the social gap, one of which, the so-called the democratic deficit hypothesis, argued that this paradox can be, at least partially, explained by the relative activity of oppositional minority groups. Indeed, in a recent article by Jones et al. (2014) the democratic deficit hypothesis was explained as a process where a small group of local wind farm opponents advocate their opinion more effectively during the public inquiry process than the more positively disposed majority. In turn, this imbalance in community mobilisation could create the false perception that opponents are a majority, leading them to have a disproportionate sway over the planning outcomes.

This chapter will focus on the evidence for and the theorectical underpinnings of the democratic defcit hypothesis, and it consists of three main sections. The first main section will explain the rationale for wind energy deployment and the most prevalent acceptability challenges of wind farm proposals, and will provide an overview of the onshore wind farm planning process. The second main section of this chapter will first look at recent evidence of the social gap in wind farm siting, particularly in England, and will explore the four explanations of this phenomenon. Then, it will provide the rationale for researching the democratic deficit explanation in particular in this dissertation and will also explain the background to the development of this PhD project. Finally, the third main section will propose an interdisciplinary and theoretically informed model of the democratic deficit in wind farm siting.

1.1 Background to onshore wind farm siting

An influential policy paper, the *Stern Review: The Economics of Climate Change* (Stern, 2006), marked a revolution in thinking about global warming. The message of this report was that designing and applying climate change interventions would outweigh the costs of not acting, at least in the long turn. Furthermore, the more recent New Climate Economy Report (2014), which was issued by the world's leading economists and political leaders, argued that tackling climate change can actually be a boon to prosperity rather than a brake. However, in order to enable renewable energy solutions to drive prosperity, the report also urged nations around the world to take immediate and strong political action to set limits on carbon dioxide emissions while simultaneously increasing the use of renewable energy technologies.

This section will first explain how onshore wind energy can be utilised in the UK to help to cut carbon dioxide emissions by increasing the share of electricity generated from renewable energy sources. However, the process of increased onshore wind energy implementation can be curbed by negative public perceptions and unsuccessful planning applications. Therefore, this section will also provide an overview of the key factors that were shown to influence public perceptions of onshore wind farm proposals as well as of the relevant national planning guidance, with a specific focus on how local residents may voice their opinions during this planning process.

1.1.1 A case for onshore wind energy implementation in the UK

Policy makers in the UK and elsewhere have long been advised to take measures to mitigate the upward temperature trend across the Earth that has been predominantly caused by the increased greenhouse gas (GHG) emissions since the Industrial Revolution (e.g. Levitus et al., 2001; Tett, Stott, Allen, Ingram, & Mitchell, 1999). Responding to this challenge, the world's first comprehensive climate accord was agreed at a historic event in December 2015 in Paris by the representatives of 196 countries, who pledged to contribute to keeping the increase in the global average temperature below 2°C above pre-industrial levels and to pursue efforts to limit it to 1.5°C (United Nations Framework Convention on Climate Change, 2015).

While the Paris Agreement included the United Kingdom as well, the country was already formally committed to adhere to GHG emission-cutting targets set out by the European Parliament (2009). More specifically, the UK has pledged to secure 15% of its energy use from renewable resources and to reduce GHG emissions by 34% by 2020, compared to the 1990 levels. Furthermore, the UK Government also implemented the legally binding Climate Change Act (2008) which aimed to reduce the national GHG emissions by at least 80% of the 1990 levels by 2050. However, the UK is still heavily reliant on fossil fuel sources, primarily on coal and cheap gas from the North Sea, to generate electricity to power homes, transport, and industry. For example, in 2004, 40% of the national electricity consumption was generated by natural gas, 33% by coal and only 3.58% was generated by all renewable sources together, including hydro, wind, wave, solar and biofuels (National Statistics, 2005). Decarbonising the electricity sector is a crucial step towards the mitigation of GHG emissions because this is the greatest individual sector of GHG emission in the UK (Ecofys, 2014). Therefore, the UK is currently facing a genuine challenge to increase the electricity generation from renewable energy sources, such as wind energy, to meet the legally binding national targets and further decarbonise electrical power generation.

The first commercial wind farm in the UK was installed in Delabole, South Cornwall in 1991 (see Eltham, Harrison, & Allen, 2008). The UK has, since then, become the 6th largest wind energy producer in the world and wind energy is generating 10% of the UK's current electricity needs, bringing the total UK capacity to over 13MW, while also providing 15,500 direct and 15,078 indirect jobs and returning £1.25m in annual funds to the host communities (RenewableUK, 2015).

There are three main reasons behind the successful growth of the wind energy sector in the UK. Firstly, wind energy is a mature and cost-effective renewable energy technology (Kaldellis & Zafirakis, 2011; Kurz, Augoustinos, & Crabb, 2010). Onshore wind energy, in particular, has the lowest cost source of electricity generated from renewable sources and it is also cheaper than nuclear, gas and coal energy when the external costs (e.g. the impacts on the environment, health and climate change) are also taken into account (Ecofys, 2014). Furthermore, if wind energy could replace the end-of-life coal and nuclear plants in the UK by 2030, the cost of electricity generation would increase by less than 4%, compared to 8% if the electricity would still be generated from gas (Cambridge Econometrics, 2015). In addition, replacing part of the

coal mining industry by the wind energy sector would firstly, help to achieve economic objectives (e.g. energy security and local employment), secondly, it would improve health measures (e.g. by reducing air pollution and coal mining accidents) and finally, it would help to achieve certain environmental objectives (e.g. lowering the use of water during electricity generation) as well (IPCC, 2014).

The second main reason behind the interest in national onshore wind energy deployment can be explained by the country's geographical advantage, which makes the harvesting of wind energy in the UK profitable for the developers. Namely, wind farms can be efficiently operated in the UK because this country has one of the best sources of wind energy available in Europe (Connor, 2003). Scotland in particular has over 60% of UK wind resource (~2.5 GW), followed by England (~0.9 GW), Wales (~0.4 GW), and Northern Ireland (~0.3 GW) (DECC, 2011).

Finally, the third main factor that stimulated the investment into newly built wind farms relates to the various financial support instruments that were provided by the UK Government, most notably the Renewable Obligation (RO; see Otitoju, Strachan, & Toke, 2010; Verbruggen & Lauber, 2012; Woodman & Mitchell, 2011). The RO has been in place since 2002 and it imposes an obligation on energy suppliers to provide a certain proportion of their supply from renewable energy sources, for which they receive Renewable Energy Certificates (ROCs) from the Office of Gas and Electricity Markets (Ofgem). Energy suppliers are allowed to source their required renewable output from any eligible technology and from any generator, in order to emphasise competition between the various types of renewable energy generators (Woodman & Mitchell, 2011). Because of the maturity of the technology, onshore wind energy posed a reletively low-risk investment option and this made onshore farms an attarctive choice for developers, at least until the UK Government announced to close the ROCs for new onshore wind projects from April 2016 (RenewableUK, 2015).

In summary, the relatively maturity and the financially competitive nature of onshore wind energy meant that energy companies tended to favour the development of onshore wind energy projects until recently. However, despite these key advantages of onshore wind energy technology, it has certain technical drawbacks as well, such as the intermittency of electricity generation (see Albadi & El-Saadany, 2010; Devine-Wright & Devine-Wright, 2006) and wind farm proposals may also be contested by affected residents for a number of reasons which will be discussed below.

1.1.2 Public perceptions of wind farm-related risks and impacts

Despite the advances of the onshore wind energy technology and the geographical suitability of the UK for this particular technology, there are several attributes to wind farms that may negatively impact public perceptions of them. Therefore, a growing body of research has emerged during the past three decades aiming to identify the factors that may influence public perception of these wind developments (e.g. Gipe, 1991; Jobert, Laborgne, & Mimler, 2007; Wolsink, 2012; Wustenhagen, Wolsink, & Burer, 2007). Most recently, Peterson, Stephens and Wilson (2015) reviewed over a thousand articles spanning over four decades of scholarship on public perceptions of low-carbon energy technologies and defined two distinct clusters of common wind farm related issues: 1) *Place-related factors* (i.e. spatial, social and historical issues) and 2) *Project-related factors* (i.e. public engagement). This typology can identify the key issues that may generally impact public perceptions of wind farm proposals (see Table 1.1).

Table 1.1 Summary of factors influencing public perceptions of wind farms. Table based on Peterson, Stephen and Wilson (2015).

Factors influencing the perception of wind farms	
Place-related factors	***Process-related factors***
• *Landscape impact* (e.g. visual characteristics of the turbines, cumulative impact, place attachment) • *Wind turbine noise* (e.g. annoyance, sleep disturbance, psychological distress) • *Wildlife impact* (e.g. bird and bat mortality) • *Property value* (e.g. the impacts of visibility and proximity on housing process) • *Community benefits* (e.g. local employment, annual community funds, co-ownership)	• *Public engagement* (e.g. trust, equity and justice)

Unsurprisingly, the literature on these factors is extensive and therefore it is beyond the scope of this dissertation to explain them all in detail. The information provided below will be restricted to the main findings within the more recent literature discussing the factors that were most typically found to shape public perceptions of onshore wind farm proposals.

Landscape impact

Generally, wind farm studies have concluded that one of the key driving factors behind public attitudes towards onshore wind farms is related to the impact of the turbines on the landscape (e.g. Devine-Wright, 2005; Mattmann, Logar, & Brouwer, 2016; Pasqualetti, 2011; Wolsink, 2012), which can originate from the aesthetic character and the physical parameters of the turbines, such as movement, height and colour (see Meyerhoff, Ohl, & Hartje, 2010; Tsoutsos, Tsouchlaraki, Tsiropoulos, & Serpetsidakis, 2009). However, the evidence is often conflicting on landscape impact (e.g. Ek, 2006; Maehr, Watts, Hanratty, & Talmi, 2015; Maffei et al., 2013) and the results have not yet been systematically linked to either project acceptance or oppositional activity (Ellis & Ferraro, 2017). On the other hand, cumulative visual effect, i.e. regularly seeing multiple wind turbines or wind farms in the same area, has been increasingly important in areas where the landscape is otherwise considered as natural or scenic, and it was shown to make affected rural residents particularly sensitive to high levels of wind turbine concentrations (e.g. Ladenburg & Dahlgaard, 2012; Ladenburg, Termansen, & Hasler, 2013).

Landscape impact has another important connotation, namely the potential disturbance to people's emotional connection to the affected landscape (see Devine-Wright, 2011). The term 'place attachment' has been defined as "positively experienced bonds, sometimes occurring without awareness, that are developed over time from the behavioural, affective and cognitive ties between individuals and/or groups and their sociophysical environment" (Brown & Perkins, 1992, p. 284; see also Stedman, 2002). Wind farms' perceived disruption to place attachment was shown to be a significant predictor of attitudes against local wind farm proposals (e.g. Anton & Lawrence, 2016; Devine-Wright & Howes, 2010; Jones, Orr & Eiser, 2011), and as such, people's perceptions of wind turbines may also be shaped by the proposals' perceived interference with historic, touristic, and recreational uses of places (see also Musall & Kuik, 2011; Vergunst, Arnason, Macintyre, & Nightingale, 2009; Wheeler, 2017; Woods, 2003).

Wind turbine noise

Wind turbine noise, which usually ranges between 28-45 dB, is caused by the low frequency and ultrasound noise that wind turbines emit when the air flows around the

blades, and it is more easily perceivable in adverse weather conditions than in conditions with low wind speeds (Schmidt & Klokker, 2014). Importantly, this noise may evoke concerns about certain adverse health impacts as well as being a general noise annoyance for affected residents. The term 'wind turbine syndrome' has been used in the literature to describe people's negative attitudes to wind farms caused by adverse health symptoms, such as stress, sleep disturbance, tinnitus (buzzing in the ears) and headache (Farboud, Crunkhorn, & Trinidade, 2013). However, noise levels were shown to explain only 12-26% of the annoyance variance amongst affected residents (Pedersen, van der Berg, Bakker, & Bouma, 2009), suggesting that there may be a complex relationship between wind turbine noise and wind turbine syndrome that could be mediated by other factors (for a systematic review see Schmidt & Klokker, 2014).

One of these mediating factors could noise awareness. For example a Dutch survey study found that residents who heard the wind turbines' noise felt disturbed by it and suffered from negative health impacts whereas those who residents living in the same area who were unaware of the noise were not annoyed by it and experienced no sleep disturbance either (Bakker et al., 2012). Another study conducted by Jalali, Nezhad-Ahmadi, Gohari, Bigelow and McColl (2016) explored the link between noise and sleep quality by comparing the sleep measures obtained from residents living near onshore wind farm sites before and after wind turbine installation. This study of Jalali et al. (2016) found that participants reported poorer sleep quality after installation if they had negative attitudes to wind farms, if they had concerns about property devaluation and if the turbines were visible from their homes. These results suggest that self-reported noise annoyance, financial worries and wind turbine visibility may act as mediating factors between sound exposure and sleep disturbance, which in turn can cause psychological distress. Finally, certain personality traits could also increase the risk of wind turbine syndrome. For example a study examining the relationship between Negative Oriented Personality (NOP) traits (i.e. Neuroticism, Negative Affectivity and Frustration Intolerance) and the health issues of affected residents found that perceived, but not actual, noise from wind turbines was associated with increased symptoms; although this effect only occurred for individuals whose scores were high on NOP traits (Taylor, Eastwick, Wilson, & Lawrence, 2013).

Wildlife impact

Onshore wind farms can also have negative impacts on the local biodiversity, habitat, flora and fauna (Mattmann et al., 2016) even though developers are obliged to follow certain national regulations on avoiding or mitigating wildlife impact (Pearce-Higgins, Stephen, Douse, & Langston, 2012). Most ecological studies have focused on the effect of onshore wind farms on bird and bat fatalities, which can result from avian collision with moving motor blades. A review on wind farm-related bat mortality by Rydell et al. (2010) identified that 98% of the threatened species belonged to a specific group of bats that adapted to open-air foraging, and only between 0-20 of these bats were killed per annum per wind turbine. The main impact of onshore the wind turbines on birds is actually related to avoidance behavior instead of bird fatalities. Avoidance of wind turbines during flying was shown to increase the energetic costs for birds due to the additional distance travelled during migration (Masden et al., 2009) while it can also lower the densities of certain bird species around the affected areas (Pearce-Higgins et al., 2008).

Property value

In the UK, there are legal restrictions on siting wind turbines too close to residential areas. Previous wind farm studies that examined the spatial proximity of wind farm sites to nearby residential areas were unable to establish a causal link between the proximity of the wind farms and housing prices (e.g. Jones & Eiser, 2010; Sims, Dent, & Oskrochi, 2008). However, those studies that measured the visibility of the turbines were indeed able to quantify the financial impact of those wind turbines that were visible from proximal houses. For example, a quasi-experimental study by Gibbons (2015), which compared housing price changes in places where wind farms were visible with appropriate comparator places without visible wind farms, revealed that visible wind turbines reduced the housing prices by 6.5% within 1km and by 2.5-3% within 4km of the properties, but non-visible proximal wind farms did not have such effects. Similarly, a weighted analysis of housing prices using a German case study area showed that visibility was a better predictor of property values than proximity measures, although this visual impact only appeared to be measurable within the first kilometer around the wind farm site (Sunak & Madlener, 2015). An explanation for this adverse effect of visibility was given by qualitative studies on large-scale energy

developments which suggested that wind farms may 'stigmatise' certain properties by blotting the countryside view for their occupiers (Parkhill, Butler, & Pidgeon, 2014).

Community benefits

The economic benefits provided by the wind farm developers to the host communities are strategic elements of the wind farm negotiation process in the UK. These community benefits mainly comprise of two elements, annual monetary funds and local employment (Munday, Bristow, & Cowell, 2011). For example, in year 2014/2015, the wind energy sector in the UK sustained 15,000 direct and 15,078 indirect jobs (RenewableUK, 2015), an during the year before, renewable energy companies provided a total of £18.4m in annual funds as voluntary gestures to host communities of wind farms across the UK (RenewableUK, 2014). However, in the eyes of the public, annual funds could actually resemble 'bribery schemes' (i.e. interventions aiming to influence the planning decisions) rather than voluntary gestures (see Aitken, 2010b; Cass, Walker & Devine-Wright, 2010). Therefore, not only the amount of the annual funds but also the set-up and management of these community benefit schemes can shape the wind farm proposals' perceptions. Furthermore, more positive attitudes might be achieved with financial setups that allow for greater diffusion of decision-making power (Markantoni & Aitken, 2015), for example with a co-ownership model (i.e. public-private partnerships) which is not as common in the UK as in some other European countries (see Dinica, 2008; Mussal & Kuik, 2011).

However, the benefits of wind farms are only partially financial in nature and their appeal in economically struggling areas may also stem from their potential to re-invigorate local communities on a social level. For example, residents living near a proposed small-scale wind farm site in the North-West of England expected that the project will increase community spirit through collaboration between community members, and will help the conservation of natural resources (Rogers, Simmons, Convery, & Weatherall, 2008). In the above study, interviewees contrasted the expected increase of community spirit as a result of the project with the current low levels of community activity. Similarly, in a Scottish co-owned onshore wind farm case study, residents exhibited a strong sense of pride in connection with 'their' wind farm project, which they named the 'Three Dancing Ladies' (Warren & McFadyen, 2010). Therefore, public perceptions of the community benefits of onshore wind farms

are shaped by the variations within the ownership model and the levels of community involvement, leading to complex questions that have been an enduring source of tension between wind farm developers, politicians and affected communities.

Public engagement

The literature on public engagement is extensive and it has grown in policy and practical significance in the recent decades (see Bauer, Allen, & Miller, 2007). Public engagement practices refer to events that allow greater community involvement in shaping the proposals about local infrastructure developments as well as the outcomes about these proposals, both in formal settings (e.g. voicing opinions to decision-makers directly) or by using methods that allow community involvement in less formal settings (see Section 1.1.3). Amongst these methods, public exhibitions, which are currently widely employed by wind farm developers in the UK, are predominantly focused on awareness-raising (Aitken, Haggett, & Rudolph, 2016; Barnett et al., 2012). On the contrary, public engagement methods that require two-way communication (e.g. consultations) have been promoted both in the wind farm literature (Aitken, Haggett, & Rudolph, 2016; Haggett, 2011a; Walker, 2009; Wolsink, 2012) and in the planning policies (DCLG, 2013; DECC, 2013). It has been argued that such consultation opportunities may provide more democratic and more effective ways to facilitate the siting of large-sale energy developments (Aitken, 2010a; Barnett, Burningham, Walker, & Cass, 2012) than methods based on awarenes rainsing that tend to use deficit-like assumptions (i.e. that opposition stems from the lack of accurate knowledge about the given technology which can be overcome by education) (Stilgoe, Lock, & Wilsdon, 2014). Furthermore, public engagement methods that use collaboration and deliberation as a basis for community engagement could also increase people's trust the wind farm developers, i.e. that they communicate and manage potential wind farm related risks with transparency and integrity (Devine-Wright, 2012; Walker, Devine-Wright, Hunter, High, & Evans, 2010).

There are three types of benefits that more participatory and inclusive planning strategies can offer: 1) normative benefits (i.e. a democratic right for people to have a say in decision-making), 2) instrumental benefits (i.e. the decision will be liked more by the public if they are directly involved in the process), and 3) substantive benefits (i.e. an improved decision outcome by including a diverse set of lay and expert

knowledge) (Stirling, 2008). Parallel with this argument, Haggett (2011a) provided three rationales for greater public participation during the onshore wind farm siting process: 1) to increase the likelihood of successful project siting, 2) to bring in local expertise, and 3) to provide a voice for people in a decision that will affect them.

1.1.3 The onshore wind farm planning process

The National Planning Policy Framework empahsises that "it is important that the planning concerns of local communities are properly heard in matters that directly affect them" (DCLG, 2013, p. 4). In line with this policy argument, local residents have the opportunity to voice their opinions during the onshore wind farm planning process for proposals below 50MW[1]. This section will demonstrate the ways in which such public opinions can be expressed by local residents and how they may exert an influence on the planning decision. The information provided in this section draws from three sources: 1) relevant planning documents (see below), 2) personal communication with public engagement practitioners (see Section 1.2.3), and 3) the review of onshore wind farm applications for the media study in Chapter 2.

The siting process of successful onshore wind farm proposals takes a number of years to complete, from the initial scoping, to construction and operation. While the details of this decision-making process have evolved over time (see Fudge, Peters, & Wade, 2012) the general arrangement has been that applications have to pass through a three-stage planning procedure: 1) pre-application stage, 2) planning stage and 3) an optional appeal stage. While the pre-application stage can already take up considerable time and resources, the average time for local planning decision to be made takes further 13 months, and it takes on average an additional 20 months to reach a final decision the if local decision is appealed (RenewableUK, 2013, 2014).

These onshore wind farm applications are subject to the National Policy Statement for Energy and to the National Policy Statement for Renewable Energy Infrastructure while the National Planning Policy Framework also sets out guidance for Local Planning Authorities (LPAs) who are reviewing these applications (see DECC, 2011). Furthermore, the National Planning Policy Framework also protects Areas of

[1] Wind farm applications above 50MW are directly assessed by the central government and single wind turbine applications do not always require planning permission. Both of these types of wind developments are out of scope for this dissertation.

Outstanding Beauty (AOB), sites of special scientific interest and areas of high heritage value. This policy also requires onshore wind farm applications to complete an Environmental Impact Assessment (EIA), which can directly inform the decision to approve or reject the submitted application and which assesses the potential visual, landscape and biodiversity impacts as well.

Stage 1. Pre-application

Once a suitable site has been identified, a planning application for the installation of a wind mast is submitted in order to be able to assess wind speed. During this time, an array of additional scoping studies are carried out, besides the EIA, which assess turbine noise, aviation safety, ground radar interference and strategic road network safety, amongst other potential hazards. Furthermore, wind farm developers, or the consultants on their behalf, can carry out stakeholder engagement events, for example discussions with local politicians and may even organize public engagement events, for example public exhibitions of the preliminary plans[2] (see also McKay, 2015). Since December 2013, pre-application consultations have become compulsory (previously, these were more likely to be carried out during the planning stage) as a means to show the developers' commitments to meaningful community engagement (RenewableUK, 2014). These early public engagement events are crucial in shaping the initial public opinion and to receive feedback from local residents which could in some cases alter the pre-application plans about the proposals. As a reaction to these initial events, local pressure groups could start to form as well and they could already begin to create a strategy for advocating their opinions[3]. At the end of this stage, documents from relevant consultants, i.e. reports about the various impact assessments and engagements, are submitted along with the formal planning application to the relevant LPA.

[2] Information about Phase 1 requirements were partly acquired through personal communication with wind farm consultants during the public exhibition event of the proposed Cottam Airfield wind farm on the 30th November 2013 (see Chapter 3) and partly through reviewing the application documents for 8 previous onshore wind farm proposals in East Riding of Yorkshire (see Chapter 2).

[3] Information acquired through personal communication with wind farm consultants during the public exhibition event of the proposed Cottam Airfield wind farm on the 30th November 2013 (see Chapter 3).

Stage 2. In Planning

Under the Localism Act (see Eagle, Jones, & Greig, 2017), wind farm proposals below 50 MW are first assessed by LPAs (i.e. the administrative Local Authority or Council, or a National Park Authority). LPAs are empowered by law to exercise statutory town planning by drawing their decisions on national policies and legislations, such as the National Planning Policy Framework. This policy framework highlights that communities do have a responsibility to facilitate the siting of renewable energy infrastructure that supplies green electricity. However, this responsibility has to be balanced with the projects' potentially adverse impacts on local residents: "(…) this does not mean that the need for renewable energy automatically overrides environmental protections and the planning concerns of local communities (DCLG, 2013, p. 4). The LPAs' decisions are advised by a planning report prepared to present all available information about the proposal including 1) consultants' statements, 2) information about whether or not the plans comply with the relevant legislations, and 3) information about public opinion in the affected area, e.g. the number of oppositional and supportive letters received, reasons for opposition and support in the letters, whether there are any wind farm action groups and whether individual county councils supported or opposed the proposal[4]. Finally, the planning report also provides a recommendation for a decision (i.e. approval or rejection) but LPAs may also decide against this recommendation. Therefore, Ogvile and Rootes (2015) argued the planning decisions on this level may be influenced by 'political logic'. Namely, high levels of lower-tier council opposition (i.e. opposition from parish councils, who are also democratically accountable) was found to be associated with the refusal of wind farm applications from LPAs, i.e. "when such calculations indicate electoral risk (…), political survival trumps political values" (pp. 884-886). However, if there is insufficient basis for a rejection decision then this may be costly for local taxpayers as LPAs would have to cover the costs of a successful appeal process[5].

Stage 3. In Appeal

During the appeal stage, an independent Planning Inspector, who reports to the Secretary of the State for Communities and Local Government, creates a new report

[4] Information acquired through reviewing the application documents for 8 previous onshore wind farm proposals in East Riding of Yorkshire (see Chapter 2).

that proposes a final decision over the application, based on the available consultation documents and on observations made in the field[5]. In terms of the available consultation documents which would directly inform the appeal decision, local pressure groups may commission additional EIAs and other assessments which may argue that the original studies was factually or methodologically flawed[5]. The Planning Inspector chairs public inquiry events and may also accept formal invitations from local residents to examine their properties regarding the potential visual impact that they would be subjected to. At the public inquiry event, which are typically organised in large community halls, a number of local residents can voice their opinions in front of the Planning Inspector[6]. These speeches may not only refer to relevant planning frameworks but also aim to convey the speakers' motives behind support or opposition. At this stage, activist groups may also be able to secure a formal Rule 6 party status (i.e. which refers to those other parties who wish to take an active part of the proceedings) and hire legal representation and planning experts, which can help them to formulate more persuasive arguments (i.e. that are more in line with national policies) and to support more significant objectors[7] (see also Ogilvie & Rootes, 2015). Therefore, whilst community mobilisation can be especially effective at Stage 2, it may also have an indirect and mediating influence on the final planning outcome and it could also have a more direct influence by bringing attention to and reinforce certain interpretations of national policies.

Figure 1.1 below illustrates the planning stages, the actors and their roles in the planning process. In summary, individuals and pressure groups may exert influence in various ways (e.g. by letters, protests, speeches) which could directly influence elected local councilors and may even indirectly influence the Planning Inspector. Furthermore, well-funded pressure groups can commission additional assessments and supply additional consultation reports for the planning inquiry which may directly influence the project outcomes. Therefore, a central argument of this dissertation is that local residents can and do influence planning outcomes, both directly and indirectly.

[5] This was the case regarding the proposed Bagletts wind farm (see Chapter 3).
[6] Information based on observations made and personal communications conducted with a wind farm consultant during the planning inquiry of the proposed Molesworth wind farm on the 18th December 2013 (see Chapter 4).
[7] This was the case regarding the proposed Spaldington Airfield wind farm (see Chapter 2).

Figure 1.1 The onshore wind farm planning process. Author's own illustration.

1.2 Exploring the social gap and the democratic deficit in wind farm siting

The past decade have seen a growing interest in the implementation issues around renewable energy technologies, especially in the wake of the transition from non-renewable to renewable energy systems (see Section 1.1.1). However, commercial onshore wind farm proposals have faced significant obstacles, particularly in England, as a result of local opposition (e.g. Bell et al., 2005; Bell et al., 2013; Fabian Society, 2015; Toke, 2005). This relatively slow deployment is in sharp contrast with the results of national opinion polls which show that the majority of the general public supports onshore wind farms (e.g. Bell et al., 200, 2013; Toke, 2002). This paradox is the called the 'social gap' in wind farms siting and to date four explanations have been provided by Bell et al. (2005, 2013) to explain the mechanism behind it: 1) the NIMBY explanation (from 'Not-In-My-Backyard'), 2) the qualified support explanation, 3) the place-protector explanation, and 4) the democratic deficit hypothesis, and this later explanation is the main focus of this dissertation.

This section consists of three main parts. Firstly, it will provide evidence of the social gap in wind farm siting and it will also show why it is particularly apparent in England. The second part will provide an overview of the literature about four explanations to the social gap, and will explain where these explanations overlap with each other and with other theories in the wider literature. The third part of this section will provide the rationale for choosing the democratic deficit hypothesis amongst the four explanations as the main focus of this PhD project and will also explain the background and the evolution of this project.

1.2.1 Evidence of the social gap in onshore wind farm siting

According to a longitudinal survey of the Department for Energy and Climate Change (DECC, 2014), 80% of the general public in the UK supports the to utilisation of renewable energy sources in general (including wind-, solar-, tidal- and wave energy) in order to fulfil the UK population's need for electricity, fuel and heat. The vast majority of social gap articles so far gave attention to onshore wind farms because these are more widespread and arguably more controversial than offshore wind farms

tend to be (see Haggett, 2011b; Heidenreich, 2016; Kaldellis, Apostolou, Kapsali, & Kondili, 2016) and onshore wind farms also appear to embody the issue of the social gap in the context of renewable energy development (see below). However, other renewable energy developments may face implementation problems and local resistance as well. For example, the social gap has been suggested to exist in relation to wave- and tidal energy technologies as well (e.g. Bonar, Bryden, & Borthwick, 2015; Kerr et al., 2014) although there has been limited amount of research conducted in this field so far. On the other hand, more favourable consumer attitudes exist to domestic solar systems in the UK (e.g. Faiers & Neame, 2006; Sardianaou & Genoudi, 2013) hence there is currently no support for the existence of a social gap in relation to renewable technologies in the domestic sector.

Bell et al. (2005, 2013) published two seminal articles about the social gap in wind farm siting, which refers to the mismatch between the apparently high levels of public support for wind farms in the UK and the relatively low success rate of specific wind power planning applications. In their initial article, Bell et al. (2005) quoted the study of Toke (2002) which found that according to nation-wide and representative public opinion polls, 80% of the general public in the UK supported wind energy while at the same time only around 25% of the submitted onshore wind farm planning applications received approval. If opinion poll figures are taken as a direct analogue of project planning success then these results show a gap of 55% between general attitudes and local planning outcomes of onshore wind energy developments in the UK. In their second article about the social gap, Bell et al. (2013) re-measured the social gap by looking at the results of a number of recent national public opinion polls. Yet, the results still supported the claim that approximately 80% of the general public is in favour wind energy, while approximately 50% is ‘strongly’ in favour.

Bell et al. (2013) also re-visited the data on the number of approved projects and showed that the approval rate for onshore wind energy applications was approximately 50% in the UK, a success rate considerably higher than the previously measured 25% (i.e. a social gap of 30%). However, Bell et al. (2013) also looked at the difference between installed capacities and submitted planning applications because looking at the planning decisions alone does not include applications that might have been withdrawn before the decisions were made. Indeed, a capacity of only 3350.55 MW (across 201 developments) was approved of the total submitted capacity of 16921.33

MW (across 854 projects), which is only 23.5% of the total submitted capacity. Therefore, based on the approved capacity rate, the social gap appears to be even larger, i.e. 56.5%.

In summary, at the beginning of this PhD project, the literature clearly supported the existence of a social gap in the UK, which was evidenced by the discrepancy between the high levels of general support to wind energy and the relatively low levels of local onshore wind farm planning success, even though the extent of the social gap depended on the metrics applied (i.e. 30% based on the number of projects that received planning approval but 56.5% based on the installed capacity submitted).

This dissertation can also extend on the social gap literature by looking at further tendencies in the data about onshore wind farm siting in England. Namely, more recent policy evidence shows that the social gap is particularly prominent in England. The onshore wind farm consent rates, i.e. the difference between submitted and accepted applications, are reported annually in the *State of Industry Reports* published by RenewableUK. Based on these, 59% of the submitted project applications were consented in England while this rate was 76% in Scotland, 46% in Wales, and 78% in Northern Ireland (i.e. a UK wide average of 68%) in year 2013 (RenewableUK, 2013). In 2014, England achieved only a 31% planning consent rate while this rate was 62% in Scotland, 52% in Wales, and 89% in Northern Ireland (i.e. a UK wide average of 56%) (RenewableUK, 2014). These figures show that, while there is variability in the onshore wind farm consent rates by country, England is a clear problem case because it tended to have the lowest planning success rate in recent years within the UK.

Furthermore, when looking at the approved capacity rates in England, i.e. the MW of electricity to be produced by the consented projects, the number of approved projects has surprisingly increased in England between 2009-2014. However, these developments are relatively small in size which means that the overall added capacity is actually relatively low and further decreasing (see Figure 1.2 below). Therefore, for this PhD project, England in particular was deemed to be a suitable research area to further our understanding about the explanations behind the social gap in onshore wind farm siting because the phenomenon appeared to be particularly prevalent is this area within the UK.

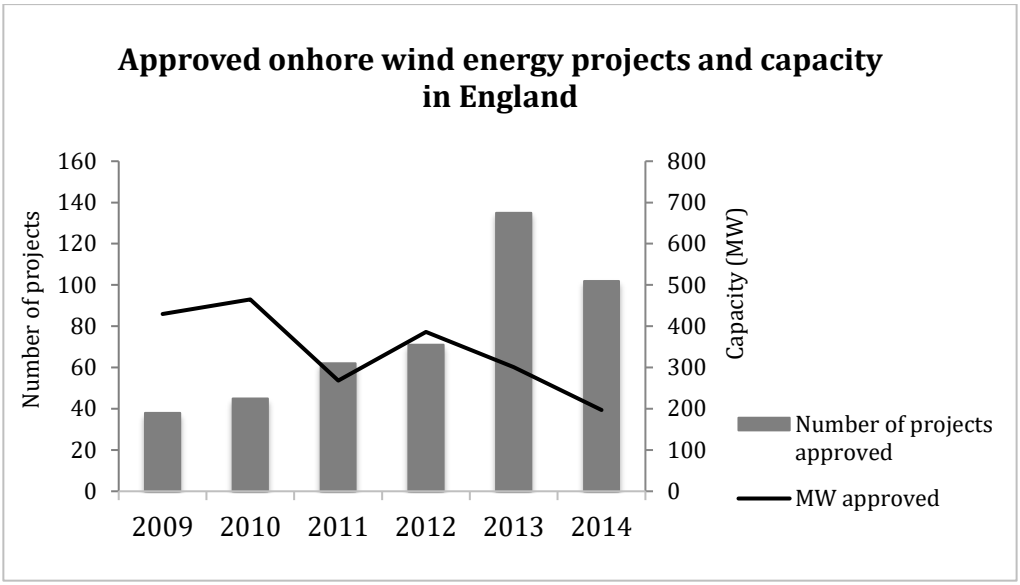

Figure 1.2 Approved onshore wind energy by capacity and by scheme in England (2009-2014). Source: Author's analysis of data obtained from RenewableUK.

1.2.2 Explanations of the social gap in wind farm siting

Based on the existing literature in wind farm siting, Bell et al. (2005, 2013) published an influential and widely cited typology which distinguished between four possible explanations to the social gap in wind farm siting: 1) NIMBYism, 2) qualified support, 3) place protector attitudes, and 4) the democratic deficit explanations. This section aims to explain the existing literature on all four explanations while paying special attention to the democratic deficit hypothesis. Importantly, these four explanations are not mutually exclusive or competing accounts to the social gap in wind farm siting (Bell et al., 2005, 2013).

<u>The NIMBY explanation</u>

The NIMBY explanation to the social gap is based on an individual gap in people's attitudes, namely that the same person can be supportive towards wind energy in general but oppose any wind farm proposals in their own area. The term NIMBY has been widely used to label local wind farm objectors as being ignorant and self-interested free riders (e.g. Burningham, 2000; Cass & Walker, 2009). However, the validity of the idea that selfish reasons can motivate wind farm opposition (i.e. 'wind farms are a good idea as long as they are not built near me') have been contested in the wind farm literature (e.g. Aitken, 2010; Bell et al., 2005, 2013; Jones & Eiser, 2009,

2010; Wolsink 2007b) Yet, this type of opposition was found to exist in a few studies on land use disputes and therefore the NIMBY explanation cannot be ruled out entirely for local wind farm opposition either. NIMBYism was most often found in qualitative studies that were able to provide a more interpretative analysis of oppositional behaviour. For example, a critical discourse analysis study by Hubbard (2006) explained racial discrimination with NIMBY attitudes, and argued that racial discrimination provided a partial explanation for the oppositional attitudes about the siting of an asylum centre in England. Importantly, the oppositional discourse about the asylum centre used proxy-measures to conceal NIMBY attitudes, i.e. protestors' wish to protect the 'whiteness' of the area was expressed by voicing concerns about the aesthetic and environmental impacts of the planned facility rather than about the area's change in its racial makeup.

Therefore, the emerging findings in the extensive field of NIMBY literature call in question whether the stereotypical NIMBY opposition is solely motivated by self-interest (e.g. Aitken, 2010a; Burningham, 2000; Wolsink, 2000, 2007a). Some authors proposed that institutional factors, like top-down policy style (Wolsink, 2000) and the lack of co-operatively owned turbines (Devine-Wright, 2005), may better explain local resistance to specific developments than NIMBY attitudes (see Section 1.1.2). Furthermore, an important link can be made between the NIMBY explanation and the collective action framework (Liu, Li, Li, Zou, & Li 2018; Wolsink, 2000) whereby people may protest against local wind farms because they perceive it to be in conflict with their own ideas about equity and fairness, especially if they believe that they have an ability to influence the decisions. In a meta-analysis of collective action literature, van Zomeren, Postmes and Spears (2008) identified three main predictors, namely perceived injustice, efficacy and identity, which all had medium-sized causal effects on people's behaviours to engage in social protests. In particular, feelings of injustice might be important for understanding the motives behind NIMBY opposition to local wind farm proposals: wind farm opponents may perceive an injustice firstly, regarding the burden they need to bear to increase national onshore wind energy deployment (i.e. distributive justice) and secondly, in relation to the decision-making process if they unable to participate in it (i.e. procedural justice) (for further information on social justice literature see Tyler & Smith, 1998). In line with the above argument, perceived injustice and unfairness, as opposed to self-interest, has been frequently suggested as a

motivation for NIMBY-type opposition (Botetzagias, Malesios, Kolokotroni, & Moysiadis, 2015; Gross, 2007; Wolsink, 2007).

It is also important to note that the NIMBY explanation can also partially overlap with the place-protector explanation and the qualified support explanation to the social gap in wind farm siting (see below). Therefore, some oppositional arguments about unwanted landscape impact, which may be perceived as NIMBYism, could actually stem from a disruption to place attachment (Devine-Wright, 2009, 2011, 2012) or from a limitation on wind farm siting that people have always maintained but could not express in public opinion polls (Demski, 2011).

In summary, NIMBYism is a type of opposition to wind farm proposals but there is little evidence to suggest that the stereotypical NIMBY opposition, that is solely motivated by self-interest, could make a significant contribution to the social gap (Bell et al., 2005, 2013). For example, Wolsink's (2000) qualitative study found that only 4% of the variance in wind farm related behaviour was explained by selfish attitudes. Regarding the adequate policy response to NIMBYism, Bell et al. (2005) argued that NMBY-type opposition may be successfully reconciled by offering monetary benefits to affected residents (see Section 1.1.2)

The qualified support explanation

According to Bell et al. (2005, 2013), when people who are genuine qualified supporters are asked generic question in public opinion surveys (e.g. 'Do you support wind farms?') they express favourable opinions. However, these polls generally fail to provide them with the opportunity to enter those limits and controls that they also believe should be placed on wind energy developments (e.g. 'Yes, as long as it does not adversely affect wildlife'). In turn, when qualified supporters are asked about their attitudes to local developments they may oppose it. To the wind farm developers, these people may look like NIMBYs but in reality they are just rejecting the proposals on the basis of the qualifications they always held but that they could not express in public opinion polls. The list of these qualifications is extensive and these were detailed in Section 1.1.2.

The PhD project of Christina Demski (2011) aimed to explore the qualified support explanation to the social gap in wind energy siting. Indeed, the studies in Demski's project found evidence of the existence of the qualified support phenomenon: general,

higher-level evaluations of wind energy resulted in highly favourable attitudes in the survey study whereas particpants had more concerns about wind farms in their own areas when they could provide more detailed responses during the subsequent interview study.

As argued earlier, when decision-makers are gauging the opinions of the affected residents, it may be difficult to identify people who are genuine qualified supporters instead of NIMBYs who are using cognitive arguments to 'dress-up' their position as a principled landscape or environmental objection. Nevertheless, Bell et al. (2005) argued that some opponents of local wind farms do genuinely hold the general principle of qualified support and developers who wish to address this type of opposition should initiate a dialogue with local communities early on during the siting process, for example during public engagement events (see also Section 1.1.2), in order to learn more about how certain qualifications may apply in the given context and to try to mitigate the potential adverse impacts of the proposed wind turbines.

The place-protector explanation

The place-protector explanation was added to the revised typology of the second social gap article from Bell et al. (2013). Drawing on recent developments in place attachment theory within environmental psychology and geography (see also Section 1.1.2), this explanation stipulates that place-protectors support wind energy in general but oppose wind farms locally because these developments would threaten their experiences of living or spending time in particular landscapes that they see value in. The role of place-attachment in wind farm opposition has been most extensively studied by Patrick-Devine Wright (e.g. 2009, 2011, 2012; Devine-Wright & Howes, 2010). For example, Devine-Wright and Howes (2010) found that place attachment correlated with negative project attitudes while significant associations were also found between place attachment and negative emotions, negative interpretations of project outcomes (e.g. 'eyesore', 'fence the bay') and oppositinal activism. Furthermore, place attachment was also linked to negative evaluation of place change, protesting and negative evaluations of national renewables policies (Anton & Lawrence, 2016). Place attachment was also moderated by other factors such as trust in the developers (Devine-Wright & Howes, 2010) and perceived injustice (Devine-Wright, 2012). However, the impact of wind farm proposals on the emotional bond

that people feel toards certain places is also mediated by various individual and contextual factors (Devine-Wright, 2011). For example, in an area where the landscape was evaluated as 'industrial' there was no significant correlation between place attachment and project attitudes (Devine-Wright & Howes, 2010) which shows that proposals that are perceived as a 'good fit' with the existing landscape might threaten people's place attachment to a lesser extent.

The social gap literature argued that people who are place-protectors might report that they are concerned about the landscape impacts of the proposals, which is also the most frequently observed concern around specific wind farm proposals (e.g. Aitken, 2010a; Jones et al., 2011; McClymont & O'Hare, 2008; see also Section 1.1.2). However, Bell et al. (2013) pointed out that genuine place-protectors are not qualified supporters because place-protectors do not impose a universal qualification that wind farms should not be built in visually attactive areas, and they are not NIMBYs either because place protectors do not use landscape arguments as a proxy measure to dress up their views in public debates. Therefore, a genuine place-protector does not simply have landscape concerns based on visual or aesthetic impacts of the turbines but instead sees a value in a particular place from a personal point of view which does not apply to other places where wind farm developments may take place (Bell et al., 2013). Hence, it has been suggested that place-protectors may not respond well to community benefit packages offered by developers (Aitken, 2010b; Bell et al., 2013; Markantoni & Aitken, 2016; see also Section 1.1.2) however, further studies are needed to recognise the methods that could address this type of opposition appropriately.

The democratic deficit explanation

The democratic deficit explanation of the social gap in wind farm siting evolved over time within the social gap literature. In summary, Bell et al. (2005, 2013) proposed a sophisticated minority/majority description for the democratic deficit explanation by arguing that the general support for wind energy observed in public opinion polls does not necessarily translate into similar rates of project success because a small but vocal and active oppositional minority is able to influence the planning outcomes more effectively than the more positively inclined majority. In turn, this bias may contribute to an undemocratic planning outcome as opponents are putting pressure on decision-makers to reject the proposals. Hence, the outcome of the permitting process will not

reflect the will of the majority and therefore will not uphold the principles of a majoritarian democracy either.

Bell et al. (2005, 2013) also argued that the minority group of project opponents in the democratic deficit may include any type of opponents, such as place-protectors, NIMBYs, qualified (or even unqualified) opponents, and the current planning process (see Section 1.1.3) is set up in a way that permits local minority groups to have a disproportionate sway over the project outcomes. Therefore, the democratic deficit explanation is not concerned with differentiating between the various possible motives for project opposition (i.e. self-interest, qualifications placed on specific proposals, place attachment or even a general refusal of wind farms) but with their joint willingness and their potential ability to block or delay wind farm developments (Bell et al., 2013; Jones et al., 2014).

Thus, the explanation provided by Bell et al. (2005, 2013) about the emergence of the democratic is based on three premises, which were derived from the wider wind farm literature: 1) that project opponents are a numerical minority, 2) that project opponents are more actively advocating their opinions than project supporters, and 3) that oppositional campaign groups can, to some extent, influence planning outcomes. Indeed, several qualitative wind farm case studies, which examined attitudes to commercial wind farm proposals, demonstrated that project opposition was represented by relatively small groups of local residents (Anderson, 2013; Hindmarsh & Matthews, 2008; Ogilvie & Rootes, 2015; Rossignol, Parotte, Joris, & Fallon, 2017; Toke, 2005). Furthermore, it has been conclusively shown in the literature that commercial onshore wind farm proposals tend to evoke oppositional activism rather than supportive activism amongst local residents who are faced with the prospect of hosting them, especially in England (Anderson, 2013; Ellis & Robinson, 2007; Haggett & Futák-Campbell, 2011; Loring, 2007; McClymont & O'Hare, 2008; Ogilvie & Rootes, 2015; Szarka, 2004; Toke, 2005; Wheeler, 2017; Wolsink, 2007b).

However, in the wind farm literature, the relative importance of opppositional activism on planning outcomes is debated. Some studies (e.g. Ellis, Barry, & Robinson, 2007; Fudge et al., 2012; Toke, 2005; van der Horst & Toke, 2010; Woods, 2003), including the most recent publications on this topic (Anderson, 2013; Ogilvie & Rootes, 2015), reported evidence of certain activist groups' success to hinder, curtail, derail or halt specific wind farm proposals. For example, Ogilvie and Rootes (2015) examined four

cases of anti-wind farm protests in England, and identified that local planning decisions can be influenced by community resistance because protestors are able exert political pressure on elected local politicians. On the other hand, some researchers (e.g. Aitken, 2010c; Aitken, McDonald, & Strachan, 2008) argued that local opposition groups have very limited, if any, influence on planning decisions about onshore wind farm proposals. Yet, these later authors formulated their argument based on observations in Scottish case studies. Scotland may represent a somewhat unique case firstly, because it has a 90% success rate for onshore wind farm proposals (Warren & Birnie, 2009) and secondly, because the co-ownership model is more widespread there than elsewhere in the UK (Markantoni & Aitken, 2015; Warren & McFayden, 2010). These characteristics of Scottish wind farm proposals indicate the presence of more deliverative and inclusive community engagement processes, which may in turn result in more democratic decision-making practices (Bidwell, 2016, Haggett, 2011a; see also Section 1.1.2). However, in areas like England, where commercial wind farms are common and opportunities for deliberative public engagement practices are rare (Barnett et al., 2012, Fournis & Fortin, 2017; van der Horst & Toke, 2010), oppositional residents may turn to activism, such as protests, petitions and public speaking during strategically important public events, in order to contribute to the planning discussions and ultimately, to exert direct or indirect influence on decision-makers (see also Section 1.1.3). Arguably, the most convincing evidence to support this argument was provided by Toke (2005), who showed on a sample of 51 English and Welsh wind farm proposals that the attitude of the residents living in the closest proximity to the proposed sites was the strongest predictor of the planning decisions made by local authorities.

Indeed, the second social gap article Bell et al. (2013) was largely dedicated to synthesise the evidence from existing case studies about the power attributed to oppositional campaign groups to influence planning outcomes. For this synthesis, Bell et al. (2013) employed an institutionalist framework (but not a theoretical framework) whereby they argued that the permitting process, as an institution of the wider national renewable energy governance, is designed in a way that allows individuals to self-select during public engagement events which could contribute to undemocratic planning outcomes. Self-selecting, in this context, refers to the nature of planning process that allows individuals or groups to decide whether they want to express their

opinions or not, which could lead to an unfair representation of the various opinions within the host communities (i.e. opponents can self-select themselves to dominate the discourse concerning the viewpoints of local people) (Bidwell, 2016; Jones & Eiser, 2009). Using a wealth of evidence from the wind farm literature (e.g. Breukers & Wolsink, 2007; Ellis, Cowell, Warren, Strachan, & Szarka, 2009; Eltham et al., 2008; Jones & Eiser, 2009; van der Horst & Toke, 2010; Warren & McFadyen, 2010), the authors drew the following four conclusions (see Bell et al., 2013, pp. 127-129):

1) *Local residents can and do block or delay wind developments* (i.e. local opposition groups have power and they use it efficiently to influence the planning outcomes).

2) *Some local communities may be more likely to be successful in blocking developments than others* (i.e. where opposition groups are well-resourced economically, legally, technically and in terms of social and political capital).

3) *Local opponents are not the only significant opponents of wind energy developments* (i.e. nature or landscape conservation groups and charities may also have the means to effectively oppose these developments).

4) *The relations of power in local wind energy politics can be effectively altered by active local support for community energy schemes* (i.e. in the UK context, small groups of local activists can be effective in installing community-owned turbines, even if there is a lack of unanimous project support within those local communities).

Besides the potentially disproportionate sway of small oppositional campaign groups on planning outcomes, the wider democratic deficit literature is also concerned with the problem of 'supporters' apathy'. Namely, the success of oppositional campaign groups can be aided by the project supporters' relative disengagement with the planning process (Anderson, 2013). This later group has been referred to as a "silent majority in favour of wind farms" (Hindmarsh & Matthews, 2008, p. 224) and "silent supporters (…) who represented the majority of the community" (Anderson, 2013, p. 104), indicating their relative lack of wind farm-related actions[8]. The reasons for the lack of supporters' engagement with specific local wind farm proposals have only been

[8] The umbrella term 'wind farm-related action' is defined in this dissertation as follows: a variety of behavioural responses to wind farm proposals that affected residents may use to express their own positions, e.g. joining project opposition/support groups, writing letters to politicians.

subject to a few empirical studies so far and the results indicated that the difference in the types of arguments used by opponents and supporters may contribute to supporters' apathy. More specifically, supporters' arguments tended to refer to the wind farms' potential to mitigate the effects of climate change and to increase national energy security while opponents' arguments typically referred to the potential negative local impacts (e.g. Demski, 2011; Jones, Rennie & Woolley, 2010). Demski (2011) identified that the local-level arguments used by oppoenents could be presented more convincingly than global-level arguments employed by supporters, and Jones et al. (2010) reasoned that opponents' arguments referred to goals that were more motivating and therefore they articulated them more readily than supporters. This later explanation was derived from the goal-orientation theory (Locke & Latham, 1990, 2002) which argues that distal, generic and abstract goals (in this case, mitigating climate change and increasing energy security) are more difficult to act upon than local, proximal and concrete goals (in this case, the turbines' direct impact on the landscape, people and nature).

To overcome the democratic deficit problem in wind farm siting, Bell et al. (2005) suggested that a direct public voting system could prevent a minority group from having a disproportionate sway over the decision-making process. They argued that casting a vote is a less demanding task than writing a letter to a local politician and therefore supporters might be more likely to engage in the decision-making process this way. Furthermore, a voting system would not evoke the type of opposition that may be likely to arise from the current top-down form of decision-making about onshore wind farm proposals. However Bell et al. (2005) also raised two concerns regarding the idea of a public a voting system being incorporated into the existing planning process. Firstly, similarly to the low levels of participation in other national political elections a wind farm referendum may also result in low participation levels, hence not tackling the democratic deficit sufficiently. Secondly, a referendum may politicise onshore wind farm proposals even further by intensifying the existing political rivalries and encouraging political opportunists. Additionally, it can be argued that referendums may instigate more negative media coverage in the local press, which already tends to feature oppositional arguments more frequently than supportive arguments (e.g. Stephens, Rand, & Melnick, 2009; Wolsink, 2000; Woods, 2003; Wheeler, 2017; see also Chapter 2). For example, biased media reporting about local

wind farm proposals was shown to be further enhanced by oppositional lobby groups and individuals who create newsworthy information that local newspapers can circulate (Wheeler, 2017). An alternative option to voting could be to conduct opinion surveys on representative samples of affected residents, which might offset the bias towards opposition in case the surveys find majority support for the wind farm proposals (Bell et al., 2005). However, besides the high cost of representative surveys, the main problem with the survey option is the potential backlash from those who were not included in the randomly selected samples and were therefore unable to influence a decision that directly affects them.

Therefore, the final policy recommendation from Bell et al. (2005) for preventing the democratic deficit was to use more collaborative planning methods during the public engagement process by shifting the character of the practices from confrontation and competition to consensus building. However, this option would only be efficient if the 'silent majority' would also be involved in the planning process. Therefore, an increased mobilisation of those who support the wind farm proposals during the course of the local wind farm siting process would arguably be the most effective way to ensure that the decision-making about onshore wind farm siting reflects the will of the majority of the affected residents (e.g. Anderson, 2013; Anderson, Schirmer, & Abjorensen, 2012; Hindmarsh & Matthews, 2008; van der Horst & Toke, 2010). However, the psychological mechanisms that might prevent supporters from actively expressing their opinions as well as the specific tools that would help to address this challenge have not yet been sufficiently explored in the wind farm literature.

1.2.3 The current research programme about the democratic deficit hypothesis

The preceding section argued that the democratic deficit could be one of the four plausible explanations to the social gap in wind farm siting. This section will first identify why the democratic deficit explanation was chosen as the research topic of the current PhD project over the other three explanations to the social gap. Secondly, this section will also outline the evolution of the current PhD project.

Rationale for the research topic

The democratic deficit explanation of the social gap in wind farm siting was first described as a problem where the "a majority support wind energy developments but a minority stop them" (Bell et al., 2005, p. 466). However, in the second social gap article, Bell et al. (2013) argued that the design of the planning process, which allows individuals to self-select during public engagement events, is a crucial factor that could contribute to undemocratic planning outcomes. Furthermore, the current public engagement practices have been heavily criticised for lacking two-way communication and the inclusion of a wide range of actors (e.g. Aitken et al., 2016; Barnett et al., 2012; Bidwell, 2016; Fournis & Fortin, 2017; Haggett, 2011a; Rossignol et al., 2017; Wolsink, 2009; see also Section 1.1.2). At the same time, national renewable energy policies about public engagement practices have evolved to mandate renewable energy developers to actively engage with the affected members of the public from the very beginning of the planning process (DCLG, 2013; RenewableUK, 2013, 2014; see also Section 1.1.3). Amongst the four explanations to the social gap in wind farm siting, the democratic deficit hypothesis provides the most detailed account about where the problems could lie that may prevent public engagement practices from becoming more inclusive and deliberative (i.e. the voice of self-selective members of minority groups being more widely heard than the silent majority's voice, see Section 1.2.2). Therefore, it seemed logical that more research effort was needed to learn about the validity and the mechanisms of the democratic deficit in wind farm siting because these could have had direct implications on the design of public engagement events, which were bound to become increasingly common due to the newly introduced planning requirements.

The second reason why the democratic deficit hypothesis needed more investigation is because it is the most under researched explanation amongst the four explanations to the social gap in wind farm siting, at least in terms of studies that focused on these explanations specifically. Firstly, the NIMBY explanation has been a popular research topic in the past decades, and it advanced from describing the project opponents primarily from the perspective of self-interest to a non-moralising research programme that looks at protest behaviour from the point of perceived injustice (see Section 1.2.2). Secondly, the PhD project of Christina Demski (2011) was dedicated specifically to the qualified support explanation of the social gap, and public perceptions about the potential negative wind farm impacts have been subject to a large number of studies

across several areas of wind farm research (for a summary about these impacts, see Section 1.1.2). Thirdly, in recent years, numerous studies have addressed the place-protector explanation through investigating the role of place attachment in wind farm acceptance, i.e. whether and how wind turbines could disturb the emotional bond that people may feel to certain places (see Section 1.1.2 and Section 1.2.2). On the contrary, the democratic deficit explanation specifically was in the sole focus of a single study only (i.e. Jones et al., 2010) prior to the start of this PhD project, even though there were a number of case studies that provided partial evidence for the existence of the phenomenon (see section 1.2.2). Therefore, along with the growth of this partial evidence in the wind farm literature, the increased need for a comprehensive research programmededicated to the democratic deficit phenomenon also became apparent.

Finally, the third rationale for researching the democratic deficit hypothesis was that learning more about the validity of the phenomenon could also inform future research efforts about the areas where investigations are most urgently needed to address the problem of the social gap. Namely, it has been emphasised by Bell et al. (2013) that the democratic deficit hypothesis simultaneously employs the other three explanations, while also maintaining that the people who are motivated by the NIMBY-, qualified support- or place-protector types of opposition are a minority group (see Section 1.2.2). Therefore, the wider social gap literature would benefit from research that investigates the key assumption of the democratic deficit hypothesis which argues that project opposition is represented only by a numerical minority group of people who can have a disproportionate sway over the planning outcomes about specific proposals (Bell et al., 2005; 2013). For instance, if despite the evidence gathered so far, this assumption could not be proven then future research efforts could justify to target the other three explanations instead of the democratic deficit hypothesis and ultimately, it would also raise questions about the existence of a social gap in wind farm siting in general. On the other hand, if the assumption above would be confirmed than future investigations should focus on ways to prevent or reverse the democratic deficit effect, besides addressing the concerns of a minority group of opponents.

The development of the current PhD project

The current PhD project was built upon the initial work begun by Jones et al. (2010) with the aim to dissect the democratic deficit hypothesis. The proposal for this project was approved to be founded by Project Sunshine, which is a collaboration between the University of Sheffield and the Grantham Foundation for the Protection of the Environment and it focuses on advancing the science of sustainability and connecting it with policy debates. The proposal stated that this project will conduct an interdisciplinary research project to explore the democratic deficit hypothesis by simultaneously employing methodological approaches from the following three disciplines: journalism studies, environmental psychology and experimental social psychology. All three approaches were incorporated in the studies of this PhD project: 1) the media study in Chapter 2 used critical discourse analysis to understand whether and how journalistic discourse may contribute to the democratic deficit, 2) the survey studies in Chapter 3 explored whether there was an emerging democratic deficit around two proposed wind farm sites, and 3) the experiments in Chapter 4 used a mental simulation of a positive public debate to see whether this intervention could prevent or reverse the democratic deficit.

Prior to the start of this PhD project, partnerships were initiated with the representatives of the energy company called RWE NPower, the National Grid and a public engagement organisation called Involve. After I joined the project, these partners were invited for a meeting with the agenda to review and discuss the processes and challenges associated with the siting of wind farms and related infrastructure. During this meeting, RWE NPower offered the opportunity to observe some of their upcoming public engagement events, which resulted in three field visits: 1) the viewing of an existing wind farm in Lincolnshire, 2) a public exhibition event in East Riding of Yorkshire, and 3) a public inquiry event in Cambridgeshire. One of these events, the public exhibition about the proposed Cottam Airfield wind farm in East Riding of Yorkshire, seemed to be particularly suitable as a case for a (potentially longitudinal) survey study as the proposal was at its very early stages and therefore had the potential to provide invaluable insights into the possible emergence of a democratic deficit over time (see Section 3.1).

It is also important to explain the reasons why field visits were conducted at the beginning of this PhD project and reflect on whether these experiences may have

influenced the perspective taken to examine the democratic deficit hypothesis. Firstly, direct experiences gained in the field can help to produce research outcomes that could be suitable to inform sustainability policies (Spence, Pidgeon, & Uzzell, 2009; Stern, 2011; Swim et al., 2011), which has been a central objective of both Project Sunshine and of the research group that this project was primarily affiliated with (i.e. the Environment and Behaviour Research Group; EBRG).

Secondly, information about public engagement practices (see Section 1.1.3) was at the beginning of this PhD project not yet presented in detail in the wind farm literature. Because some of these practices were suggested to contribute to the emergence of the democratic deficit in wind farm siting (Bell et al., 2005, 2013) it was imperative to understand how these practices were applied in the field. However, this would have only been possible through articles which were published a few years after the start of this project (e.g. McKay 2015; Ogilvie & Rootes, 2015; Rossignol et al., 2017) and therefore conduct the field visits in year 2013 was highly informative.

However, these visits also made the fundamentally emotional nature of local wind farm siting apparent, particularly during the planning inquiry about the proposed Molesworth wind farm in Cambridgeshire. Yet, the tense, emotional and oppositional atmosphere observed during this event was not an isolated experience that could have derailed the current PhD project as other researchers in the field also reported similar observations (Cass & Walker, 2009; Ogilvie & Rootes, 2015; Wheeler, 2017). Indeed, the relationship between negative emotions, place attachment and project attitudes was already subject to a wind farm study by Devine-Wright and Howes (2010) prior to this PhD project. Importantly however, the observations made during these field visits did not influence the theoretical model proposed in this dissertation as this model was established based on a rigorous review of the relevant literature (see below). In summary, while these visits influenced the selection of the first case for the survey study and provided invaluable insights into the onshore wind farm planning process, they did not influence the choice of the theories, which provided the foundation of the current PhD project.

During the first year of this project, the relevant articles from environmental psychology, social psychology and media studies were also reviewed. The literature review was informed by the following sources: 1) articles already referencing either of the two social gap articles by Derek Bell and colleagues, which currently have over

700 citations combined, 2) articles of the most influential researchers in the field of wind farm literature, 3) articles suggested by the supervisory team about theories in social psychology, journalism studies and environmental psychology, 4) feedback received after presenting the initial ideas during postgraduate conferences at both the Department of Psychology and the Department of Journalism Studies, and 5) discussions with members of the relevant research groups, such as the EBRG and Richard Crisp's experimental social psychology lab. Additionally, reports and policy documents about wind energy deployment and the wind farm siting process were also reviewed. As a result of this reviewing process, a theoretically informed model was proposed to describe the emergence of a democratic deficit in wind farm siting (see Section 1.3.5) during the second year of this project.

1.3 Proposing a theoretical model for the democratic deficit hypothesis

This section aims to propose a theoretically informed and interdisciplinary model for the democratic deficit hypothesis, and it is divided into six parts. It will first justify the theoretical approach taken to explain the democratic deficit hypothesis. Then, the next three sections will present the social amplification of risk framework (SARF; (Kasperson, Kasperson, Pidgeon, & Slovic, 2003; Kasperson et al., 1988), the spiral of silence theory (Noelle-Neumann, 1974, 1977) and the theory of pluralistic ignorance (Allport, 1954, Katz & Allport, 1931) individually. The fifth part will provide an overview and an illustration about the proposed democratic deficit model. Finally, this section will also outline the main aims and objectives of this dissertation.

1.3.1 Rationale of the theoretical framework of the proposed model

As discussed above, Bell et al. (2005, 2013) defined the democratic deficit as an undemocratic planning outcome where a vocal oppositional minority has the power to block wind farm proposals that the majority supports. It can also be concluded from the wider literature informing the democratic deficit hypothesis that supporters' apathy (i.e. their relative lack of wind farm-related actions) can aid project opponents to influence the planning outcomes (see Section 1.2.2). Therefore, it seemed logical that

theories explaining supporters' apathy would provide an ideal perspective from which the democratic deficit could be better understood.

In order to systematically investigate the factors than can contribute to supporters' apathy, this dissertation employed two theories that have been shown to explain social influence processes, i.e. the ways in which humans change their behaviours in relation to perceived social norms (Cialdini & Goldstein, 2004; Moscovici & Lage, 1976; Prentice & Miller, 1993; Schroeder & Prentice, 1998). Based on the social conformity hypothesis, the psychology of social influence predicts that opinion climate and opinion expression correlate with each other (see Asch, 1951, 1956). The mechanism of conformity is traditionally explained by two distinct processes: 1) informal influence (i.e. a group's capacity to provide information about reality for the individual), and 2) normative influence (i.e. a group's power to reward and punish the individual) (Deutsch & Gerard, 1955). In the case of local wind farm proposals, if oppositional campaign groups are vocal and strategically organised (Bell et al., 2013) then this can create the perception that project opposition is the perceived dominant norm within the host communities (i.e. informal influence) which will make it less likely that those who privately reject this norm will express their opinions (i.e. normative influence). Therefore, it seemed justifiable to propose that theories focusing on conformity processes would provide an ideal underpinning for explaining supporters' apathy in the context of the democratic deficit hypothesis. These theories were the spiral of silence theory (see Section 1.3.3) and the theory of pluralistic ignorance (see Section 1.3.4)

It is also important to note that there are other theories that have been employed to explain oppositional activism to onshore wind farm proposals. For example, both place attachment theory and collective action theory have been linked to project opposition by explaining that place-protector motivations (i.e. place-attachment attack) and NIMBY motivations (i.e. perceived injustice) could give rise to opponents' greater activity levels (see Section 1.2.2). However, Bell et al. (2013) also clarified that the four explanations of the social gap are not competing but complementary with each other, and therefore place attachment theory and collective action theory can also complement the theories on social influence to explain the democratic deficit hypothesis. However, theories explaining social influence processes, in contrast with the place-attachment theory and the collective action theory, were more helpful for

understating supporters' apathy specifically, and therefore the spiral of silence theory and the pluralistic ignorance theory were the two theories employed for the proposed democratic deficit model.

In addition to theories about social influence processes, this dissertation also borrowed from risk studies to establish the proposed democratic deficit model. Local wind farm proposals often evoke resistance from residents living near these sites because of the potential risks that these turbines may have on humans, nature and wildlife (see Section 1.1.2). These risks are then more widely transmitted within the host communities, which may also shape what people perceive to be the dominant norm about the wind farm proposals. Therefore, it was important to employ an explanatory framework, the SARF from risk studies (see Section 1.3.2), that could help to better understand how the communication of the potential turbine impacts can influence the visibility of certain arguments in favour or against the proposed wind farms.

Finally, it is also import to note that the SARF, the spiral of silence theory and the theory of pluralistic ignorance are not competing explanations to the democratic deficit in wind farm siting. Instead, these were used in a complementary and mutually informative way to provide a holistic understanding of the multi-faceted phenomenon described by the democratic deficit hypothesis.

1.3.2 The social amplification of risk framework

The SARF emerged in the late 1980s as an interdisciplinary field of science policy aiming to understand risk perception and risk communication. More specifically, the SARF focuses on the role of values, attitudes, and the wider social, institutional and cultural processes in mediating peoples' perception of and response to threats and risks in the environment (Kasperson et al., 1988, 2003). The SARF is also used, more narrowly, to describe how certain aspects of risk events and their descriptions are able to either attenuate (decrease) or amplify (increase) individuals' perception of risk and their risk-related behaviours (Pidgeon & Henwood, 2010). Risk amplification is the process by which certain events and hazards that experts judge as relatively low in risk can become a particular focus of concern. For example, the health risks associated with certain types of land use (e.g. landfill sites, nuclear and renewable energy developments) are often amplified in the eyes of local citizens leading to public

protests against these developments (Elliott, Harrop, & Williams, 2010). Risk attenuation on the other hand explains how some more serious hazards receive relatively little attention within the society. The potential adverse effects of climate change are an example of risks that have been subject to social attenuation by climate change sceptics (Lorenzoni & Pidgeon, 2006) which could be partly explained by the level of uncertainty related to climate change (Smith, 2005).

Social influence in the SARF literature

According to the SARF, the organisational structure of risk communication has three elements: 1) agents, 2) transmitters or channels and 3) recipients (Renn, 1991). People's perceptions of risks and hazards arise through information received from social agents: scientists, risk-management institutions, activists, opinion leaders and also from peers who have had direct or secondary experience of risk, risk events and risk management systems. For an effective risk communication it is key that these agents are perceived as trustworthy (Kasperson, Golding, & Tuler, 1992). The term 'trustworthy' in this context can be defined as being both competent and sincere, where the first term relates to expertise and the second one relates to honesty (Frewer, 2003). Furthermore, trust also appears to be linked to perceptions of accuracy, knowledge and concern with public welfare; whereas sources that are not trusted are perceived to be incomplete and responding to the requirements of an external institution or protecting a vested interest (Frewer, Howard, Hedderley, & Shepherd, 1996; Poortinga & Pidgeon, 2003).

Social agents can communicate risk related information to recipients (e.g. the general public, affected residents, group members) through two main channels: personal networks (i.e. internal communication) and the media (i.e. external communication) (see Renn, 1991; Renn, Burns, Kasperson, Kasperson, & Slovic, 1992). These recipients will also engage in amplification or attenuation of certain risks when passing on this information to someone else whereby the initial recipients will become agents themselves. Furthermore, the SARF also accounts for the 'attention filters' (i.e. biases and heuristics) of individuals which also influence how recipients select and process information and whether risks are being attenuated or amplified as they are being transmitted to others (Sinatra, Kienhues, & Hofer, 2014). The most common attention filters raised in the SARF are confirmation bias, availability heuristic and affect

heuristic. Confirmation bias refers to people's tendency to seek information that is consistent rather than confronting with their prior beliefs and attitudes (Kahneman & Tversky, 1984). The availability heuristic (Tversky & Kahneman, 1973) predicts that the perception of the risk of events will be greater when an individual is able to recall a previous example similar risk events (see Hunter & Fewtrell, 2001). For example, in a survey about agricultural advisors' beliefs in climate change, Mase, Cho, & Prokopy (2015) found that perceiving a variability in weather patterns made advisors more likely to believe in anthropogenic causes of climate change. This finding which supports the role of availability heuristics in risk communication in that farmers' personal experiences arguably made the impacts more salient and available to them, which increased their perceptions of the risk. Finally, the affect heuristic refers to people's reliance on positive or negative affect that are consciously or unconsciously tagged to the representations of the risks in question, and therefore serve as quick and effective cues for many judgements about otherwise complex risk events (Slovic, Finucane, Peters, & MacGregor, 2007).

Media influence in the SARF literature

The SARF has effectively shown how certain agents, such as media-aware pressure groups, may employ strategies to amplify certain risks through media channels. For example, Bakir (2005) exposed how the Greenpeace campaign against Shell over the deep-sea disposal of the Brent Spa oil rig successfully targeted the news media with strategically constructed and relentlessly promoted risk signals, and how this effect was further enhanced by the inadequacies of Shell's reaction. Similarly, affected individuals of the E. *coli* outbreak in Germany in 2011 were shown to engage in frequent and effective communication with news outlets using evaluative statements that enflamed the public debate, while health authorities only engaged with the media when there was new information to be announced (Raupp, 2014).

However, one of the core discussions within the SARF literature is centred on the unresolved question regarding the mass media's pivotal role in amplifying risk information to the general public and thereby shaping public perceptions of risks (see Kasperson & Kasperson, 1996). Some authors (e.g. Eldridge & Reilly, 2003; McCabe & Fitzgerald, 1991) argue that high mass media coverage is one of the principal drivers of risk perception, for example through providing a large volume of stories with fear-

arousing messages and extreme or unknown risks, and thereby increase distrust and prompting concerns about certain technologies. Yet, other analyses (e.g. Freudenburg, Coleman, Gonzales, & Helgeland, 1996; Wahlberg & Sjoberg, 2000) contested the assumption that the mass media reporting exaggerates the risks of hazard events. These authors demonstrated that the amount of mass media coverage of risk events was similar to the objective level of hazard (such as the number of casualties and the level of damage) and that personal risk judgements appear to be highly resistant to change from media sources. As Murdock, Petts, and Horlick-Jones (2003) pointed out, the SARF employs a simplistic sender-messenger-receiver model of risk communication that may less be suitable to explore the question of media influence in risk communication.

1.3.3 The spiral of silence theory

The spiral of silence theory was authored by Elisabeth Noelle-Neumann (1977; 1974) who, while working on election forecasts at the Allensbach Institute in Germany, developed the hypothesis that the perception of others' opinions (i.e. opinion climate) can influence one's own voting intention. Therefore, the spiral of silence theory aims to explain the effect of people's perceived minority membership on their willingness to express their own opinions. The development of this theory also coincided with early studies on 'agenda setting' (McCombs & Shaw, 1972) where news reporting in particular was seen as an impactful way to structure public perceptions about the importance of events. Later on, media studies started to use the term 'framing' (see Scheufele & Tewksbury, 2007) referring to the "central organising idea or story line that provides meaning to an unfolding strip of events" (Gamson & Modigliani, 1987, p. 143).

The term 'spiral of silence' refers to the increased pressure that people may feel to conceal where they stand in conflicting situations if they believe that they are in a minority position. Central to this theory is the assumption that one's own opinion and one's assessment of the predominant public opinion about a controversial issue are related to each other. Namely, these observations about the opinion climate will influence one's judgement of the future course of action (Noelle-Neumann, 1974, p. 44): if the person agrees with the prevailing view then it can "boost his self-confidence

and enable him to express himself with an untroubled mind and without any danger of isolation" however, the more a person disagrees with the seemingly prevailing view "the more uncertain he will become of himself and the less he will be inclined to express his opinion". Over time, the tendency of a perceived majority group to speak up and the tendency of a perceived minority group to remain silent starts off a spiralling process, in which the perceived majority opinion, which might actually be a minority position, gets reinforced even further (Scheufele & Moy, 2000).

Social influence in the spiral of silence theory literature

The spiral of silence theory identified that a perceived majority groups' influence can be both informal and normative (Price & Allen, 1990). In terms of informal influence, the spiral of silence theory holds that people continuously assess the distribution and the strength of perceived minority and majority opinions in their social environment against their own opinion by using a 'quasi-statistical sense' (Noelle-Neumann, 1974). Accumulated results of 20 years of spiral of silence research confirmed that peoples' estimates of majority opinion does have an effect, albeit small in magnitude, on people's willingness to express their opinions (Glynn, Hayes, & Shanahan, 1997). On the other hand, normative influence in the spiral of silence theory relates to fear of isolation, whereby social groups may sanction individuals for "failing to toe the line" (Noelle-Neumann, 1974, pp. 43). Yet, spiral of silence studies that investigated the fear of isolation phenomenon (e.g. Neuwirth, Frederick, & Mayo, 2007; Scheufele, Shanahan, & Lee, 2001; Shoemaker, Breen, & Stamper, 2000; Willnat, Lee & Detenber, 2002) found mixed results about the relationship between fear of isolation and people's willingness to voice their opinion. This problem could be partly explained by methodological constraints of the questionnaire method traditionally employed in spiral of silence studies about normative influence.

Spiral of silence studies consistently found that people were more likely to practice self-censorship (i.e. strategies to avoid opinion expression) when the audience was likely to disagree with them compared to when the audience was more likely to agree with them in the given social situation (e.g. Glynn, Hayes, & Shanahan, 1997; Hayes, 2007; Moy, Domke, & Stamm, 2001; Petric & Pinter, 2002; Scheufele et al., 2001). Furthermore, Matthes (2015) also confirmed the dynamic process of self-silencing by using a latent-growth model that showed a positive relationship between the change in

opinion climate and change in opinion expression over time. It is also important to note that attitude certainty may also influence self-silencing. For example, Matthes, Morrison and Schemer (2010) found that those individuals who held strong opinions (i.e. the 'hardcores', see also Noelle-Neumann, 1974) were more resistant to self-silencing than people with low or moderate attitude certainty.

Media influence in the spiral of silence theory literature

Previous studies on the role of media influence in the spiral of silence literature aimed to explain whether or not certain message construction practices may convey impressions about majority and minority opinions on the given issues (see Slater, 2007). One of such effect, the so-called framing function of mass media, can be defined as a journalistic practice to "select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described" (Entman, 1993, p. 52). The roots of media framing can be traced back to findings in psychology and sociology (Scheufele & Tewksbury, 2007). The psychological origins of the framing concept lies in the experimental works of David Kahneman and Amos Tversky (1979; 1984) who found that different presentations of essentially identical decision-making scenarios influenced people's choices and evaluations differently depending on the options presented to them. The sociological underpinnings of framing were proposed by Erving Goffman (Goffman, 1974) who argued that individuals use interpretative schemas or primary frameworks to process information about their life experiences and to make sense of the world around them. In communication studies, framing is regarded as a necessary tool for journalists to present information in a way that resonates with existing interpretative schemas and thereby reduce the complexity of a given issue so that is accessible to lay audiences (Shoemaker & Reese, 1996). News stories about controversial issues for example typically contain frames by employing phrases, images, or statements that suggest a particular meaning or interpretation of the given issue for their audiences (Tewksbury & Scheufele, 2009).

Several spiral of silence studies (e.g. Allen, Oloughlin, Jasperson, & Sullivan, 1994; Boyle et al., 2006; Entman & Rojecki, 1993; Zhou & Moy, 2007) suggested that when political movements and stakeholder groups are portrayed as minority initiatives in the

media coverage then this may discourage those citizens who generally support the initiative from taking expressive actions. This effect might be at least partly explained by the lack of supporters' ability to recognise the fact that they are part of a majority. Therefore, while framing approaches provide little evidence of direct, causal effects of media reporting on attitudes and behaviours, they do suggest that the media's influence is part of a wider set of social influences that help to construct our understanding of our social environment.

1.3.4 The theory of pluralistic ignorance

The theory of pluralistic ignorance was first introduced to account for the discrepancy between public behaviours and private beliefs (Allport, 1954; Katz & Allport, 1931). More precisely, this theory aimed to explain the situation in which almost all members of a social group privately reject a norm but falsely believe that almost all others in the group accept it. Therefore, pluralistic ignorance theory hypothesised that a social norm can become perpetuated, despite the lack of majority support, if the majority of people believe that the majority of the group supports it. In the long-term, pluralistic ignorance can contribute firstly, to an attitude change that shifts toward the perceived norm (Levinston, Walker, & Morwinski, 2013; Prentice & Miller, 1993) and secondly, to a behavioral conformity in line with the perceived norm (Prentice & Miller, 1993; Schroeder & Prentice, 1998), and could eventually lead to the perpetuation of a misperceived norm. As Miller and Prentice (1993, p. 161) put it, pluralistic ignorance can present a situation where "virtually every member of a group or society rejects a belief, opinion, or practice, yet believes that virtually every other member privately accepts it".

In the 1960s and 1970s, the theory of pluralistic ignorance was used to explain the mismatch between white people's attitudes and behavior toward segregation. For example, O'Gorman (1975; O'Gorman & Garry, 1976) showed that only a small proportion of white Americans advocated racial segregation privately, yet these whites also assumed that the segregation of blacks in social settings genuinely reflected the beliefs of other white people. Therefore, exclusory behaviour of American whites was grounded on their concerns about what others thought instead of their own beliefs. More recently, pluralistic ignorance has been found to exist in various other aspects of

social life, norms and beliefs. For example, campus-based research about alcohol use demonstrated that male students believed that their peers were more comfortable with campus alcohol practices than they actually were (Prentice & Miller, 1993). Students also overestimated the thinness of body type preferred by others (Park, Yun, McSweeney, & Gunther, 2007) as well as how sexually permissive their peers were (Chia & Gunther, 2006) which support the presence of pluralistic ignorance about these topic amongst students. Furthermore, an Australian study that investigated how people perceived the prevalence of opinions in relation to climate change found that people grossly overestimated the proportion of people who thought that climate change was 'not happening' while underestimated the proportion of people who believed that the cause of climate change was 'natural' or 'human-induced' (Levinston et al., 2013).

Social influence in pluralistic ignorance literature

The way in which social influence is exerted in situations where pluralistic ignorance may arise has been explained by behavioural conformity (Moscovici & Lage, 1976; Prentice & Miller, 1993; Schroeder & Prentice, 1998; see also Section 1.3.3), Pluralistic ignorance has traditionally been linked to normative influence (Neighbors & Lewis, 2006; Schroeder & Prentice, 1998), i.e. the group's capacity to punish or reward as a form of behavioural pressure. This effect was shown to be enhanced in situations when people had to make public responses or had face-to-face contact with the majority (Bond, 2005) and also when the degree of the internal consensus of the majority group was strong (Price & Allen, 1990).

The strand within experimental social psychology concerned with mechanisms of normative influence has shown that fear of embarrassment (Miller & McFarland, 1987) and fear of rejection (Vorauer & Ratner, 1996) are potent determinants of peoples' adherence to social norms that they privately reject. Therefore, the discomfort that individuals would feel if they were alienated from their group or if they severed their ties with their peers may reduce their willingness to speak out about their own opinion (Taylor, 1982). For example, in a pluralistic ignorance experiment where one group of students were led to believe that they held a minority opinion articulated their opinions significantly slower than the other group of students who were in the perceived majority group (Rios & Chen, 2014). Furthermore, a recent study also discussed the implications of pluralistic ignorance for self-silencing about climate

change (Geiger & Swim, 2016). The results of this survey revealed firstly, that students who did not themselves doubt the science of climate change were less willing to discuss this topic when they inaccurately believed that fellow students would not share their opinion than when they accurately perceived that they were in the majority. Secondly, the results also showed that the reason why students were more willing to discuss climate change when they perceived that others agreed with them was because they expected to be respected more (i.e. appear as more competent) by the others as a result. Hence, in situations where there is a discrepancy between one's private beliefs and the public behaviour, pluralistic ignorance serves impression management in order to avoid emotional discomfort (Bjerring, Hansen, & Pedersen, 2014). The self-silencing effect of pluralistic ignorance was shown to be reversed by providing information about the genuine beliefs of others (Geiger & Swim, 2016; Schroeder & Prentice, 1998; Tankard & Paluck, 2016).

Furthermore, the central assumption of pluralistic ignorance is that it can only emerge where individuals act out of a desire to be good group members (i.e. to act similarly to others) while they also falsely assume that others do have different motivations for the same behaviour. For example, in a series of experiments by Miller and McFarland (1987) students were presented with an incomprehensible essay and could then choose whether or to not seek clarifications on it from the teacher; i.e. to carry out an action that is likely to cause embarrassment. The results showed that students had an overwhelming tendency to abstain from such embarrassing action even though they also assumed that their own behavior and that of others who also avoided embarrassment had different origins (i.e. that others possessed a superior understanding of the essay). Moreover, Vorauer and Ratner (1996) explored pluralistic ignorance in the context of romantic relationships and found that people attributed their own failures to make the first move to their fear of being rejected while they also attributed their potential partners' failure to initiate a romantic relationship to their lack of interest. Therefore, while pluralistic ignorance begins with a social comparison error between private beliefs and the status quo, it has been argued that the actual root cause of it seems to be group identification, which is related to normative influence (Miller & McFarland, 1987; Prentice & Miller, 1996).

Media influence in pluralistic ignorance literature

Pluralistic ignorance studies have also explored the relationship between perceived media bias and perceived opinion climate. For example, Gunther and Chia's (2001) study explored people's impression about the media coverage on the use of primates for laboratory research, which can be considered to be a highly controversial topic. Their results indicated that perceptions of more unfavourable news coverage correspond with perceptions of more public opposition to primate lab research, supporting that perception of media bias is linked to perception of public opinion. Further similar studies supported that when news coverage on a given issue is perceived to be biased in a particular direction then the perception of public opinion will be positively associated with it (Gunther & Christen, 2002; Mutz & Soss, 1997), i.e. the idea that "what mass media are saying today must be what the public will be thinking tomorrow" (Gunther, 1998, p. 487). Therefore, the theory of pluralistic ignorance is consistent with the findings of the spiral of silence theory, in that people do monitor the news media to gauge opinion climates about controversial issues and found that biased press coverage may have implications on what is being considered as normative.

1.3.5 A theoretical model of the democratic deficit in wind farm siting

This section will first detail how the SARF, the spiral of silence theory and the theory of pluralistic ignorance were simultaneously employed to inform the proposed democratic deficit model. Then, the three phases of the proposed democratic deficit model will be explained and illustrated. Finally, this section will also outline the aims and objectives of this dissertation.

The significance of the SARF, the spiral of silence theory and the theory of pluralistic ignorance for the democratic deficit model

Studies in the SARF literature demonstrated that those actors who are perceived as trustworthy and who are strategic communicators could be able to effectively amplify certain risks. Therefore, the perception of wind farm developers (i.e. whether they are trusted sources of information or not) and the way they formulate their messages (i.e. whether they focus on local issues or general issues and how technical their language

is) may influence whether their arguments are accepted or not amongst residents, which may in turn influence community mobilisation around these wind farm proposals. Furthermore, members of the affected communities who want to alert decision-makers to the potential hazards of the wind farm proposals may also be mobilised by the oppositional campaign groups if their campaigns have well-directed and well-formulated messages which are being transmitted both through social channels and media channels. The SARF also draws attention to the role of prior beliefs, attitudes, affects which can also influence risk perceptions about prospective local wind farms. Furthermore, the SARF has been previously used to understand community mobilisation to environmental risks and therefore it should provide a robust framework for understanding responses to onshore wind farm proposals. Nonetheless, being an explanatory framework without a theoretical basis, observations made using the SARF's simplistic agent-channel-receiver model cannot make predictions on how people asses opinion climates based on information provided by media and social sources.

The literature on the spiral of silence theory on the other hand is able to provide a predictive model to explain the tendency of members of a majority group (i.e. wind farm opponents) to speak out about their convictions, while members of a minority group (i.e. wind farm supporters) may fall quiet during the wind farm siting process. Being primarily focused on the role of media in shaping public perception on the climate of opinion, the spiral of silence theory is a more useful approach than the theory of pluralistic ignorance to explain the media influence element of the democratic deficit hypothesis. This theory, when used together with methods to examine journalistic discourse, can describe firstly, how the news media may reinforce the impression that wind farm opposition is the dominant viewpoint within affected communities and secondly, how certain issues may be presented differently through media frames (e.g. through phrases, images, or statements) that suggest a particular meaning or interpretation about local wind farm proposals. Furthermore, the spiral of silence theory also draws attention to a dynamic process within the democratic deficit hypothesis by showing that over time certain positions can become more salient while others remain unheard, despite their actual distribution within the affected communities. However, while the spiral of silence theory is well suited to uncover the role of media reporting in perceived opinion climates and opinion expression, it is not

suited to provide a nuanced explanation of the psychology of the social influence processes that are also inherent in this theoretical approach.

Finally, the theory of pluralistic ignorance provides the most detailed account amongst the two theories about those psychological mechanisms that may underpin the social influence element of the democratic deficit hypothesis. In the case of onshore wind farm proposals, false perceptions of the dominant opinion about local wind farm proposals may emerge as a result of the normative pressure exerted by small oppositional campaign groups on the more positively swayed majority. Therefore, important conclusions can be drawn from the theory of pluralistic ignorance about the differences in perceived and actual minority/majority groups in the context of onshore wind farm proposals. Namely, while project opponents may consist of an actual minority of the affected residents they may also be the perceived majority group, and those who do not oppose local wind farm may consist of the actual majority even though they are a perceived minority. However this perceived minority group may be able to voice their opinion more effectively than the more positively inclined actual majority during the planning process which creates a false perception about the dominant viewpoint. This imbalance in community mobilisation reinforces the false perception that opponents are a majority, making it even more difficult for project supporters to voice their opinions in face of perceived majority opposition. On the other hand, it can be derived from the theory of pluralistic ignorance that those local residents who are project supporters may refrain from expressing their positions, if they falsely perceive themselves as a minority, because of fear of embarrassment and fear of rejection. These psychological mechanisms may determine project supporters' tendency to adhere to a norm that they privately reject and instead refrain from expressing their own supportive views.

The proposed model of the democratic deficit in wind farm siting

The proposed model of the democratic deficit hypothesis consists of three phases which show how the shares of actual and perceived opposition and support changes over time as a result of the differences between the opponents' and supporters' activity levels around the wind farm proposals. The schematic illustration of the proposed model of the democratic deficit in wind farm siting is shown on Figure 1.3, and the three phases of the process will be explained below.

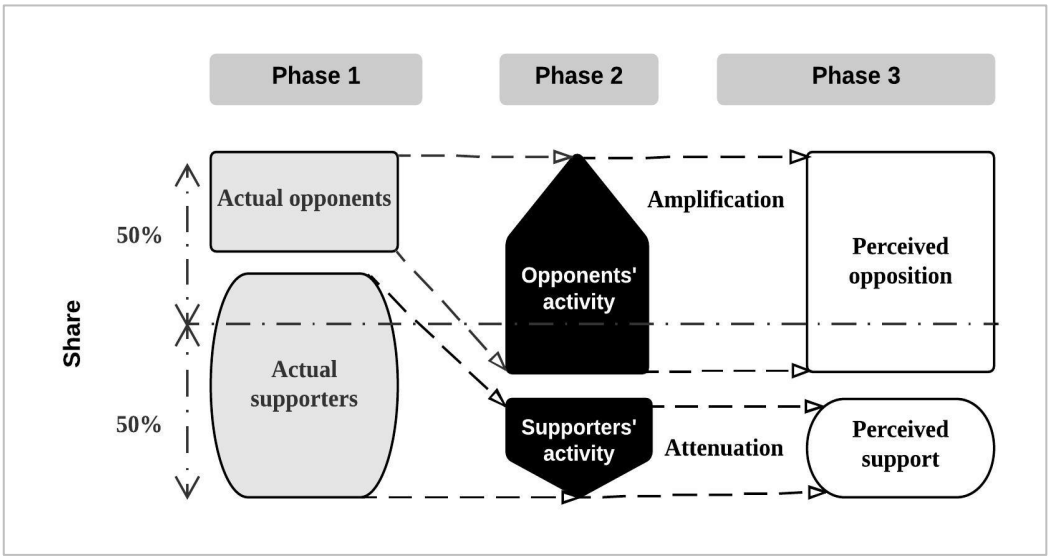

Figure 1.3 The proposed model of the democratic deficit hypothesis. Author's own illustration.

Phase 1: Supporters are an actual majority while opponents are an actual minority within the affected communities.

Phase 1 focuses on the distribution of actual attitudes towards local onshore wind farm proposals. The prediction that project opponents will be an actual minority while those who support onshore wind farm proposals will be an actual majority is based on the results of nation-wide public opinion surveys which show wide-spread public support for wind farms (see Section 1.2.1) which is one of the fundamental elements of the social gap in wind farm siting (Bell et al. 2005, 2013).

Phase 2: Project supporters are less actively engaged in the planning process than project opponents, and this relative difference in community mobilisation leads to project opponents being more effective in advocating their views than project supporters.

Phase 2 focuses on the relative differences in the frequency of wind farm related activities carried out by local residents in order to express their own views. It predicts that project opponents will express their opinions more frequently than project supporters, which argument was based on the two theories and the explanatory framework employed in this dissertation. Namely, the SARF literature provides examples of trustworthy and strategic agents being able to increase community

mobilisation around perceived risks (see Section 1.3.2), the spiral of silence literature argues that a false media representation can emerge as a result of one group being more willing to talk to journalists than the other group (see Section 1.3.3) and finally the theory of pluralistic ignorance explains the perceived minority groups' lack of public expression with their fear of embarrassment and rejection (see Section 1.3.4). It could also be derived from the SARF that as a result of the relative differences in wind farm related activities the potential risks could be amplified while the potential benefits could be attenuated in the public discourses about the proposals. The wind farm literature has already provided several examples of imbalanced community mobilisation where wind farm opponents were more proactive in seeking opportunities to express their opinion, even towards the decision-makers, than project supporters (e.g. Anderson, 2013; Anton & Lawrence, 2016; Loring, 2007; Ogvilie & Rootes, 2015; see also Section 1.2.2). This tendency could be further enhanced by the fact that oppositional arguments against turbines have been shown to relate to the potential direct negative wind farm impacts explained in Section 1.1.2 which may be more convincing for others and more motivating for the individual to articulate than supportive arguments which tend to be more generic and abstract, e.g. relate to climate change mitigation and energy security (Demski, 2011; Ellis & Robinson, 2007; Jones et al, 2010).

Phase 3: Project supporters perceive themselves, and are perceived by others, as a minority while project opponents are a perceived majority.

Phase 3 focuses on the distribution of the perceived attitudes towards local onshore wind farm proposals. It predicts that project opposition will be the perceived dominant viewpoint within the host communities while the supportive viewpoint will be attributed to a perceived minority of local residents. This prediction can be derived from the theory of pluralistic ignorance which argues that and actual minority norm (i.e. project opposition) can become the perceived majority norm if public behaviours give the false impression that the majority supports it (see Section 1.3.4). A similar prediction can also be drawn from the spiral of silence theory with the additional observation that over time, self-silencing from the perceived minority group may further increase the misperception of public opinions (see Section 1.3.3). Furthermore, several wind farm case studies (e.g. Anderson et al., 2013, Hindmarsh & Matthews, 2008, Wheeler, 2017) argued that local supporters are a 'silent majority' meaning that

due to their relative inactivity, project supporters tend to be perceived as a minority, despite arguably being an actual majority, within the host communities (see also Section 1.2.2).

1.3.6 Aims and objectives of this dissertation

This dissertation has two main aims. The first aim was to establish a firm theoretical background that explains the mechanisms underpinning the democratic deficit. A theoretically informed model was needed for the democratic deficit hypothesis because the concept was established through evidence from case studies only, and therefore no overarching theoretical basis has been proposed for the democratic deficit hypothesis to date. This section aimed to bridge this gap in the wind farm literature by proposing the first integrative and theoretically informed model for the democratic deficit hypothesis (see Figure 1.3 above).

The second main aim of this dissertation was to design empirical studies that were able to validate the proposed democratic deficit model. The studies in this dissertation explored all three phases of the proposed theoretical model by focusing on the following five objectives:

Objective 1: To assess how oppositional and supportive actors and their arguments are reported in the local newspapers about local onshore wind farm proposals.

Objective 2: To assess whether or not project opponents are more active in expressing their opinions than project supporters about local onshore wind farm proposals.

Objective 3: To examine the actual attitudes of residents living near proposed wind farms.

Objective 4: To determine whether or not project supporters living near onshore wind farm proposals perceive themselves as a minority.

Objective 5: To examine the factors that may influence project opponents' and project supporters' willingness to express their opinions.

Objective 6: To test whether or not project supporters' intention to carry out wind farm related actions could be increased using a positive mental stimulation of a wind farm debate.

Conclusion

Onshore wind energy is a widely available source of renewable energy in the UK with a mature, safe and cost-efficient technology. Yet, while opinion polls consistently show high levels of general support for wind energy, specific proposals have faced significant obstacles, particularly in England. This paradox between high levels of general support in the face of relatively low levels of planning success is called the social gap in wind farm siting, and it can be, at least partially, explained by a democratic deficit in wind farm siting (Bell et al 2005; 2013). Therefore, the social gap could be caused by the disproportionate representation of project opponents and project supporters during the wind farm planning process, which may lead to a planning outcome that does not reflect the will of the majority of local residents. While some of the elements of the democratic deficit hypothesis have been confirmed in previous onshore wind farm case studies, none of these studies have managed to establish a comprehensive, interdisciplinary and theoretically informed model to explain how a democratic deficit may emerge during the wind farm siting process. To overcome this gap in the literature, this dissertation aims to provide an initial democratic deficit model and to test the validity of it.

The proposed democratic deficit model is seeking to test the reasons why opponent groups (i.e. actual minority) are advocating their opinions more actively than supporters (actual majority). Based on the finding of the SARF literature, it was anticipated that in being more active, opponents' viewpoints become accentuated while supporters' viewpoints become attenuated, which is evidenced by greater presence of opponent viewpoints within the local news media. Consistent with pluralistic ignorance literature and the spiral of silence theory, it was anticipated that this bias could lead to a situation whereby the supporters perceive themselves to be in the minority (i.e. people will wrongfully view opposition as a normative position). Based

on these theories, it was it was anticipated that this false perception will promote continued action on the part of the vocal minority and will reduce action on the part of the 'silent majority'. Therefore, supporters' apathy in the face of oppositional activism was proposed to lead to the emergence of a democratic deficit around local wind farm proposals. In the next three chapters, this model will be tested though an analysis of media discourse (Chapter 2), two questionnaire-based studies (Chapter 3) and a modified imagined contact experiment (Chapter 4).

Chapter 2

A Critical Discourse Analysis of Local Newspaper Reports about Wind Farm Proposals in East Riding of Yorkshire, England

The democratic deficit model proposed in the previous chapter (see Section 1.3.5) highlighted the importance of media sources in providing information about local wind farm proposals, including information about the opinion climate within the host communities. Yet, the wind farm literature has so far eluded the analysis of news reports about onshore wind farm proposals in the UK. Therefore the media analysis in this chapter aims to fill this gap in the literature by conducting a critical discourse analysis of local news reports, with particular focus on factors that could play a role in the emergence of a democratic deficit in wind farm siting, such as the reporting of actors, arguments and power-relations regarding the local wind farm proposals.

This chapter is divided into six main sections. The first section will establish how the current media study helped to validate the proposed democratic deficit model, and will link it to the theories underpinning the proposed model as well as to the wider wind farm literature. The second section will detail the analytical framework, the theoretical background and the main research questions of the media study, with an emphasis on explaining how the method of critical discourse analysis enables a deeper understanding of the democratic deficit hypothesis, which has not been provided in previous wind farm studies. The third section will provide the relevant contextual details about the geographical research area, East Riding of Yorkshire in England, and the timeline of the planning history of the wind farm proposals which were selected for the analysis. The fourth main section of this chapter will explain the method of material selection (i.e. newspaper articles and planning documents). The fourth section will analyse these the newspaper articles by employing the critical discourse analysis method with Carvalho's (2008) media(ted) analysis framework. Finally, the fifth section will provide a discussion on the results of the media analysis and integrate these with the proposed democratic deficit model, and it will also suggest some further directions for future media research that could inform the democratic deficit hypothesis.

2.1 Rationale of the current media study

As noted in Chapter 1, the media coverage about wind farm disputes bear importance for the proposed democratic deficit model because these news reports can firstly, amplify or attenuate certain wind farm-related risks and secondly, they provide information about the opinion climate within the host communities. Therefore, this PhD project was set out with a plan that incorporated the study of journalistic discourse about onshore wind farm proposals. There were two opportunities to conduct a media analysis during the course of this PhD project: either by extending the survey studies in Chapter 3 or by dedicating a separate study solely to media analysis. Of these, the second option was chosen because it allowed for conducting a comprehensive analysis of journalistic discourse on a large enough sample of newspaper reports, as it became evident that there were only a few newspaper reports published about the two wind farm proposals discussed in Chapter 3.

The rationale for conducting the current media analysis can be derived from the theoretical underpinnings of the proposed democratic deficit model. The spiral of silence theory (see Section 1.3.3) draws heavily on the idea that people monitor their environments for cues about other people's opinions and that local news reports are an important source of these cues (Noelle-Neumann, 1974, 1977). It was anticipated that oppositional actors and their arguments were more frequently featured in the news reports because opponents were more active in expressing their opinions, which in turn could reinforce the (proposedly false) impression that project opposition is the majority viewpoint, i.e. that project supporters represent a minority within the host communities. Previous spiral of silence studies also found that perceived minority position influenced opinion expression, namely individuals who perceived the opinion climate of news reports to be hostile to their own were more likely to practice self-silencing because of fear of isolation (e.g. Glynn et al, 1997; Hayes, 2007; Scheufele & Moy, 2000). Therefore, based on the spiral of silence theory, it was anticipated that the journalistic discourse featured information about the perceived majority position of oppositional groups (i.e. informal influence), which can lead to normative pressure exerted by perceived majority groups on others with conflicting views, namely on project supporters (i.e. normative influence) (see Section 1.3.3).

Furthermore, it was also anticipated based on the SARF literature (see Section 1.3.2) that oppositional arguments about the potential risks of the proposed wind turbines

were attenuated in the news reports because these risks can have direct, local impacts on humans, wildlife and the landscape (Elliot et al., 2010; Kasperson et al., 2003). On the other hand, it was expected that the supportive arguments related to the turbines' potential to mitigate climate change (Demski, 2011; Jones et al., 2010), which is a serious hazard that has been subject to media attenuation (Lorenzoni & Pidgeon, 2006; Smith, 2006) and will therefore be less frequently featured in the news than oppositional arguments. Furthermore, the SARF was also expected to help to explain how certain qualities of social agents (i.e. supportive and oppositional actors), such as their perceived trustworthiness (Frewer, 2003; Frewer et al., 1996; Poortinga & Pidgeon, 2003) and their use of or the absence of media-aware strategies (Bakir, 2005; Raupp, 2014), can help to attenuate or amplify the risk signals that they are transmitting through media channels.

Therefore, analysing local news reports has implications for Phase 3 of the proposed model because news reports provide information about the observed climate of opinion. If the reported opinion climate is primarily oppositional then this may contribute to project supporters' perceived minority position within the host communities. Furthermore, it was also anticipated based on the spiral of silence theory that supporters' perceived minority position prevented them from publicly voicing their opinions, which could have contributed to the underrepresentation of supporters and their arguments in the news reports. This anticipated lack of supporters' engagement with the planning process has implications for Phase 2 of the proposed democratic deficit model, which stipulates that opponents carry out more wind farm-related actions, in this case media-related actions and actions to engage with the planning process, than supporters.

The current media study also contributes to the wider democratic deficit literature by being the first study to employ critical discourse analysis on English newspaper reports about onshore wind farm proposals. Critical discourse analysis is a widely used method in journalism studies which has been successfully employed to understand the representation of social hierarchical structures, or unbalanced power relationships, in the news (van Dijk, 1993; Fairclough, 2005; Fowler, 2001). Bell et al. (2013) argued that media reporting about the attitudes towards local wind farm proposals are heavily featured in popular media, while several other wind energy researchers (e.g. Anderson, 2013; Hindmarsh & Matthews, 2008; Jones et al., 2010; Wheeler, 2017) proposed that

media reporting about public opinions and oppositional activism could influence whether or not certain affected individuals speak out or remain silent about their own opinions. Therefore, it seemed logical that critical discourse analysis can be an ideal method to explore the portrayal of hierarchical relationships between oppositional and supportive actors or groups in journalistic discourse. Yet, only a few studies analysed the discourse of news reports about onshore wind farm proposals, and these examined news reports in the Netherlands (Wolsink, 2000), in the United States (Stephens et al., 2009) and in Wales, UK (Woods, 2003). However, none of them employed critical discourse analysis to focus specifically on the representation of power relationship in the news, even though such relationships have been shown to exist in the wider discourse about wind farms (Futák-Campbell, 2011); and therefore this study also aimed to bridge this gap in the literature.

In summary, the present media study was set out to validate Phase 2 of the proposed democratic deficit model by examining whether supportive actors and their arguments were underrepresented in the news media and in the planning documents about onshore wind farm proposals (which is important for the spiral of silence theory), and with the help of the findings from the SARF literature it also aimed to explain the reasons behind this phenomenon. Furthermore, Phase 3 of the proposed democratic deficit model was tested by examining whether project support was portrayed as a minority viewpoint in the news, and whether there were any references to normative influence between groups of actors within the journalistic discourse (which is important for the spiral of silence theory). Therefore, the current media study looked at three primary features in the news report, namely the portrayal of wind farm-related arguments, actors and hierarchical power relationships.

2.2 Analytical and theoretical background

As noted in the preceding section, critical discourse analysis (CDA) is a method to examine the ways in which the unequal power relations of social life are produced, or reproduced, in journalistic discourse. This analytical approach could therefore help to expose the power relations that may be embedded within journalistic language, which can bear implications for the democratic deficit hypothesis. Namely, CDA could help

to explain how journalistic discourse could strengthen the power of local opponents in the local politics of wind energy.

This section will first explain the analytical background, the CDA and the advantages of Carvalho's (2008) 'media(ted) analysis' framework. Secondly, this section will also provide an overview of the studies that analysed the discourses about onshore wind farm proposals. Finally, this section will define the three research questions of the current media study and will explain how answering these was proposed to increase our understanding about the emergence of a democratic deficit in wind farm siting.

2.2.1 Critical discourse analysis of journalistic discourse

CDA emerged from linguistic research in the early 1970s, while also building on ideas from both Western Marxism (see Anderson, 1979) and the Frankfurt School (see Held, 1980), and it aims to link linguistic analysis to social analysis. While there are many definitions of the term 'discourse' (see Schriffin, 1994), CDA regards discourse as 'language in use' whereby language is employed purposefully to mean something, to actively do something, and to ultimately (re)construct social reality (Richardson, 2007).

Currently, CDA is one of the most authoritative academic subspecialty within the study of media discourse. Roger Fowler (1991; Fowler, Hodge, Kress, & Trew, 1979) was one of the pioneers of the critical approach to language in the news by focusing on power and ideology in news in an attempt to go beyond conventional descriptions of linguistic elements in news texts. The main research strategies in this line of media research include the discourse-historical approach (e.g. Wodak & Reisigl, 2001), the social actors approach (Van Leeuwen, 1996), the dialectical-relational approach (Fairclough, 1995) and the socio-cognitive approach (van Dijk, 1988). Some of the most often discussed topics include war and conflicts (e.g. van Dijk, 1988) and discrimination and racism (e.g. Reisigl & Wodak, 1995; van Leeuwen & Wodak, 1999) but climate change and other environmental risks (e.g. Augoustinos, Crabb, & Shepherd, 2010; Carvalho, 2005) are also researched by using the CDA method.

Advocates of the CDA argued that if language is able to contribute to the (re)production of social reality then it can also, at least partially, play a role in the (re)production of social inequalities and unequal power relations in social life (Gee,

1999). To better explain what the term 'power' refers to specifically in the context of environmental management, the definition of Benjaminsen (2010) was adopted in this study (the original translation appeared in Vestbø, 2013):

> *"Power is exercised when one or several actors perform intentional action in relation to other parties and this contributes to the maintenance or alteration of environmental management in a way that to some extent or entire is in accordance with the intentions."*

Being rooted in linguistic research, CDA still employs the conventional tools of linguistic analysis, most dominantly Halliday's (2014) systemic functional linguistics. However, it also goes a step further and takes interest in the ways in which grammatical forms are used to index, express, legitimize or challenge power abuse and social hierarchical structures (Van Dijk, 1993). Furthermore, CDA often adopts a transdisciplinary perspective and methods, and it is therefore well suited to provide a holistic understanding of the power relations within complex social phenomena (Fairclough, 2005). Through these characteristics, the CDA methodology allows for interpretations of the meaning of the texts rather than merely summarising patterns and quantifying textual features in the texts.

While the topics that CDA is concerned with are diverse, these always relate to social or political events and experiences, and are rooted in two fundamental principles (see Meyer & Wodak, 2009). Firstly, advocates of CDA aim to reveal structures of power within society and the role of power structures on sustaining and reproducing unequal power relations between majorities and minorities (Fairclough, 2005). Secondly, the term 'critical' is used in the sense developed at the Frankfurt School of social research (see Horkheimer, 1972) and it refers to the orientation towards challenging societal practices and hierarchies in order to help to stimulate social change (Fairclough, 1989). Therefore, the CDA method can be a suitable tool to expose how journalistic discourse may contribute to an unequal power relationship between project opponents and project supporters in the case of wind farm proposals and to challenge the practices that may lead to oppositional actors and arguments being overrepresented in the local news media.

The media(ted) discourse analysis framework

The current media study employs Carvalho's (2008) media(ted) discourse analysis framework, which is a novel approach within the wider CDA methods. The framework combines the discourse-historical approach (e.g. Wodak & Reisigl, 2001) and the social actors approach (Van Leeuwen, 1996) within the CDA to account for both the time plane of the disocurse and for the discoursive strategies of the social actors. Furthermore, this particular framework is also suited to examine the institutional context of the topics of the disourse which has not yet been accomplished by other CDA approaches.

The media(ted) discourse analysis framework has several advantages for the research on the democratic deficit hypothesis. Firstly, this analytical framework was specifically developed to examine the journalistic discourse about the management of the landscape, land use and natural resources and therefore is well suited for the analysis of local media reports about onshore wind farm proposals. This approach is also particularly suitable for informing the democratic deficit hypothesis because the framework was designed to increase the awareness of the different ways in which conflicting parties (in this case, project opponents and supporters) and their standings are represented (which is important for Phase 2 and 3 of the proposed model). Furthermore, Carvalho's framework also looks at the time plane of the journalistic texts by examining the evolution of the discourses in order to understand how they emerged in the public arena. Therefore, in the case of wind farm-related arguments in the news, Carvalho's framework can provide invaluable insights from an interesting and under-researched angle on how some members of the public might aim exert influence on the planning decisions over time (see van der Horst, 2007). Finally, Carvalho's framework also looks at the so-called 'closure to the resolution' or 'termination to the controversies', which in the current study refers to the point in the planning process when the decisions are reached about local wind farm proposals (see Section 1.1.3). Therefore, this framework can further nuance the democratic deficit hypothesis by exposing the discursive practices through which power, in this case local residents' potential power to influence planning decisions, can manifest within the journalistic discourse about wind farm siting. For the reasons above, the media(ted) CDA framework was deemed to be a suitable analytical framework for the current media study.

2.1.2 Previous wind farm-related discourse analysis studies

Advocates of the so-called 'discursive psychology' (see Potter & Whetherell, 1987) have encouraged the use of CDA to better understand psychological themes, such as motivation, affect and attitudes, which could be important for topics from environmental psychology as well. To date however, only a relatively small number of studies employed discourse analysis (e.g. Ellis & Robinson, 2007; Heidenreich, 2016; Stephens et al., 2009; Wolsink, 2000; Woods, 2003) and content analysis (e.g. Jones et al., 2010; Stephens et al., 2009) to further our understanding about the discourses related to onshore wind farm developments. CDA in particular has rarely been used as an analytical tool to study wind farm discourse (Haggett & Futák-Campbell, 2011; Haggett & Toke, 2006). The difference between these approaches is that while content analysis quantifies textual features and derives meaning from these, discourse analysis and CDA take a qualitative approach to provide interpretations of the meanings of the information in these texts, including interpretations about power relationships in the case of CDA (Fairclough, 1989, 2005; White, 2004). Furthermore, amongst these studies, only a few looked at media reports (Stephens et al., 2009; Woods, 2003; Wolsink, 2000) and planning reports (Jones et al., 2000; van der Horst, 2007). Instead, researchers so far tended to engage directly with the public in most CDA and discourse analysis studies, and in those interview studies that examined actors and their arguments within wind farm disputes (e.g. Brittan, 2001; Pasqualetti, 2001; Righter, 2002; Rygg, 2012; Wheeler, 2017). By highlighting the results of the studies above, this section aims to provide an overview of the arguments, actors and power relations within the discourses about wind farms.

Arguments in the wind farm discourse

The arguments raised against and in favour of local wind farms by residents living near the proposed developments is one of the most extensively studied topic within the field of attitudes to local wind farms. An overview of the results of the survey studies about the issues that most often concern local residents have already been shown in Section 1.1.2. Furthermore, a small number of qualitative studies looked at the risks and benefits of onshore wind farms featured in public wind farm discourses. Ellis, Barry, & Robinson (2007) argued that the positivist research approach has missed that wind power clashes are not about objective truths but subjective values which shape public

attitudes and action and therefore, discourse analysis is better suited to capture the deeper values, motives, cultural and institutional contexts that underlie the opinion and participation of various actors. For example, Ellis and Robinson (2007) observed that supporters were mainly motivated by their awareness of climate change and the need to take action against it, and that they trusted the wind farm developers to be acting in good faith and behaving in an open and honest way. Moreover, supporters also perceived the opponents to be a minority group of self-interested people who are acting contrary to the long-term public good (i.e. installing more wind farms to tackle climate change) in order to avoid sacrificing their own short-term interests. On the other hand, most objectors of the examined Welsh wind farm proposal rejected the proposal as a matter of principle for two main reasons. Firstly, they wanted to protect their landscape, which they saw as a pristine, natural environment, from any intrusion and secondly, they were sceptical about the effectiveness of wind power technology. Furthermore, objectors did not trust the wind farm developer and claimed that the developers were proposing the schemes for their private gains while they aimed to deceive the local residents and the decision-makers that the wind farm would be in the public interest.

The notion that wind farm opposition stems from the perception that the turbines are unfamiliar to the landscape (see also Section 1.1.2) were also found by Brittan's (2001) analysis of public discourse. Brittan (2001) argued that much of the local wind farm opposition stems from the perception that these turbines appear as "mechanical weeds"; partly because they look "alien" to their environment and partly because this ever expanding technology provokes a fear regarding its potential to "get out of control like other genuine weeds" (Brittan, 2001, p. 163). Furthermore, in an interview study of Righter's (2002, p. 20), an interviewee described wind turbines as "exoskeletal outer-space creations with grotesque anthropomorphic characteristics such as long, sweeping blades attached to what ought to be their noses… [with] frozen legs… frozen in concrete, stationary but seemingly kinetic". These descriptions of turbines imply that oppositional activities may be driven by the goal to protect the landscape from new and uncharacteristic elements that may not assimilate aesthetically in the original landscape. However, discourse studies also showed that the turbines' perceived negative visual impact could not solely explain public opposition to onshore wind farms. For example, in a case study about the perception of an offshore wind farm in

Norway (i.e. turbines that are out of sight for local residents), Heidenreich (2016) demonstrated that the discussions about these developments were still accompanied by public controversies about issues other than the visual impact of the turbines.

Other frequently featured arguments in oppositional discourses relate to the turbines' perceived impact on health and psychological wellbeing (see also Section 1.1.2). For example, a discourse analysis of news reports by Woods (2003) found that the oppositional discourse focused mainly on the proposed turbines' potential negative impact on the emotional wellbeing of local residents. These project opponents felt that their strong belonging to the nature and landscape of the place would have been disturbed if a wind farm had been built in that particular location. The expressions used repeatedly in this oppositional discourse described the landscape as 'natural' and 'unspoilt' thus having the aesthetic qualities of being 'beautiful', 'inspiring' and 'peaceful'. Moreover, this landscape was also seen as a "rare surviving example of nature as wilderness" and as such 'nature' in this oppositional discourse was positioned as an "almost spiritual force which enables the visual consumption of a piece of land to be translated into a moving, affecting experience" (Woods, 2003, p. 280). Therefore, anti-wind farm campaigners spoke about the potential wind energy deployment as a wilful violation of nature from the developer's side through the 'abuse', 'cruel desecration', and 'rape' of the original landscape. Again, turbines were perceived to be incompatible with the present landscape, partly because of their height which was also emphasized by using visual comparisons of well-known landmarks, and were portrayed as invasive and predatory intruders, e.g. "the wolf dressed up in green clothing" (Woods, 2003, p. 281). On the other hand, supporters described the wind farm 'site', a phrase that removed the spiritual qualities of the landscape, as "ruined by intensive farming and industrial forestry" and they also stressed the need for increased renewable energy generation in order to cope with adverse climate events, such as flooding, observed in many parts of the world (Woods, 2003, p. 282). Nevertheless, their argumentation about the wind farm's contribution to mitigating the global problems caused by climate change was mainly conveyed in technical, scientific jargon (i.e. the wind farm would save 175,000 tonnes of carbon dioxide per annum being released in the atmosphere), which they also claimed to be a morally and scientifically superior to oppositional arguments.

There were similar findings about the characteristics of different wind farm arguments in articles that did not use discourse analysis but conducted interviews or content analyses. For example, Jones et al. (2010) examined the content of the planning documents about a series of proposed wind farm developments in Yorkshire, England. This analysis showed that oppositional and supportive arguments in the planning documents differed in their level of abstractedness. Namely, while the opposing arguments focused on specific, local disadvantages, supportive arguments were more abstract and related to the global benefits of the wind farm, i.e. its contribution to mitigating the adverse effects of dangerous climate change (see also Demski, 2011; Szarka, 2004; Wheeler, 2017). An exception to this observation was made by Rygg (2012) who found that in some cases the state of the local economy could play a more important role in shaping supporters' arguments about wind farm proposals than more abstract reasons. Rygg (2012) conducted interviews with key community stakeholders in cases where onshore wind farms were proposed at economically depressed parts of Denmark. The data showed that supporters' arguments in economically struggling areas, such as former areas of the shipbuilding and fishery industries, related to local economic concerns as well, e.g. the wind farms' potential to increase employment and modernize the economy, generate local income and employment, counteract depopulation and to become an important new business that can attract high-skilled labour. On the other hand, oppositional arguments in this Danish case study focused mainly on visual and noise impacts again which was interpreted by Rygg (2012) as a fear of change and a wish to preserve the landscape and the surroundings in their current state (see also Pasqualetti, 2011; Wheeler, 2017).

Finally, some authors have argued that the arguments used by objectors in the face of local wind farm proposals tend to shift and develop during the course of the projects' planning process. For example, van der Horst (2007) argued that an important learning process occurs in which protesters narrow down the large range of initial arguments to include only those ones that are possibly most convincing for local councilors or the Planning Inspector. Such argument shifts were observed for example by Upreti (2004) who examined changes in the voiced opinion of the protest leaders of an unsuccessful planning proposal for a waste facility. The arguments against this proposal were gradually narrowed down only to include the core arguments that were then raised at the formal planning debate. Similarly, in a content analysis of the local and regional

Dutch press, Wolsink (2000) concluded that over time news discourse tended to narrow down to focus on more site-specific features, most frequently on the potential visual- and noise impacts of the wind turbines.

Actors in the wind farm discourse

Previous research about wind farm discourse often aimed to identify the actors who were quoted or referred to in the wind farm debates. Based on a comparative case study of the wind power sectors in the UK, Denmark and Germany, Szarka (2004) identified 3 main groups of such actors. These were firstly, the actors of the pro-wind power coalition who stressed the role of wind farms in mitigating the threat of climate change. The second group of actors included those charities and NGOs who employed a conservationist approach and therefore needed to balance their position between immediate alteration of the natural environment and long-term sustainability issues. The third group of actors included local residents who expressed their position by asserting the local costs and benefits of wind farm developments.

Furthermore, several other case studies indicated that oppositional lobby groups and individuals could actively seek to skew media reporting in a way that reinforces the perception that opposition to local wind farm proposals is the majority viewpoint within the host communities (e.g. Anderson, 2013; Warren et al., 2005; Wheeler, 2017). Yet, research efforts to date have not been focused on how actors are presented in the news reports about local onshore wind farms, even though the need for more information about actors has been recognised. For example, in a study of a Cornish wind farm Eltham, Harrison and Allen (2008) could not perform the intended analysis of wind farm related news reports as oppositional arguments of local residents were overrepresented in the local news. This shows that a factual assessment of how public attitudes, particularly the supportive ones, are presented in news reports can be difficult to measure quantitatively and studies so far have not been able to overcome this problem.

Power in the wind farm discourse

Thus far, there have only been a limited number of studies about onshore wind farms that analysed how power relationships may be conveyed in discursive strategies, and none of them focused specifically on journalistic discourse. From the available studies,

Haggett and Futák-Campbell (2011) used CDA to show how wind farm opponents framed their campaign as a battle between David and Goliath where the small protest group is having "an enormous challenge against huge and unfair odds to achieve their aim" (p. 214). Furthermore, Haggett and Toke (2006) used CDA to examine how accounts of anti-wind farm protesters are were put together to present wind farm related issues by the functions of the language. Namely, by using the phrase 'wind power' project opponents were able to evoke images of polluting factories. The use of the phrase 'wind farm' on the other hand would imply a complementing element of the countryside. Therefore, through the selection of certain phrases, project opponents may be able to effectively construct the discussions about wind farm proposals as impositions that are damaging to the environment instead of sustainable energy sources that benefit the environment.

Furthermore, some studies reported that that oppositional arguments tend to be narrowed down towards the final planning debate and this could partly be the result of more spurious wind farm objections being rejected at the end of the planning process. However, this tendency could also imply that opponents are intentional about the arguments they choose to put forward as they are aiming to influence the planning outcomes. Burningham (2000) argued that narrowing down these arguments might help to formulate them in a way that can better persuade decision-makers and therefore the selection of the arguments being advocated by local project opponents may be able to, even if only to a limited extent, have practical implications on the final planning outcomes.

2.2.3 Employing CDA to explore the democratic deficit in wind farm siting

There were three main questions that the current media study aimed to answer by employing CDA of journalistic discourse. The CDA was deemed to be the most suitable method for this media study because it is intended to expose how power becomes embedded within the language. Therefore, CDA can contribute to a better understanding of the emergence of the democratic deficit by exposing the hierarchical relationships between actors who may aim to influence the planning outcomes and by signalling the ways in which discursive emphasis, as represented in journalistic

discourse, may skew public understanding of the issues around onshore wind farm siting.

Firstly, it is evident from some of the examples discussed in the preceding section (e.g. Brittan, 2001; Ellis & Robinson, 2007; Jones et al., 2010; Righter, 2002; Rygg, 2012; Stephens et al., 2009; Woods, 2003) that oppositional and supportive wind farm discourses can differ in a number of regards and that these arguments can also change over the course of the planning process (Burningham, 2000; van der Horst, 2007; Wolsink, 2000). Therefore, the current media study was interested in the characteristics of supportive and oppositional arguments in the journalistic discourse, and it aimed to understand whether these could have contributed to supporters' apathy and could have enhanced project opponents' ability to influence the planning outcomes (which are important for Phase 2 of the proposed democratic deficit model).

Secondly, the current study also aimed to explore the journalistic discourses about oppositional and supportive actors. Previous studies that looked at the actors in the news reports about onshore wind farm proposals (e.g. Anderson, 2013; Eltham et al., 2008; Warren et al., 2005; Wheeler, 2017) could not conduct an in-depth analysis of the discursive construction and representation of conflicting actors, partly because supportive actors were consistently absent from the journalistic discourse. However, the CDA method can help to extract meaningful information even from the absence of substantive supportive actors and shed news lights on the ways in which journalistic discourse could contribute to project supporters' perception about being a minority within the host communities (which is important for Phase 3 of the proposed model).

Finally, based on the democratic deficit hypothesis (Bell et al, 2013) power relations could exist between multiple actors in the onshore wind farm planning process, e.g. between local residents, wind farm developers and decision-makers (see Section 1.1.3). Such power relations are thus embedded in the news reports which can emphasise and legitimise such hierarchies discursively (which is important for Phase 2 and Phase 3 of the proposed model). The onshore wind farm literature has so far insufficiently covered how power relations may be represented in journalistic discourse and the current study aimed to fill this gap in the literature.

With these in mind, the following question was generated for the current CDA analysis of journalistic discourse:

Question 1: *What issues and related arguments are presented in favour and against the wind farm proposals; did these arguments change over time; and what words and discursive strategies were used to describe these issues in ways that could have contributed to the emergence of a democratic deficit in wind farm siting?*

Question 2: *Which actors were quoted or referred to and which ones were absent from the local news articles about wind farm proposals; what does this imply about the differences in the relative activity levels of opponents and supporters in ways that could have contributed to the emergence of a democratic deficit in wind farm siting?*

Question 3: *How is the decision-making process presented in the articles; how are majority/minority groups represented; are these hierarchical relationships constructed in ways that could contribute to the emergence of a democratic deficit in wind farm siting?*

2.3 Context

The study area of East Riding of Yorkshire in England was selected for the current media study early on during this PhD project because it is an area with a relatively large number of controversial wind farm proposals. This high controversy was expected to result in high volumes of media coverage about onshore wind farm proposals and therefore it was expected to provide a large enough sample of news reports for the media current analysis.

This section focuses on the research area and the cases selected for the current study and it consists of two parts. The first part will provide the geographic and socio-economic descriptions of the research area, East Riding of Yorkshire in England, with a focus on the role of the wind energy sector in the local economy. The second part will explain the background to those wind farm proposals in East Riding of Yorkshire that were selected for this study.

2.3.1 Onshore wind energy in East Riding of Yorkshire

East Riding of Yorkshire, or East Riding, is a county in Yorkshire and Humber region and it is administered from Beverley (see Figure 2.1 below). It is located in the North-East of England, and is bounded by the North Sea to the East, by North Yorkshire to the North and West, and is separated by the Humber Estuary from South Yorkshire and Lincolnshire (EYRC, 2011). The Yorkshire Wolds, a crescent of low chalk hills, forms the middle ridge of East Riding and is surrounded by low-lying fertile plains. The population of East Riding on the last census day (27 March 2011) was 334 200 which is an increase of 6.1% since 2001, but the major population increase was for those aged 65 or over, indicating an ageing local population (ONS, 2012). East Riding is a relatively affluent area, especially the rural area around Beverley, which is the least socially deprived ward of the county (ERYC, 2011).

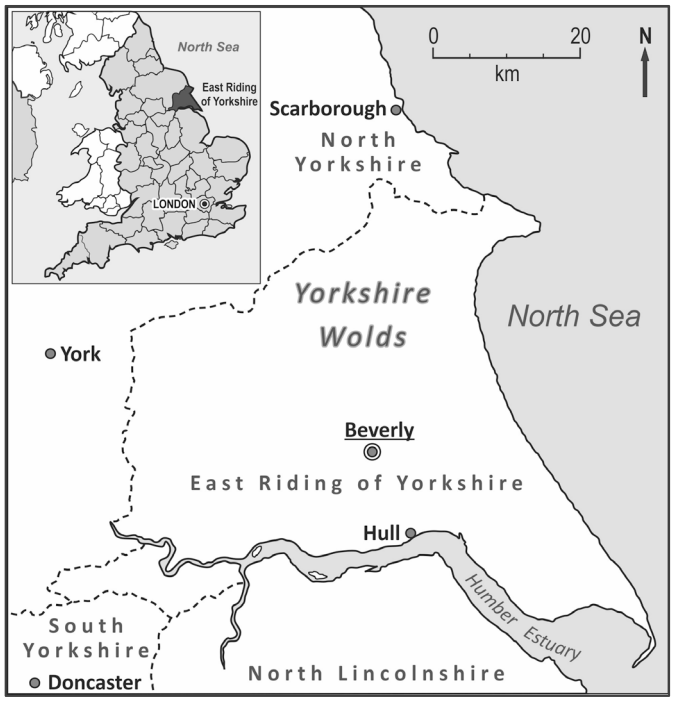

Figure 2.1 Map of East Riding of Yorkshire in England and the neighbouring counties and large towns. Author's own illustration.

East Riding has a high installation capacity for commercial scale wind energy. Firstly, due to its topography and its relatively high wind speeds the county has an above average potential to generate wind energy (Future Energy Solutions, 2004). Secondly, wind farms can provide a vital secondary income for the agricultural sector that is currently experiencing shrinkage. Approximately 93% of East Riding is classified as

rural area (ERYC, 2015) with predominantly arable land that delivers 25% of the region's agricultural economy (worth about £400m per annum) while containing only 20% of the region's agricultural land area (ERYC, 2009). Although, there has been a reduction in livestock numbers and grassland areas during the past decade and therefore the economic contribution of agriculture of the county decline from 8% to only 3% between 1999 and 2009 (ERYC, 2009). Therefore, changing some of the land use from agriculture to wind energy production (i.e. by renting the land to wind farm developers) could play an important role in generating income for local farmers.

Between 1993-2015, there were 24 new onshore wind farms built in the area (DECC, 2015). As a result of this investment, East Riding became the county with the highest density of onshore wind farms as well as the county producing the highest capacity of wind power within England and Wales (see Renewable Energy Locator at https://renewablelocator.green-alliance.org.uk). Therefore, the cumulative visual impact of multiple wind farms (see Section 1.1.2) is an important consideration for wind farm installation, especially near the areas of Goole and Spaldington. ,In has been reported that wind farms became an emotive issue amongst local residents in East Riding of Yorkshire who have been often concerned about the turbines' potential impact on the landscape and on the wellbeing of local residents.(AECOM, 2011; Jones et al., 2011)

2.2.2 Background to the cases

This section will detail the planning timeline of the 8 cases selected for this media study (see Figure 2.2). The description provided about these proposals below includes project details, planning events and outcomes, campaigns, and other issues that were important during the planning process. The information provided is based on general information specified in relevant news articles, planning reports and on the information provided in DECC's renewable energy database.

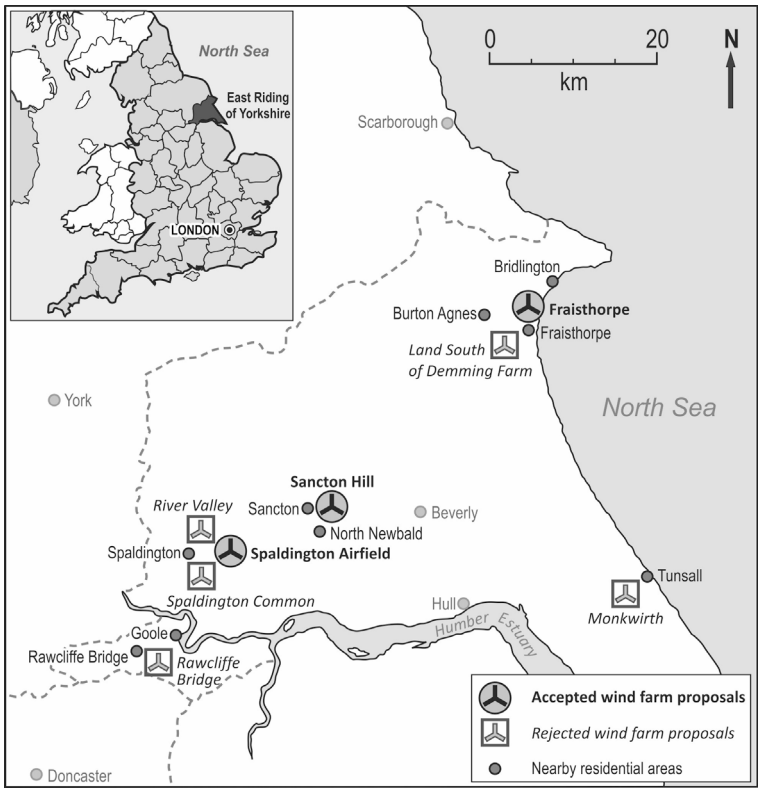

Figure 2.2 Location of the selected cases subject to analysis. Author's own illustration

Fraisthorpe

On the 10th February 2012, TCI Renewables proposed to build a 9-turbine development near the village of Fraisthorpe and the town of Beverley. A public exhibition was held on Monday, the 9th May 2012 from 3:30pm to 7:30pm in the village of Barmston. While the Local Council failed to determine the application within the statutory time frame, they later rejected the proposal, in line with the recommendation of the Planning Committee, based on adverse visual and landscape impacts as well as ground radar interference (this objection raised by the Ministry of Defence was later withdrawn). Meanwhile, an appeal was heard by the Planning Inspectorate in form of a four-day public inquiry and the plan received approval on the 22nd January 2013. The argument was that the proposal made a significant contribution to the national energy targets without having a significant negative impact on the wider landscape, safety, ecology, geology or heritage assets of the area. Main arguments in public opposition reported by local media stressed the proposal's landscape impact, the lack of consultation with local residents in Bridlington, and the impact on the tourism industry at Bridlington Bay. A petition to have the Yorkshire Wolds designated as an

Area of Outstanding Natural Beauty (AONB) was initiated by a region-wide opposition group called 'No To Wolds Windfarm Group' in order to prevent further wind farm development. An English painter called David Hockney, who at the time owned a house in Bridlington, also protested against turbines being built on the sea front while the Ministry of Defence and the National Air Traffic Services En Route Plc (NERL) initially opposed the development on the grounds that the turbines would interfere with nearby radars. On the other hand, local supporters, including members of the Green Party, talked to the local media about the role of this wind farm proposal in tackling climate change and mitigating the country's reliance on coal, and proposed that it could even improve look of the landscape.

Land South of Demming Farm

A plan for a 4-turbine wind farm at Demming Farm, near the town of Bridlington, was submitted on the 7th March 2013 by Airvolution Energy Ltd. The proposal was refused by the East Riding Council on the 27th January 2014 arguing that the proposed development would cause substantial harm to heritage assets, namely to the Burton Agnes Hall complex, and that the cumulative impact of the proposed development together with other agreed or operational schemes would be unacceptable to the landscape character and visual amenity of the area. News reports about objectors' arguments mentioned the same reasons the plan was rejected by the council. Nevertheless, there were several letters of support sent to the council as well. The local news reported that people in favour firstly, preferred onshore wind energy to coal-based or nuclear energy and secondly, interviewees urged local decision-makers to avoid risking and unsuccessful and therefore costly planning inquiry which took place in the case of Fraisthorpe wind farm (see above).

Monkwirth

On the 12th June 2009, the energy company Energiekontor UK put forward a plan to build 3 wind turbines in the village of Tunstall, after their previous plan to install 7 wind turbines in the area was refused in 2007. Planning officers recommended the proposal to go ahead but East Riding Council deferred the decision on the application while requesting further clarification from the Government to clarify guidance on cumulative impact. Meanwhile, Energiekontor offered a one-off lump sum of £70,000

towards the community fund if the proposal was approved. Then, East Riding Council had to vote about the issue twice because a councillor, who had previously expressed prejudicial views, unlawfully took part in the first vote. Finally, on the 21st January 2010 the decision was made to refuse the application, citing the impact of turbines on aviation safety and cumulative impact as the main reasons for the decision. The developer appealed and a public inquiry was held where the proposal was refused again on the grounds of the cumulative impact on the landscape and visual amenities on the 7th January 2011. The main oppositional group was Hilston and Tunstall Residents' Association, representing 94,200 local residents, who has also gained 'Rule 6' status that allowed their representatives to take a formal role in the planning inquiry. Supportive attitudes from East Riding Alliance for Climate Change were also reported by the news media, voicing critics of the local council for refusing many planning applications that were later approved after expensive planning inquiries.

Rawcliffe Bridge

Airvolution Energy proposed to build 5 wind turbines, with the high reaching blades of a maximum of 131 meters, close to the small hamlet of Rawcliffe Bridge, near the town of Goole, on the 20th December 2013. Previously, a public exhibition was held on Wednesday the 20th November 2013 from 3:30 pm to 5pm at Rawcliffe Village Hall and from 6pm-8pm at Rawcliffe Bridge Primary School. On the 25th February 2015, the plan was refused by East Riding Council based on cumulative impact as well as radar and aviation safety, and the developer did not appeal against this decision.

River Valley

RWE NPower formally announced a plan to build a 6-turbine wind farm on the 7th November 2012 near Spaldington. This proposal became publicly known only a few weeks after the Spaldington Commons wind farm was rejected and the Spaldington Airfield wind farm was approved (see below). However, unlike in the previous two cases in the Spaldington area, a two-day long pre-application public exhibition was held locally after which RWE NPower decided to propose to erect only 6 turbines (instead of 8 turbines) in order to increase the distance between the turbines and the nearest residential properties. The planning permission for this development was refused on the 13th August 2013 by local councillors. The appeal was then lodged on

the 13th October 2013 and the Secretary of State intervened on the 4th December 2013. Finally, in line with the recommendations of the planning inspector, the Secretary of State refused this application based on the cumulative impact of 'moderate/major significance' on the 15th October 2014. The main opposition group was called the Spaldington Turbine Opposition Group (STOP) but a public letter published in a local news outlet on behalf of the Renewables Network expressed their support for the development.

Sancton Hill

Cornwall Light and Power Ltd. proposed to build a 5-turbine wind farm near the villages of Sancton and North Newbald on the 25th December 2008. This application was refused on visual grounds on the 23rd March 2010. Subsequently, a new plan was resubmitted on the 17th May 2010 after a similar-sized development at the neighbouring site was approved on appeal by the Planning Inspector. The number and size of the turbines remained unchanged in the new proposal but it also included an ecological habitat enhancement scheme, a traffic management plan, and a local community fund. The proposal was then recommended by the Council's Planning Committee and subsequently accepted by local councillors on the 10th February 2011. The name of the local opposition group included in the news reports was Sancton Windfarm Action Team (SWAT) and the reasons for their opposition were the visual impact and the landscape and safety around the site although the impact on property prices was also raised in the news media. The plan was also supported in the news by the East Riding Alliance for Climate Action who argued that the wind farm would play an important role in climate change mitigation.

Spaldington Airfield

Falck Renewables held a public exhibition event on the 19th September 2009 from 10:30am to 4pm about its plans to erect 5 wind turbines at the former Spaldington airfield, which was closed in 1930, near the village of Spaldington. They submitted a proposal on the 17th November 2009 that was rejected by the local council on the 22nd September 2010 based on cumulative impact that this wind farm, Spaldington Commons wind farm, and other wind farms nearby would pose to the people living in Spaldington. However, the proposal was granted permission on appeal by the Planning

Inspector on the 29th September 2011, who concluded that the impact on living conditions would not be unacceptable and that the harm potentially caused in the locality was outweighed by the wind farm's contribution to national renewable energy production. The local opposition group reported by the local media was STOP who were opposed to both the Spaldington Airfied and Spaldington Commons wind farm developments on various grounds, including the cumulative visual impact and the negative impact on local recreational businesses, wildlife, transport and wellbeing. Moreover, STOP campaigners raised £70,000 to cover the cost of the public enquiry (payable by the East Riding Council) and hired legal and environmental experts to represent the oppositional views to the proposal.

Spaldington Commons

The wind farm developer Volkswind proposed to build 7 turbines near Spaldington at the same time as Falck Renewables applied for a permission to build the nearby Spaldington Airfield wind farm. Together with the Spaldington Airfield application, the Spaldington Commons wind farm was rejected by the Local Council based on cumulative impact. The developers subsequently submitted their appeal to this decision and the planning inquiry looked at both applications again. Therefore, the events that were important to the proposed Spaldington Airfield and Spaldington Commons wind farms, such as the public exhibition, planning submission, and planning decisions took place at the same time and through the same procedures. However, unlike the Spaldington Airfield wind farm, the Spaldington Commons application was rejected after the public inquiry. The reasons why the Planning Inspector refused to grant planning permission to the proposed Spaldington Commons wind farm was the harm to the living conditions of nearby residents based on the visual- and noise impacts, and the heritage impact on the setting of Howden Minster church. The oppositional group was STOP here as well (based on the same reasons explained above) an additional criticism from opposing local residents claimed that developers used a back-door-tactic to increase the likelihood of having at least one successful wind farm proposal (i.e. that two simultaneously ongoing proposals would put pressure on decision-makers to accept at least one of them).

2.4 Method

This section will focus on the methodological and analytical background to this media study, and it consists of three parts. The first part will detail how the cases (see Section 2.3.2) were selected, while the second part will focus on the steps of the selection of the material for the analysis (i.e. the relevant newspaper articles and planning documents about the selected cases). Finally, the third part of this section will explain the structure of the analysis which was adopted from Carvalho's media(ted) CDA framework.

2.4.1 Selection of the cases

The cases were selected from the July 2015 version of the Renewable Energy Planning Database (DECC, 2015) which provides monthly updates on the progress of national renewable energy projects. From this database only those cases were selected that fulfilled the following 5 criteria:

1) The sites were all located in East Riding of Yorkshire in England (see Section 2.2.1).
2) The proposals were for new onshore wind farms, or resubmissions of previous plans with the number and height of the turbines unchanged. Proposals for the extension of already existing wind farms were excluded.
3) The number of proposed turbines was between 3-10, which is considered to be small to medium sized for onshore wind farm developments (Julie Martin Associates, 2010).
4) The height of these turbines was between 90-131m to the blade tip, which is considered large for onshore wind turbines (Julie Martin Associates, 2010).
5) The final planning decisions about these proposals, i.e. whether they were accepted or rejected, were made during the 5-year period before the start of the study (i.e. between July 2010 and July 2015). This ensured that the applications were in the planning system after the Localism Act was enacted but before the UK Government made the announcement that it would terminate the wind farm subsidies.

Therefore, the selected cases were relatively recent, not currently ongoing applications, which at the time of proposals were included in the same national planning and financial frameworks. They were also sufficiently large enough to be likely to be featured in the local news reports. There were 8 cases in total that fulfilled these criteria. As noted in the preceding section, 3 of these cases were accepted proposals and 5 of these cases were refused during the final planning decision.

2.3.2 Selection of news articles and documents

The next step in the methodology entailed the selection of the newspaper articles about the 8 featured wind farm cases. The online searching tool Lexis Nexis was used to trace the news articles published about these proposals before the final planning decision was made. This Lexis Nexis search yield 114 news articles, 61 about accepted proposals and 53 about refused proposals. Two criteria were applied to this initial collection of news articles:

1) The news articles that were published in national newspapers (e.g. *London Stock Exchange*, *Construction News*) were excluded. The analysis of local newspapers instead of mass media was preferable because local media focuses on the issues faced by the small population living in their circulation area (Aldridge, 2007). More specifically, in the case of risk-communication about environmental changes, local newspapers were observed to provide more regular and in-depth coverage than mass media (Wakefield & Elliott, 2003).

2) The articles where the wind farms in question were not one of the main topics of the articles were also excluded. These included the news reports where the proposals in question were mentioned after the main topic, which was usually a different wind farm, was already discussed and where the information about the proposal in question was only meant to provide some context for the main topic of the news.

The final sample included a total of 87 news articles, 45 about the 3 successful wind farm projects and 42 about the 5 rejected wind farm applications. However, as the Spaldington Airfield and Spaldington Commons wind farms were proposed around the same time, there happened to be 15 news articles that discussed both proposals. Therefore, while there were 72 unique articles included in the final newspaper corpus,

87 articles were examined as part of the analysis because the information related to one or the other proposals were still treated separately.

Furthermore, there were 16 graphic elements accompanying these news articles. One of these were published in the *Goole, Thorne & Howden Courier* and the rest were published in the *Hull Daily Mail*. The output of the Lexis Nexis search provided only the titles of these pictures and therefore the original hard copies of the newspapers had to be acquired from the British Library. Of these, 3 copies were not found in the library catalogue and 1 copy was missing from the relevant newspaper. Finally, 12 graphic elements were included in the analysis, all published in the *Hull Daily Mail*.

The final step of material selection was the collection of documents, i.e. consultation reports and planning reports that directly informed the planning decision (see Section 1.1.3). For the type of historical CDA analysis that was performed (see Section 2.3.3), it was necessary to only include cases where the local decisions were followed by appeals in order to compare oppositional arguments prior the local decision and the oppositional arguments raised before the planning inquiry. Furthermore, news reports about the cases had to provide details about the planning arguments as well so that the media reporting about the arguments could be compared with the actual arguments raised in the planning documents. Only four cases fulfilled both criteria, namely the proposed Fraisthorpe, Monkwirth, Spaldington Airfield and Spaldington Commons wind farms. Of these, were 2 successful and 2 were rejected wind farm planning applications. The planning documents were acquired from a publicly accessible online database of the East Riding of Yorkshire Council (ERYC) (https://newplanningaccess.eastriding.gov.uk/newplanningaccess/) and comprised of the following two types of documents:

1) Planning reports prepared by East Riding Planning Committee. Besides the main reasons for the recommended decision, i.e. refusal or approval of the plans with the option to appeal, these reports also contained a summary section called ‘relevant planning history’.

2) Planning reports written by the Planning Inspector which inform and provide the final planning decision as part of the appeal process. These reports provided the main arguments and the outcomes of the final planning decision, which was again either acceptance or refusal of the wind farm proposals but without the opportunity to appeal against the decision.

A total of 8 documents were acquired for the document analysis. Details about the numbers and the sources of newspaper articles and documents that were used in the media analysis, both in the cases of accepted and rejected wind farm proposals, are shown in Table 2.1 below.

Table 2.1 Cases, news, and documents of the media analysis.

Accepted applications	**Sample sizes**		**Media sources**	**Document sources**
	News	Docs		
Fraisthorpe	20	2	Hull Daily Mail Pocklington Post Bridlington Free Press	East Riding Planning Committee Planning Inspectorate
Sancton Hill	6	-	Hull Daily Mail	-
Spaldington Airfield	19	2	Goole, Thorne & Howden Courier Hull Daily Mail	East Riding Planning Committee The Planning Inspectorate
Total	**45**	**4**		
Rejected applications				
Land South of Demming Farm	3	-	Hull Daily Mail Yorkshire Post	-
Monkwirth	13	2	Hull Daily Mail Yorkshire Post	East Riding Planning Committee Planning Inspectorate
Rawcliffe Bridge	5	-	Hull Daily Mail Scunthorpe Telegraph	-
River Valley	6	-	Hull Daily Mail Selby Times	-
Spaldington Common	15	2	Goole, Thorne & Howden Courier Hull Daily Mail	East Riding Planning Committee Planning Inspectorate
Total	**42**	**4**		

As shown in the table above, the main source of the media reports was the Hull Daily Mail but news reports from some smaller publishers were included in the current analysis. The Hull daily Mail is the largest local new publisher in East Riding with a readership of 68,028 while some of the articles printed in Hull Daily mail are also shared on Hull-live.co.uk which has over 3 million monthly unique users (data provided for April 2018, see http://humber.trinitymirror.com/brands/hull-daily-mail/). While the print audience is considerably smaller than the population of East Riding (see Section 2.2.1) this is still the largest local audience for printed papers. This relatively large readership indicates that the news reports published in the Hull Daily Mail and in other printed newspapers, which were used in the current media analysis, could have been seen by a sizeable share of local residents. Therefore, while the

current analysis does not assume that these media reports were accessed by the majority of the residents in East Riding, it certainly used reports from a mixture of local news outlets that could have been widely accessed, including the one with the largest audience in the geographical research area.

2.3.3 Structure of the analysis

Carvalho's (2008) media(ted) discourse analysis framework consists of two types of analysis: textual analysis and contextual analyses. In the current study, both types of analysis were carried out in a structure that followed the outline provided by Carvalho (2008), but the textual analysis had some modifications compared to the original framework. Namely, headlines and leads were not analysed separately but as part of other analyses, such as when looking at the grammar employed to describe actors, while graphic elements and rhetoric were analysed in relation to framing.

The textual analysis has three main parts, which relate to Objects, Actors and Framing. The analysis of Objects (i.e. wind farm-related arguments) started on the macro-level by looking at the vocabulary and style discussed in relation to objects. Then, the analysis of Actors looked at the grammar, headlines and lead (i.e. first few sentences). The analysis of Framing included the examination of graphic elements, rhetoric and the vocabulary of the headlines and leads.

The first research question, which relates to the issues and arguments raised in favour and against the wind farm proposals in journalistic discourse, was informed by the textual analysis of Objects and Framing. The second research question, which relates to the actors who were quotes or referred to in journalistic discourse, was informed by the textual analysis of Actors and Framing. The third research question, which relates to the references to power relationships in the decision-making process and about the presentation of majority/minority groups in journalistic discourse, was informed by the textual analysis of Actors, Objects and Framing.

Finally, the contextual analysis employs a historical approach by comparing the representation of actors and the oppositional argument development in the news with the information outlined in the planning documents. Therefore, the contextual analysis compared the contents of planning documents (i.e. primary sources of information) with the contents of news reports (i.e. secondary sources of information) about the

same planning events. The contextual analysis looked at the journalistic discourse about Actors and Objects and it informs the third research question by analysing the journalistic discourse concerning the power relations presented about the decision-making process about the wind farm proposals.

2.5 Analysis

The section will analyse the news articles (see Section 2.4.2) which related to the 8 wind farm proposals selected for the current study (see Section 2.3.2) and this analysis follows on the structure adopted from Carvalho's media(ted) discourse analysis framework (see Section 2.2.3). This section has four main parts: the media analysis of objects, actors and farming; and the comparative analysis of the historic development if news reports and planning documents about the examined proposals. Data to support the analysis is presented in two ways: 1) general data that are sourced from several newspapers are presented in tables, and 2) observations related to specific news articles are illustrated by extracts from the news in question. The analysis was carried out with NVivo software.

2.5.1 Objects

The objects, or broader topics, in favour and against the examined wind farm proposals were categorised as either concrete or abstract (see Demski, 2011; Ellis & Robinson, 2007; Jones et al., 2010), and these are presented in Table 2.2 below. *Concrete objects* were those that related to the proposals' direct impact on the local economy, humans or on historic landscapes, while *Abstract objects* related to the proposed wind farms' financial or societal impacts felt beyond the level of the individual (see also Jones et al. 2010 for abstractedness of wind farm-related arguments). Overall, there were 13 different types of concrete oppositional objects and 5 different types of abstract oppositional objects identified in the news reports. On the other hand, there were 10 different types of concrete supportive objects and 5 different types of abstract supportive objects identified in the news reports. Importantly, the oppositional journalistic discourse frequently employed both concrete and abstract arguments against the proposals while the supportive journalistic discourse mainly used global

arguments in favour of the proposals. The following section will first identify what objects are referred to in the news and secondly it will discuss how media news shaped realities about wind farm proposals through presenting these wind farm related objects.

Table 2.2 Concrete and abstract objects in favour and against the wind farm proposals. The most frequently mentioned objects are in bold.

Argument type	***Concrete objects***	***Abstract objects***
Against the wind farm proposals	Decreased property prices **Close proximity to villages** Construction disruption **Cumulative impact** Disturbance to wildlife **Ground radar interference** Impact on heritage sites **Impact on tourism** Land use change **Noise emission** Safety risk **Visual impact on the landscape** Lack of consultation with locals	**Appeals are costly for local councils** Cost of wind farm subsidies to taxpayers **National interest above local interest** Unethical practices of wind farm companies **Perceived inefficiency of the technology**
In favour of the wind farm proposals	Improve the view Community fund **Create jobs for local businesses** Limited harm on tourism No ground radar interference No health risks Short-term impact on property prices **Suitable site** Public consultation	**Contribute to renewable energy targets** **Decrease carbon-dioxide emission** **Generate electricity** **Mitigate climate change** Improve energy security

Amongst the concrete oppositional objects, the most prevalent topics related to the turbines' visual impact, the cumulative impact, and their proximity to nearby residential areas. However, potential concrete negative impacts on ground radar interference, the tourism industry and on the residents' wellbeing were also frequently featured in the local news. Amongst the abstract oppositional objects, the costly planning procedures, dissatisfaction with national-level policies carried out over the will of the local residents and the perceived inefficiency of the technology were the most prominent news objects.

Overall, there were fewer objects in support of the proposals than against the proposals included in the news reports. The most often mentioned concrete supportive objects were the turbines' potential to create jobs and the suitability of the site. The most frequently used global favourable objects included the proposed wind farms' impacts on reaching binding national renewable energy targets, mitigating climate change and decreasing carbon-dioxide emissions, and in general being a more environmentally friendly and renewable source of electricity.

Furthermore, the presentation of supportive and oppositional argument differed greatly in their style and vocabulary. The words used in the opposition discourse about the turbine's effects on the landscape are shown on Figure 2.3. There could be three different reasons for the dissatisfaction encoded in the words used in the oppositional landscape discourse. Firstly, words described the change in land use from agricultural use into one of renewable energy production. This might indicate that people felt a loss in the status of the area they were living in, i.e. from a middle-class (e.g. 'sought-after area') into a working-class environment (e.g. 'industrial landscape'). Secondly, people could have felt burdened in their abilities to enjoy the amenities of the environment by the presence of turbines that would spoil or blight the landscape. Thirdly, there was an emotional, almost spiritual or religious, component to people's attachment to the affected place this change was perceived as intruding and insulting, e.g. the turbines would 'deface' or 'desecrate' the landscape (this issues will be further analysed under rhetoric in Section 2.4.3).

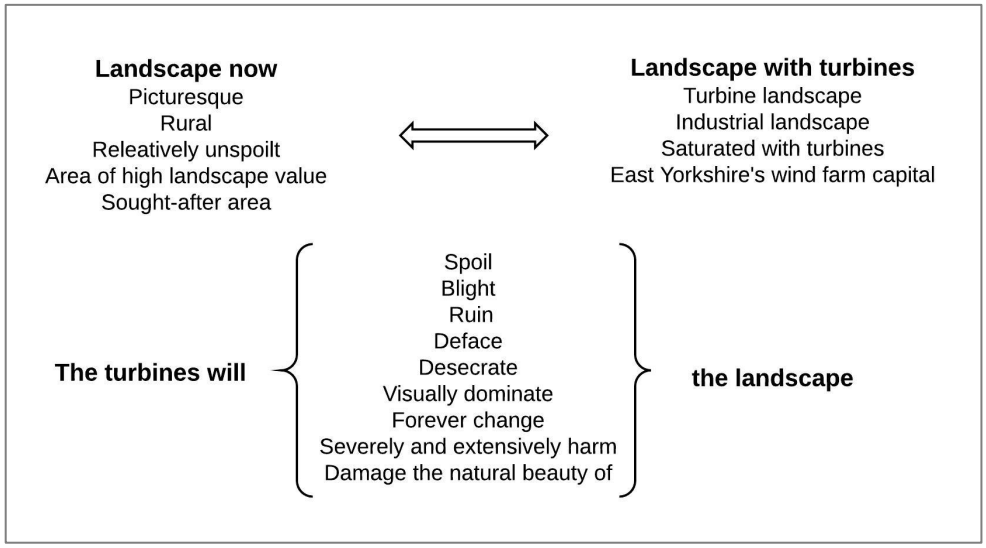

Figure 2.3 Words used to describe the landscape impact of the proposed turbines. Author's own illustration.

The phrases that expressed the negative landscape impact were therefore varied, expressive and emotionally charged and painted a picture of locals experiencing multiple kinds of losses of what seemed to be an invocation of a romanticised idyll. Moreover, the oppositional objects were linked to local people's direct experiences with the locality and were illustrated by vivid descriptions of the new landscape and by comparisons made between the turbines and well-known landmarks:

> *"The turbines would present an unpleasant, overwhelming and unavoidable presence in views from the dwellings and their gardens."* (*Hull Daily Mail*, July 11, 2011)

> *"[The turbines would be] towering up to three times higher than Howden's landmark Minster.*"
> (*Goole, Thorne & Howden Courier*, December 17, 2009

On the other hand, phrases that described the positive landscape impact of the turbines were lacking these vivid descriptions as they were overwhelmingly technical, scientific and repetitive while they also failed to express potential positive impacts which would have directly influenced the life of the affected residents. Using a scientific language could have created a distance between the reader and the arguments partly because the vocabulary referred to distant objects (e.g. atmosphere, national targets) and partly because most of the readership was likely unable to have a full understanding of the meaning of these wider themes. Therefore, readers may have perceived these technical arguments as if to be written for someone else (i.e. for a technical expert). Moreover, these supportive arguments often lacked clarity about the reasons to support the specific developments rather than other forms of renewable energy generation. For example, different variations of these arguments were frequently featured in the news:

> *"The proposed wind farm could generate enough clean electricity for around 11,800 homes and could save some 22,300 tonnes of carbon dioxide from being released into the atmosphere each year."*
> (*Bridlington Free Press*, November 22, 2012)

> *"The UK will miss the target unless there is massive investment in wind, wave and solar."* (*Hull Daily Mail*, September 20, 2010)

Finally, supportive arguments in the examined news reports rarely generated new lines of reasoning but rather briefly defeated the point of the opponents without further elaboration, e.g. that turbines "don't emit nasty waves or significant noise"[9] and "relate well to local landscape character"[10]. These short, defensive phrasings might signal that supporters did not even hold the opposition arguments to be valid and worth of further investigations. The only two exceptions where supporters aimed to come up with a new phrasing and viewpoint to look at wind farm impact was firstly, the description of a proposed wind farm site as an 'energy estuary', implying that the area has the resources to be a modern hub for renewable energy development. Secondly, another potentially attractive argument was raised by supporters in relation to the direct impact of increased tourism in the area, i.e. the turbines' potential to become a tourist attraction and, building on the already existing tourism industry, attract even more visitors to the area.

2.5.2 Actors

This section will firstly describe the actors quoted and referred to in the news reports and will compare how their views were represented in these news reports. Secondly, this section will also look at how opponents were portrayed in the news, including the headlines and leads of the articles.

Actors were categorised into three groups based on how much influence they were potentially able to exert on the final planning decision and whether they were expected to provide a professional and objective or a personal opinion or advice for the planning decision (see Section 1.1.3 for details about the onshore wind farm planning process). These power groups are the following:

- *High power*: professional and influential actors whose claims weigh the most in the final planning decision.
- *Medium power*: actors with some personal interests in the wind farm who can provide input into the planning decision by expressing their personal opinions. For example, actors whose arguments were discussed individually in the planning reports.

[9] *Hull Daily Mail*, September 21, 2010
[10] *Hull Daily Mail*, February 15, 2014

- *Low power*: actors with a vested interest in the wind farm or actors who were not mentioned individually but rather than as a group of actors.

As illustrated in Table 2.3 below, most actors in the high-power category expressed oppositional viewpoints to developments in the local news. In terms of actors of medium and low power, the picture is more varied although the oppositional actors in these categories always outnumbered the supportive actors of medium and low power, except for the wind farm developers and other actor associated with them who were the most frequently featured supportive actors in the local news. However, as noted above, those actors who received financial gains from the development were not have been perceived as trustworthy and as acting with the interests of the local residents in mind, and this may have undermined the validity of their arguments. Hence, there is a notable absence of local residents who described the wind farm developers in a positive way, except for a few examples where wind farm developers were praised by local residents for their willingness to incorporate the feedback received during the public engagement events in their proposals.

Table 2.3 Actors of oppositional and supportive discourses.

Power	**Actors in journalistic discourse**		
	Type of actors	***Opposing actors***	***Supportive actors***
HIGH	Consultees	Ministry of Defence, Hilston and Tunstall Residents' Association, RSPB, Ramblers Association, English Heritage, Bridlington Civic Society	Ministry of Defence
	Political figures	ERYC's Head of Planning, ERYC's Planning Committee, Local MPs, Local Parish Councillors	ERYC's Head of Planning
MEDIUM	Locals involved in the consultation	Famous painter, Members and spokespersons of opposition groups, Residents living in close proximity	A resident living nearby, A member of the Beverly Green Party, Members of East Riding Alliance of Climate Action, Chairman of the Committee On Climate Change
	Local business owners	Owners of small local business (e.g. caravan park, holistic massage business, horse riding business)	Director of Renewables Network
LOW	Wind farm developers and associated bodies	-	Spokespersons, a director, and project managers of various wind farm companies; Barrister representing the wind farm company
	Members of the public who wrote to ERYC	More than 360 residents (Fraisthorpe), 18 residents (Land South of Demming), more than 700 residents (Spaldington Airfield and Spaldington Common)	7 residents (Land South of Demming)

Importantly, oppositional groups were in every case portrayed as representing a majority position, which was expressed in two possible ways. Firstly, the number of oppositional actors was expressed in the news in a way that always indicated widespread opposition from the public. For example, as shown in Table 2.3 above, local news media provided information about the relatively large number of residents who wrote oppositional letters to the local councils. Furthermore, local residents were often presented as unanimous groups who were assumed to hold the same opinions as those represented by campaign groups and the local Parish Councils. An example of how local opposition was portrayed as a homogenous opinion group represented by their local parish councillors and campaigners is illustrated by the headline and the subsequent lead below:

> *"Campaigners have won vital support in their fight against plans for two wind farms at an East Yorkshire village.*
>
> *Eight town and parish councils, representing more than 13,500 people, have objected to the proposed schemes at Spaldington, near Howden. Protesters say it is an unprecedented show of unity against the controversial plans, which will be considered by East Riding Council next month."* (*Hull Daily Mail*, March 19, 2010)

Secondly, the notion of an oppositional majority was also conveyed through the grammar used in the local news. Grammatical tools such as nominalization and passivisation can change the meaning of the messages by omitting the actors. These manipulations reinforced the perception of unanimous opposition by omitting the actors. Thereby, the dissatisfaction with the proposals and the action taken to prevent the building the wind farms was presented on coming from 'everybody in the community' (i.e. instead of 'some residents'). Examples of these are illustrated by the following headlines (first three extracts) and lead (fourth extract):

> *"Anger as third turbines proposal submitted"*
> (*Hull Daily Mail*, February 14, 2012)

> *"Row revs up over plan for turbines"*
> (*Hull Daily Mail*, November 28, 2012)

"Urge over wind farm" (*Hull Daily Mail*, September 18, 2009)

"Councillors are being urged to reject plans for more towering turbines by one of the East Coast's most popular beaches amid increasing concerns that the area is becoming blighted by onshore wind farms."
(*Yorkshire Post*, January 20, 2014)

2.5.3 Framing

Specific frames about environmental issues emerge from ongoing verbal interaction amongst people where these 'frameworks' define a situation and the issues of importance while also set the terms of debate. Media framing plays an important role in presenting a planning debate by influencing or even defining the set of values and emotions the audience adopts on a given issue. This section will explain how framing was employed in the local news by using graphic elements and rhetoric.

Framing by graphic elements

This part of the analysis is concerned with the ways in which opposition is framed in the news illustrated through graphic elements. Most pictures of wind farm opponents presented them as a group standing behind each other in two rows (examples are the first and second graphic elements on Figure 2.4 below). This composition, where actors on these pictures are connected by a vector, implies the narrative structure where these actors are presented as doing something for each other (Kress & van Leeuwen, 1996), i.e. the idea that being a member of the oppositional majority provides support for the individual.

Another characteristic of the composition of these graphic elements is that they are representing actors looking directly at the viewer's eyes which creates a visual form of direct access (Kress & van Leeuwen, 1996). One of the possible interpretations is that opponents may address other local residents to take action against the proposals. The other interpretation could be that this composition might aim to intimidate which is especially true on the third graphic element of Figure 2.4. Here, a single opponent, who has been quoted on multiple occasions in the news directly faces and challenges the wind farm proposal even without the need for the backing of others.

Figure 2.4 Graphic elements of opponents in local news. Source: Hull Daily Mail

Further interpretations about framing can also be derived from the first graphic element on Figure 2.4. The headline and lead in this article implied a positive attitude from local residents to the newly proposed wind farm plan, yet the picture illustrated the opposite. This graphic element was previously used to illustrate opposition to another local wind farm proposal which was refused planning permission. Therefore, using it again may have evoked the memory of the powerful opposition group and imply that they would be ready to take on another battle against the new proposal.

Finally, the posing of children in the foreground on the second graphic element could be interpreted as an attempt to frame opposition around a wish to protect future generations rather than a selfish act to protect local amenities. Opponents, who are the often labelled as NIMBYs, had to counteract the claim that "organised opposition to wind farms provokes fear and anxiety" (*Hull Daily Mail*, September 18, 2009) and one way to achieve this could be by putting the needs of their children in front of their own. For a supporter this might mean accepting the visual impact of the wind farm in order to mitigate the dangerous effects of climate change on future generations. However, an alternative frame used here represented opponents as responsible and altruistic adults who oppose the proposals and actively engage in an uncertain and

lengthy planning process so that their young children will not need to become exposed to the negative turbine impacts.

Framing by rhetoric

The analysis of these news articles revealed that the rhetoric of the entire planning process, from where wind farm companies started investigating the potential of the sites until the final decision was made about the proposals, was often framed as a 'war'. The words and phrases used to describe this war rhetoric, as well as the levels and sides in the war rhetoric are shown on Figure 2.5 and these will be explained below.

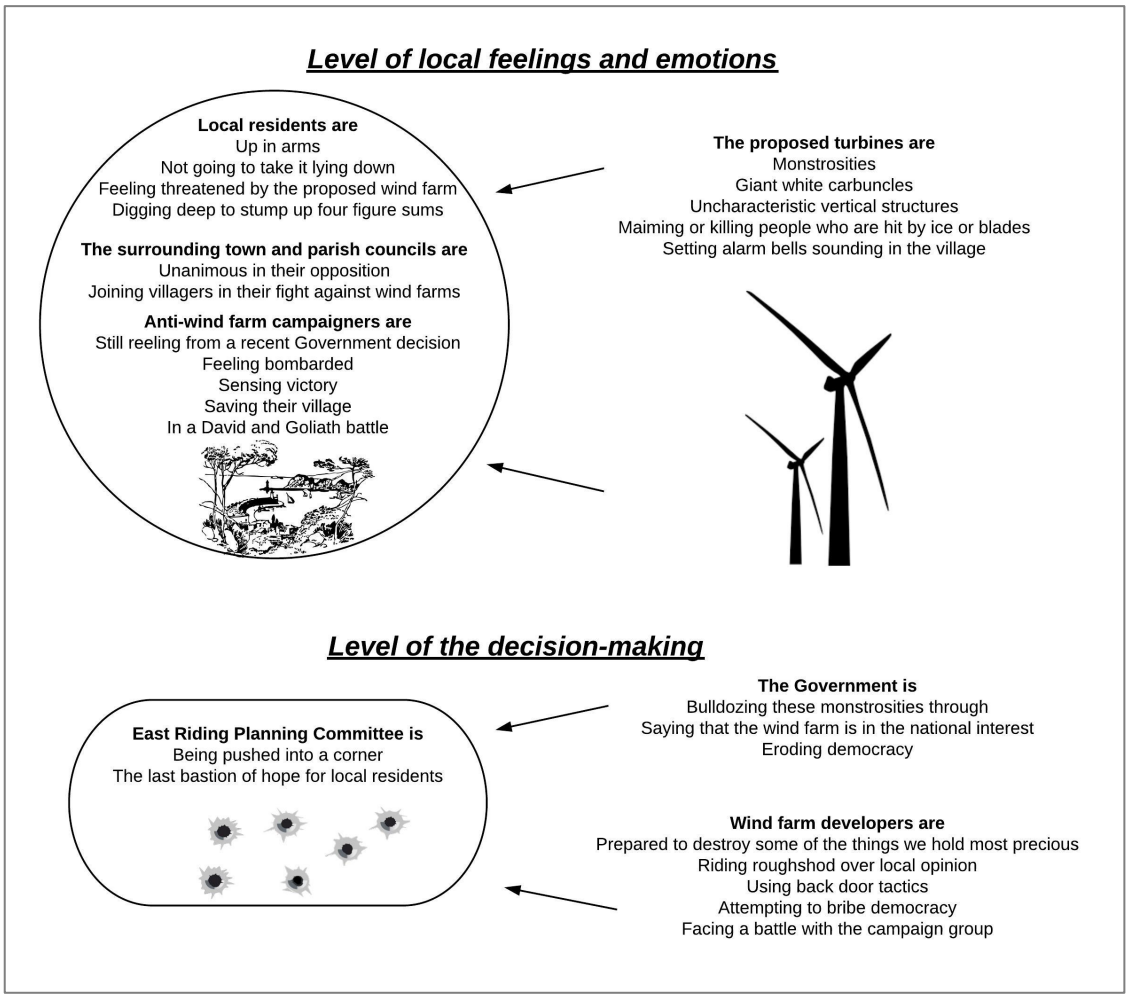

Figure 2.5 The war frame used in the local news reports about wind farm proposals. Author's own illustration.

In this war rhetoric, one side is represented by the local residents, i.e. the campaigners acting on behalf of the local residents to protect them, and the local councils who represented the residents of the wider areas. For example, an oppositional group

claimed that to have the support of 89 per cent of Holderness residents, which is practically the whole population of the area. On the other side of this war were the wind farm companies and the people employed by these companies as well as the Government enforcing national-level policies. The stake in this war was the proposed site and the surrounding area. The winner of this was to benefit from this wider place either in terms of the amenities it can provide (for local residents) or in terms of financial or political gains (for the developers, landowners and national-level politics). There were two potential battles fought between the two sides: one aimed to convince the local councils and the other one aimed to influence the planning inspectors' decisions. These battles also needed to be financed, planned, and organised which is an enormous requirement from residents of small villages that were battling both with large companies such as wind farm developers and with the national policies that are favour these investors. This rhetoric was even prominent at the beginning of the news articles, such as in the headlines (for example first two extracts) and leads (for example last extract) of the local news:

> *"Villagers 'feel powerless' to stop green energy plan"*
> (*Hull Daily Mail*, September 20, 2010)

> *"'Say No To Turbines' call amid fears for East Yorkshire landscape"*
> (*Yorkshire Post*, January 20, 2014)

> *"Opening shots have been fired at the public inquiry into whether nine large wind turbines should be built overlooking Bridlington Bay."*
> (*Hull Daily Mail*, November 28, 2012)

Furthermore, supporters were not even considered to be a legitimate party in this war and were not solicited to express their opinions about the proposals. For example, in the quote below, a council clerk referred to the supporters as the two wind farm companies (as opposed to local residents supporting the wind farm proposals) and the opposing side was represented by the oppositional groups of residents. These two parties were invited to present their arguments to the Planning Committee at a public hearing but the invitation was not extended to supportive (or neutral) local residents, according to the quote:

*"The two applicants for the windfarms have been invited to attend and make a short presentation, and the same invitation will be extended to the organised groups opposing the application*s"
(*Goole, Thorne & Howden Courier*, January 7, 2010)

Finally, these battles were described as a battle of David and Goliath, which term is often used to describe an underdog situation in which a weaker person or organization tries to defeat another stronger opponent. Therefore, local opponents were framed in this war rhetoric again as self-sacrificing militants fighting for a higher cause to protect the wider population from intruders (the turbines) and from those who were threatening the population by imposing these on them and their undisturbed land.

2.5.4 Historic-diachronic analysis

This section will cover the 'historic-diachronic analysis' which can take place on two levels according to Carvalho (2008). The first level, the historical approach, involves examining the course of the social matter, which in this study means identifying the development of oppositional arguments raised by local residents in the news prior to the local decision, and whether and how these changed before the appeal decision was made. During the analysis of objects (Section 2.4.1) and actors (Section 2.4.2) of the news reports, it became clear that very few supportive arguments originated from local residents and that the vast majority of the supporting arguments were formulated by individuals representing the wind farm developers. Therefore, only the oppositional arguments were included in the historical analysis.

At the second level, the historic analysis looked at the temporal evolution of the discourse by examining two sequences of discursive constructions of oppositional arguments (i.e. the set of oppositional arguments included in the news before the local decision and the set of oppositional arguments before the appeal decision). This second level of the historical analysis aimed to examine whether the oppositional arguments were narrowed down to core arguments important for the decision-making in the planning documents and in the news reports. This section will perform the historic-diachronic analysis on all four cases that were suitable to be investigated using this methodological approach. The summary of the contents of the news and planning

reports, presented on a time scale ranging from pre-local decision to appeal decision, are shown in Table 2.4 below.

Table 2.4 Timeline of the development of the main public oppositional arguments.

Case	Time → Oppositional arguments before local decision	Main arguments for local decision	Opposition arguments before appeal decision	Main arguments for appeal decision
Fraisthorpe	Proximity to homes, Cumulative impact, Tourism, Lack of consultation, Visual impact, Aviation safety issues	*REJECTED Visual impact Ground radar interference*	Cumulative impact, Visual impact, Impact on tourism, Aviation safety issues	*APPROVED No disproportionate visual impact Contribution to renewable energy targets*
Monkwirth	Negative impact on local businesses, Proximity to homes, National interest above local interest, Cumulative impact, Cash offer, Costly planning appeals, Local renewable energy targets have already been met	*REJECTED Cumulative impact*	Cumulative impact, Visual impact, Heritage impact, Aviation safety issues	*REJECTED Cumulative impact*
Spaldington Airfield (1) and Spaldington Common (2)	Cumulative impact, Visual impact, Construction disruption, Proximity to homes, Noise disturbance, Impact on housing prices, Impact on wildlife, Inefficient technology, Height of turbines, Impact on local businesses, Shadow flicker, Aviation safety, Disproportionate financial benefits for developers and landowners	*REJECTED (1) (2) Cumulative impact Impact on residents' living conditions*	Visual impact, Impact on residents' living conditions, Impact on wildlife, Aviation safety issues	*APPROVED (1) No unacceptable impact on residents' conditions No unacceptable visual impact REJECTED (2) Individual and cumulative effects on residents' living conditions*

The planning permission for the proposed Fraisthorpe wind farm was rejected at the local level based on visual impact and ground radar interference issues. However, after the Ministry of Defence withdrew its objection right before the planning inquiry, the Planning Inspector granted planning permission for the development arguing that that the visual impact was not adverse enough to outweigh the benefits of the development in reaching the binding national renewable energy targets. The planning report prepared by East Riding of Yorkshire's planning committee stated that 364 letters were received against the proposal and only 2 public letters argued in favour of the wind farm. There were 65 different concerns raised about the proposal, ranging across various potential local impacts (e.g. impacts on the landscape, tourism, heritage,

transport, aviation safety and health). Before the planning enquiry took place, only a few arguments were reported in the local news including the main arguments of the local planning decision, such as the visual impact and the aviation safety issues. The report of the planning enquiry gave detailed responses to public concerns, partly based on the judgments of the Planning Inspector and partly based on local and national planning legislations, about a wide range of issues that were raised during the planning process. These were categorised under visual impact (including landscape, tourism and heritage issues), aviation safety, health impacts, and other issues (i.e. the potential outlook from nearby houses which were also visited by the Planning Inspector), and under flood defences. Of these, the issues around heritage sites and flooding were not mentioned in the news articles and according to this report the wind farm would not pose any adverse impact on these issues.

The Monkwirth wind farm proposal was rejected both on the local level and on the appeal level, both times based on cumulative impact. In this case, the public oppositional arguments against the project in the local news related mainly to the planning process (i.e. the cash offer, the costly successful appeals and the national policies that do not protect the local interests) and not to the impacts of the project itself. Yet, after the local planning decision was made, the oppositional public arguments featured in the local newspapers changed their focus from the planning process to the project impacts (e.g cumulative impact, visual impact, and aviation safety and heritage impacts). The local planning report also responded to the reasons of objection raised by South Holderness Opposes Wind Farms (SHOWT) – a group not mentioned in the news, by Hilston and Tunsall Residents Association, in the 553 letters from the public against the proposal, and in 13 supportive letters from local residents. Again, these objections raised a very large number of potential adverse impacts but, unlike the news reports, none of these concerns related to the planning process itself. The report of the Planning Inspector gave detailed responses to various project-related issues discussed under cumulative impact (elaborating landscape impact and visual impact), and to the potential impact of the project on residential amenities, heritage assets, aviation safety, public safety, road access, wildlife, noise, and on the tourism industry.

The Spaldington Airfield and Spaldington Common wind farms were both rejected at the local level, based on their cumulative impact and their impact on the lives of the

residents. The Spaldington Airfield proposal was rejected by the Planning Inspector as well based on these same two reasons while the Spaldington Common wind farm was approved in appeal stage as the negative wind farm impacts were found to be of an acceptable level. A wide range of public concerns were featured in the local news as well as in the objections submitted by STOP, Rt Hon David Davies MP, Moat Farm Residents Association, the 395 residents objecting to the Spaldington Airfield proposal and the 370 residents against the Spaldington Common proposal before the local planning decision was made. Furthermore, an additional 431 letters expressing supportive arguments were also received in the Spaldington Airfield case (more than the number of oppositional letters) and 56 supportive letters were received in the Spaldington Common case, neither of which were mentioned in the local news. The potential negative impact of the turbines were categorised into 6 subgroups, namely the impacts on the living conditions of local residents, the landscape character, the cultural and heritage assets, wildlife, aviation safety, and other matters such as the impact on businesses and on property values. However, this last category also included an issue not discussed in the news reports, namely the perceived violation of human rights, as several local residents made references in their argumentation to Article 1 (right to peaceful enjoyment of property), Article 2 (right to life) and Article 8 (right to private and family life) of the European Convention on Human Rights.

The cases above show different patterns of argument development. A general conclusion is that the number of reasons for objections considered at the appeal did not decrease from the number of objections previously raised to the local council. Yet, the number of those oppositional arguments that were featured in the local news did decrease during the planning process. Furthermore, the Monkwirth case demonstrated that while much of the opposition stemed from a perceived injustice in the planning system, these arguments were removed from the planning agenda, even though references to human rights violations were made in the cases of the Spaldington wind farm proposals. Therefore, the local news provided an important channel for opponents to communicate their significant dissatisfaction with the national planning system. Finally, in the cases of the Spaldington wind farm applications, the news reports did not mention the relatively large numbers of supportive public letters that were also received during the planning process.

2.6 Discussion

The current media study aimed to provide new insights into the ways in which journalistic discourse could contribute to the emergence of a democratic deficit in wind farm siting. Based on the proposed democratic deficit model, it could be argued that opponents and oppositional viewpoints may be overrepresented in the local news reports, which could in turn reinforce the impression that opposition is the dominant viewpoint within the host communities (Anderson, 2013; Stephens et al., 2009; Wolsink, 2000; Woods, 2003; Wheeler, 2017). Furthermore, by employing the CDA method, the current media study also aimed to provide a deeper understanding about the journalistic representation of hierarchical relationships between groups (see Carvalho, 2008; Fairclough, 2005), which could, in the context of onshore wind farm siting, further legitimise project opposition and delegitimise project support. Therefore, the main topics of interest of the current media study related to the discursive representations of wind farm-related arguments, supportive and oppositional actors, and the hierarchical relations between actors or groups.

This section is divided into three main parts. The first part will address the three main research questions of this media study and will explain how the findings can provide answers to these questions. It will also link these findings to the wider democratic deficit literature. The second part will detail how the results can inform the proposed democratic deficit model, the theories underpinning the model and the social gap literature. Finally, the third part will detail the limitations of the current study and will suggest some potentially fruitful areas for future research, before concluding this chapter.

2.6.1 General discussion

The first main question of this study aimed on one hand, to understand what supportive and oppositional arguments and discursive strategies were used in in the news reports about the wind farm proposals and on the other hand, it also aimed to compare the development of the presentation of arguments in the news reports with the issues raised in the planning reports about the same proposals. The arguments (i.e. objects) were categorised into either concrete arguments (i.e. which would directly affect local residents) or abstract arguments because (e.g. which related to the planning system and

to global impacts) previous wind farm studies fund that project supporters tended to reference more global arguments than project opponents, and these may have been less frequently articulated because they were less motivating for the individual or believed to be less convincing for others (see Section 1.2.2). The majority of the oppositional arguments referenced in the examined news reports were found to relate to the turbines' potential local negative impacts on the local residents which is in line with the results document analysis of Jones et al. (2010) and of interview studies (e.g. Demski, 2011; Ellis & Robinson, 2007).

The oppositional arguments were in line with the most frequently reported negative impacts that can shape public perceptions of wind farm proposals, such as visual impact (e.g. Devine-Wright, 2005; Jones & Eiser, 2010; Wolsink, 2012) and noise impact (e.g. Farbound, Crunkhorn, & Trinidade, 2013; Jalali et al., 2016). Additionally, the CDA was able to reveal that this negative visual impact was linked to a representation of a visual intrusion and to a fear of multiple kinds of losses (e.g. loss of status, recreational use and emotional attachment) in the oppositional media discourse (see also Ellis & Ferraro, 2017; Pasqualetti, 2001). Therefore, it can be argued that there is an important power structure on the social level about the environment which was revealed in the discursive strategies employed in the news. Therefore, by using a critical interpretation of this discursive element, it can be argued that project opposition was linked to a fear of loss in people's status within the social hierarchy, i.e. the fear that wind turbines in these environments would degrade residents' status from middle class to working class. Furthermore, the turbines' cumulative visual impact on the landscape (see Ladenburg & Dahlgaard, 2012; Ladenburg, Termansen, & Hasler, 2013) was also a frequently mentioned oppositional argument which can be explained by the relatively large number of wind turbines that were already installed, or were proposed to be built, in the research area at the time of the study.

Surprisingly, oppositional media discourse was not only rich in local arguments but also frequently referred to global oppositional objects that related to the planning process, such as the national interests, instead of local interest, governing the planning decisions and the high cost of fighting appeals in order to solidify the local (unfavourable) planning decisions. Therefore, the current media study can extend on the results of the media studies that examined the representation of oppositional

arguments in the news (Stephens et al., 2009; Woods, 2003; Wolsink, 2000) by highlighting that, besides the arguments about the turbines' potential negative local impacts, this discourse was salso rich in oppositional global-level arguments. These arguments can also be broadly linked to public engagement processes, more specifically, to the involvement of the public in the decision-making process about local wind farm proposals. Based on the analysis of journalistic discourse, it can be argued that even though the current planning policies moved towards greater devolution of power to allow local communities to have more say in the planning decisions (DCLG, 2013; Eagle et al., 2017; see also Section 1.1.3), local opponents may still feel powerless when it comes to debates about onshore wind farm proposals. This perceived lack of control to influence the planning decisions may in turn encourage them to take even more frequent an effective actions to voice their oppositional opinions.

Furthermore, the contextual analysis in the current study also evidenced that the number of oppositional arguments featured in the news reports decreased over the course of the planning process, even though the number of arguments considered at appeal did not decrease from the number of objective arguments previously raised to the local councils. Moreover, in some cases, less effective oppositional arguments were removed from the planning agenda in the final appeal stage. In the wind farm literature, similar tendencies of oppositional argument development have been observed previously in the Dutch news (Wolsink, 2000), and the current findings reinforce the idea that protestors learn to become more strategic communicators during the lengthy onshore wind farm planning process (van der Horst, 2007). Furthermore, by employing the CDA approach, the evolution of opponents' communication strategy can be interpreted as an effort to become as powerful as the actors representing the other side of the argument (i.e. wind farm developers). Therefore, the CDA analysis identified a discursive construction of a power struggle whereby oppositional groups aimed to alter the hierarchical relationship entailed in the decision-making process in order to elevate themselves from medium-power actors to high-power actors to gain more influence on the planning decisions.

The most frequently referenced local supportive arguments in the current media study referred to the proposed wind farms' ability to create new jobs while also argued for the suitability for the proposed sites for hosting wind farms. However, it is important

to note that in this particular research area, which is relatively affluent (see Section 2.2.1), the economic argument may not be as convincing as it would have been in other economically deprived areas where wind farm could be seen as economic catalysts (Rygg, 2012). There were also several global arguments which were frequently included in the supportive wind farm discourse, such as the wind farms ability to contribute to mitigating climate change and increase renewable energy production. In general, the supportive discourse contained more abstract (i.e. global) arguments about wind farms that the oppositional discourse. This tendency was again in line with previous findings in the wind farm literature (e.g. Demski, 2011; Ellis & Robinson, 2007; Haggett & Toke, 2006; Jones et al. 2010) but the current media study is the first wind farm study to provide evidence about the abstractedness of arguments specifically in journalistic discourse.

The second main question of the current media study aimed to understand whether and how the portrayal of oppositional and supportive actors differed from each other in the journalistic discourse. Firstly, the actors featured in the examined news articles were assigned into one of the three power categories according to their ability to influence the planning outcomes and according to how objectively they were supposed to act (see also Section 1.1.3). These were: 1) high power actors who were expected to be highly objective (e.g. local councillors, consultants), 2) medium power actors (e.g. spokesperson of campaign groups, residents living in the close vicinity of the proposed sites, local businesses), and 3) low power actors with vested interest in the wind farm proposals (e.g. groups of residents, people with associated with the wind farm developers).

The current analysis consistently found several differences in the examined local news reports with regards to the ways in which oppositional and supportive actors were presented and described in the journalistic discourse. Firstly, the most frequently referenced oppositional actors were influential and supposedly objective, while the most frequently referenced supportive actors were less influential and less objective. Secondly, these oppositional actors had a diverse range of roles, occupations and interest in the proposals (e.g. locally elected politicians, affected residents, consultants, business owners, artists, and members of various NGOs and charities), while the supporters featured in the local news consisted almost exclusively of those people who worked for the wind farm companies. As a consequence, the language that project

supporters used was overwhelmingly technical, scientific, repetitive, which was in stark contrast with the elaborate, varied and easily understandable vocabulary employed by project opponents. This kind of technical language used by project supporters has previously been observed in the analysis of planning documents as well (e.g. Jones et al., 2010; Ogvilie & Rootes, 2015). Furthermore, oppositional actors were numerically overrepresented compared to supportive actors in the news reports. These characteristics of the journalistic representation of supportive actors might have contributed to the oppositional viewpoints being more widely shared within host communities than supportive views, which is in line with the argument made based on previous interview-based wind farm case studies (e.g. Anderson, 2013; Loring, 2007; Wheeler, 2017).

In addition by using CDA, the current study was also able to draw conclusions from the way supporters were discursively represented and from the observation that supportive actors were relatively infrequently quoted in the news media. Namely, while the media study of Eltham et al. (2008) could not perform an analysis on supportive actors because they were significantly underrepresented compared to project opponents, the related finding of this study was interpreted by using CDA as an important factor in shaping public perceptions. Therefore, CDA can make a significant contribution to the literature concerned with the media representation of supportive actors by highlighting that the absence of these actors can be interpreted as a discursive strategy that delegitimised supportive actors and their viewpoints and legitimised oppositional actors and their viewpoints. More specifically, the CDA found that oppositional majority groups were not only expressed in numerical terms but also by using grammatical tools, such as passivisation and nominalisation, to reinforce the perception of an unanimous opposition within the host communities towards the wind farm proposals. Furthermore, the journalistic discourse, including graphic elements used in the news reports, reinforced the notion that oppositional actors were a large and diverse group of influential actors who may have been perceived by the general public as more relatable, legitimate and trustworthy than the more homogenous and potentially more biased group of supportive actors.

The third main question of the current media study aimed to expose whether and how hierarchical relationships might have been presented in the news reports, i.e. how power relationships were portrayed between supporters, opponents and other parties

who were important actors in the decision-making process about the wind farm proposals. The CDA showed that there were a number of discursive practices that enforced the existence of a conflicting and hierarchical relationship between supportive and opposing local residents as well as between national-level and local-level interests. Firstly, as explained in the paragraph above, opponents were presented in the local news as a majority while those local residents who spoke in favour of the wind farms were represented as a minority. Furthermore, the comparative analysis showed that in the case of the proposed Spaldington Airfield wind farm proposal the news reports reported widespread opposition even though the number of supportive letters exceeded the number of oppositional letters received by the local council during the planning process. Therefore, it can be concluded the journalistic discourse tended to provide the impression that the oppositional viewpoints were dominant within the host communities, even if the evidence in the planning documents did not always support this claim.

Secondly, conflicting and hierarchical relationships were found in the journalistic discourse of the news reports and these were expressed with a war metaphor. These conflicting relationships were observed partly on the local level, i.e. a local opponents protecting the area and its inhabitants by fighting a David and Goliath battle against the turbines as intruders. This metaphor was already observed in the CDA conducted by Haggett and Futák-Campbell, (2011), and it can also be broadly linked to the role of place attachment in shaping attitudes towards local wind farm proposals (e.g. Devine-Wright, 2011; Devine-Wright & Howes, 2010; see also Section 1.1.3). However, the current media study was able to expand on our knowledge about this war metaphor by evidencing another conflicting relationship on the level of the decision-making as well, i.e. where the local councilors' decisions were overturned by Planning Inspectors who were acting on the national interests. The war metaphor can be interpreted as a representation of opponents' effort to challenge the current power relationships which existed between the nation's interest to increase the installation of renewable energy developments and the local interest to influence the decision about the local environment. This conflict draws attention again to a perceived lack of control that opponents may have experienced if they felt that they could not sufficiently influence the decisions that shape the future of their environments.

2.6.2 Implications for the democratic deficit model and the social gap

This section details the implications of the current media study for the proposed democratic deficit model, the theories underpinning model and for the social gap phenomenon. The results of the current media study contributed to the literature about the spiral of silence theory (see Section 1.3.3) and the SARF (see Section 1.3.2) in the specific context of media reporting about onshore wind farm siting, and also helped to validate Phase 2 and 3 of the proposed democratic deficit model (see Section 1.3.4).

The spiral of silence theory argues that media reporting can be an in important source of information about opinions climates (Noelle-Neumann, 1974, 1977). The current media study found that journalistic discourse reinforced the impression that there were two conflicting opinion groups with regards to onshore wind farm proposals: an oppositional majority and a supportive minority. Firstly, news reports stated that project opposition is a ubiquitous viewpoint amongst the affected residents. Furthermore, while supportive viewpoints were mainly advocated by a small number of actors who were affiliated with the wind farm developers, the oppositional viewpoints were advocated by a large range of actors. Secondly, in some cases local news also lacked references to supportive letters, which were reported in the planning documents, and these could have further skewed the perceived opinion climate towards project opposition.

The current media study can also inform the spiral of silence theory about the ways in which normative pressure might have been exerted by the perceived dominant group (Neuwirth et al., 2007; Scheufele et al., 2001; Schoemaker et al., 2002), even though these implications must be treated with caution to account for the interpretative nature of the CDA. The main evidence of normative pressure came partly from the lexical choices used to construct the war metaphor, which can be interpreted as signs of hostility towards to project supporters and project advocates. Secondly, certain graphic elements that demonstrated the team spirit within the oppositional group may have put a pressure on project supporters to conceal their own opinions, arguably because of their fear of isolation from other people within their own communities. In turn, this could have increased the tendency of self-silencing amongst project supporters (see Entman & Rojecki, 1993; Moy et al., 2001; Scheufele et al., 2001, Zhou & Moy, 2007) which, in this case, was evidenced by the absence of supportive quotes and of references to supportive local residents in the news reports.

The current study has implications for the SARF about risk communication specifically in the case of the journalistic discourse about onshore wind farm siting. Firstly, supporters' arguments tended to relate to the turbines' potential to mitigate climate change and these were formulated in an overly technical language, which may have contributed to the attenuation of supporters' arguments (e.g. Bakir, 2005; Lorenzoni & Pidgeon, 2006; Smith, 2006). Secondly, supportive actors in the journalistic discourse were almost exclusively those individuals who represented or would have in some ways benefitted from the wind farm proposals, which could have contributed to the perception that these supportive actors were less trustworthy information sources (e.g. Frewer et al., 1996, Kasperson et al., 1992; Poortinga & Pidgeon, 2003). This in turn could have attenuated supportive arguments but attenuated oppositional arguments, which were voiced by higher-power (i.e. more influential and supposedly more objective) oppositional actors in the news.

The current media study also has implications for Phase 2 and Phase 3 of the proposed democratic deficit model. Phase 2 of the proposed model stipulates that project opponents are more active in voicing their opinions than project supporters. The current media study confirmed this prediction by showing that project opponents were more frequently quoted in the news reports, which could be, at least partially, explained by supportive residents' lack of willingness to volunteer to talk to journalists about their own views. The underlying reasons behind opponents' overrepresentation in the news could be linked to their arguments being formulated in an accessible and engaging language and their lack of trust in the wind farm developers (in line with the SARF), and to their fear of isolation from the rest of the community (in line with the spiral of silence theory). Furthermore, an important observation can be made based on the evidence from planning reports which evidenced that project supporters did engage in the planning process but mainly in form of writing letters to decision-makers which were anonymised before they were shared in the planning reports. This could indicate that on a level that does not require public opinion expression supporters did actively seek to express their own views, which further highlights the importance of the normative pressure that project supporters may have experienced.

Furthermore, journalistic discourse may have contributed to supporters' perceived minority position as well by skewing the perceived opinion climate towards opposition. This finding is important for Phase 3 of the proposed democratic deficit

model, which stipulates that biased media representation can reinforces the false impression that project support was a minority viewpoint and project opposition was a majority viewpoint within the host communities. However, it is also important to note that media sources are not the only sources that could help to gauge opinion climates, for example personal communication could also be an important source of perceived opinion climate.

Finally, the current media study has some implications for the literature about the various explanations of the social gap in wind farm siting as well. While the current study was not designed to measure the share of different types of project opponents (i.e. NIMBYs, qualified supporters and place-protectors) presented in the news, the results suggest that the place-protector attitude may be present within the group of project opponents. Firstly, perceiving wind turbines as a visual intrusion to the landscape, which was a frequently reported oppositional argument in the news, has been linked to place attachment (Ellis & Ferraro, 2017). Therefore, the journalistic discourse about this visual intrusion rhetoric can be a qualitative evidence of the turbines' disruption to place attachment. Secondly, the war metaphor found in journalistic discourse employed lexical choices from the military vocabulary, which may also signal the presence of place-protector attitudes. However, it is important to emphasise that the place-protector and the democratic deficit explanations are not competing but complementary explanations to the social gap in wind farm siting (Bell et al., 2013), i.e. project opponents could still be an actual minority and a perceived majority, but the evidence from journalistic discourse indicates that a certain proportion of the oppositional group may consist of place-protectors.

2.6.3 Limitations and future research

The current media study was limited in scope firstly, by only looking at local news reports about the selected wind farm proposal and secondly, by not being designed to explain how journalists decided which topics they featured in the news reports (which is important for Phase 3 of the proposed model). The opinions of the affected local residents about the local wind farm proposals were undoubtedly shaped by additional information provided in national newspapers about the wind energy technology, wind farm impacts and planning policies. Therefore, it would be useful if future studies

looked at the ways in which some of the identified objects representations of power-relations were presented in national newspapers during the same time period. The media(ted) discourse framework would be equally useful for this type of analysis because it has already been successfully applied in a study that examined the discursive strategies in the British media about the greenhouse effect (Carvalho, 2005).

Furthermore, understanding the journalistic practices being employed while selecting newsworthy information about local wind farm proposals would also further our understanding about the democratic deficit in wind farm siting. For example, it would be useful to know whether project opponents actively seek out opportunities to provide input for these articles (which would be important for Phase 2 of the model) and what journalistic practices are employed to ensure that all sides of the project arguments are incorporated in the news (which would be important for Phase 3 of the model). These questions could be answered by conducting interviews with those journalists who collect information about the proposals and who write these news reports. Furthermore, the findings about journalistic practices may also help to tackle the issue of supporters' apathy by providing insights into the ways in which supporters could be encouraged to publicly express their own opinions.

Conclusion

The current media study aimed to examine the journalistic discourse about actors, arguments, and power-relations in the onshore wind farm siting process. The analysis looked at local news reports and planning documents about 8 proposed onshore wind farms in East Riding of Yorkshire, England. The method employed for the analysis was CDA with the analytical framework proposed by Carvalho (2008), which is especially suited for the analysis of news reports about siting debates about renewable energy developments, including the democratic deficit in onshore wind farm siting.

As predicted by Phase 2 of the proposed model, local news reports were overwhelmingly biased towards oppositional views which could be, at least partially, explained by project opponents' greater willingness to publicly express their own opinions. Greater levels of oppositional news reporting could also be explained by the accessible and relatable language that opponents employed and the lack of trust in

project advocates (i.e. those who had vested interest in the proposals), which can inform the SARF about the risk communication in the specific context of journalistic discourse about onshore wind farm siting. Additionally, it can be argued that the war metaphor exposed in the journalistic discourse can be an evidence of normative pressure exerted by project opponents, which is important for the spiral of silence theory. Furthermore, as predicted by Phase 3 of the proposed democratic deficit model, opposition was portrayed as the dominant viewpoint within the host communities, which may have contributed to the perception that project opponents were a majority against the more favourable minority of local residents (which has implications for the spiral of silence theory). Furthermore, the current study provided evidence of existing power relationships being embedded not only into the dynamics between supportive and oppositional actors within the host communities, but also into the planning process which project opponents were actively seeking to challenge in order to gain more control over the decisions concerning their own environments.

In summary, the study highlighted how the discursive construction and representation of oppositional actors actively legitimised their viewpoints while supporters were actively delegitimised. This process of discursive legitimisation and delegitimisation, which was identified in the CDA, clearly provided further nuance to the democratic deficit hypothesis as it evidenced the processes through which power, in this case is social and economical, became manifest within journalistic discourse about wind farm sitting.

Chapter 3

Predicting the democratic deficit: Survey studies with residents living near proposed wind farm sites in East Riding of Yorkshire, England

There have been a number of questionnaire-based survey studies conducted with residents living near existing wind farms (e.g. Bakker et al., 2012; Devine-Wright & Howes, 2010; Eltham et al., 2008; Ladenburg & Dahlgaard, 2012; Ladenburg et al., 2013; Musall & Kuik, 2011; Swofford & Slattery, 2010; Warren & McFadyen, 2010; Wolsink, 2007b). Yet, the wind farm-related activities of affected residents, which they may carry out to advocate their opinions about *proposed* onshore wind farms, have not yet been explored in questionnaire-based studies. Several qualitative studies (e.g. Anderson, 2013; Hindmarsh & Matthews, 2008; Ogilvie & Rootes, 2015; Wheeler, 2017) have argued that the relative difference between project supporters and opponents in the frequency of their wind farm-related activities (which is important for Phase 2 of the proposed democratic deficit model) may play an crucial role in the effectiveness of oppositional campaign groups to influence both the perceived opinion climate (which is important for Phase 3 of the proposed democratic deficit model) and the planning outcomes about these proposals. To enhance our understanding about the mechanism behind the emergence of a democratic deficit in onshore wind farm siting, the current survey study aimed firstly, to measure whether opponents and supporters of two proposed wind farms in East Riding of Yorkshire differed along key variables that are important for the proposed democratic deficit model and secondly, to identify predictors of wind farm-related activity.

This chapter is divided into five main sections. The first section will explain the rationale for the current survey study. The second section will detail the background to the hypotheses of the study. The third section will explain the context, method and results of the Cottam Airfield survey study (Study 1), while the fourth section will detail the context, method and results of the Bagletts wind farm survey study (Study 2). The final section will discuss the results of the studies and will link these to the proposed democratic deficit model, the theories underpinning the model and to the social gap in wind farm siting.

3.1 Rationale of the current survey study

The Cottam Airfield wind farm proposal was chosen for the first study of this PhD project after attending the 'drop-in day' event of RWE Innogy UK in Driffield (see Section 1.2.3). This case was found to be especially suitable for a survey study because I would have been able to observe the unfolding of this proposal, and the potential emergence of a democratic deficit, from the beginning of the process. Therefore, the agreement was made with RWE Innogy UK that allowed me to follow-up this process, partly by using surveys but potentially by interviewing affected residents as well. Study 2 was conducted with residents living the proposed Bagletts wind farm, after two key limitations of Study 1 have been identified. Namely, the response rate in Study 1 was relatively low (less than 11%) and approximately a third of the respondents were unaware of the Cottam Airfield wind farm proposal prior to receiving the survey.

These two wind farm proposals were similar in two major aspects: 1) both proposals were located in East Riding of Yorkshire (only 35 km apart from each other), and 2) both proposals were officially announced in Autumn 2013 and therefore the consultation processes regarding both proposals were still ongoing at the time of the data collection. Therefore, these studies can contribute to the under researched area in the wider wind farm literature about attitudes to proposed wind farms (i.e. as opposed to existing wind farms or hypothetical wind farm proposals) and they can also provide information on attitudes and behavioural responses that can indicate the emergence of the democratic deficit around these proposals. The main difference between the two cases was however that the proposed Bagletts wind farm seemed to be more controversial than the proposed Cottam Airfield wind farm based on the information acquired from the local news reports, planning reports and from the local oppositional group. Furthermore, respondents of Study 2 lived closer to the proposed site than respondents of Study 1, and therefore it was expected that the proposed Bagletts wind farm was well known and elicited greater community mobilisation than the proposed Cottam Airfield wind farm proposal. Finally, it is also important to note that both wind farm proposals were withdrawn in August 2015 (shortly after the Bagletts survey's data collection finished) and therefore no further studies could have been conducted with affected residents as part of this PhD project.

Even though the main aims and objectives of this PhD project have not yet been finalised at the time of the questionnaire construction, an initial version of the democratic deficit model was already proposed, and the SARF, the spiral of silence theory and the theory of pluralistic ignorance were already selected to support the model. Therefore, the items included in the surveys were chosen to map the constructs associated with the proposed democratic deficit model (see below) but they also explored other constructs that have been identified in the literature as constructs that could potentially shape local attitudes to onshore wind farms. This exploratory study design is partly a reflection on the lack of prior research efforts that could have directly informed the research about the democratic deficit hypothesis, which made the selection of relevant survey measures difficult. Secondly, it was also anticipated that the survey results may inform the planned interviews with affected residents from the same samples, for example by helping to pre-screen future study participants based on their answers in the surveys (see also Section 5.3.2). Importantly however, the current survey study can help to validate the three stages of the proposed democratic deficit model by exploring attitudes and behaviours to onshore wind farm proposals, which constructs have not yet been studied at this early stage of the siting process.

Phase 1 of the model was informed by measuring the actual attitudes of the respondents (i.e. the extent to which they supported or opposed the proposed wind farms). Phase 2 of the proposed model was validated in this study by identifying whether project supporters and opponents were different along various behavioural measures related to opinion expression, which is also linked to the theory of pluralistic ignorance (e.g. Prentice & Miller, 1993, 1996; Schroeder & Prentice, 1998). Phase 2 of the model was also explored by measuring trust in the wind farm developer which is linked to the SARF (e.g. Frewer, 2003; Frewer et al., 1996; Poortinga & Pidgeon, 2003), agreement with abstract wind farm arguments (Demski, 2011; Ellis & Robinson, 2007; Jones et al; 2010), and negative emotions about the proposal (Cass & Walker, 2009; Devine-Wright & Howes, 2010). Phase 3 of the proposed model was informed by measuring perceived attitudes (i.e. the extent to which respondents identified as members of the majority opinion group), which is linked to the theory of pluralistic ignorance. Finally, the current study also aimed to identify whether a selected set of variables responding to some of the constructs above predicted wind farm-related actions, which is linked to Phase 2 of the model and which is the most

important measure with regards to the emergence of a democratic deficit in wind farm siting.

3.2 Background and hypotheses

This section presents the relevant wind farm literature that informed the hypotheses of the current study. Firstly, previous findings of previous wind farm literature will be discussed by focusing on project-related attitudes, abstractedness of project arguments, trust in the wind farm developer, emotions towards wind farms and wind farm-related actions. The second part of this section will establish the hypotheses and these will be linked to the proposed democratic deficit model as well.

3.2.1 Background to the constructs explored in the current study

Actual and perceived attitudes to onshore wind farm proposals

In the wind farm literature so far, only a few survey studies explored local residents' actual and perceived attitudes to those onshore wind farms that were proposed near to their homes. For example, a study by Jones and Eiser, 2009, 2010) measured attitudes towards potential onshore wind farm sites (i.e. sites that were previously identified by the local council as suitable for the accommodation of onshore wind farms). The study of Jones & Eiser (2009) found a misalignment between actual and perceived attitudes: while half of the respondents had favourable attitudes to potential local wind farms, only a small share of these project supporters believed that the majority of other community members also favoured the developments. Furthermore, several qualitative case studies (e.g. Anderson, 2013; Ellis & Robinson, 2007; Wheeler, 2017) and conceptual articles (e.g. Ellis et al., 2009; Hindmarsh & Matthews, 2008) about onshore wind farm proposals argued that within the host communities there is a false perception that project supporters are a minority. Therefore, there remains a paucity of quantitative evidence about the actual and perceived attitudes towards specific onshore wind farm proposals that have already been circulated in the public domain.

Arguments types in favour and against wind farm proposals

Supporters' tendency to favour more abstract arguments was observed in a document analysis by Jones et al. (2010) who found a difference in the themes raised by project supporters and project opponents during public inquiries. Namely, project supporters often presented more global and abstract arguments in favour of the proposals (e.g. about the wind farms' contribution to mitigating climate change and increasing national energy security) while project opponents mainly presented local arguments against the proposals (i.e. about the turbines' potential direct impacts; see also Section 1.1.2). Similar observations have been made about argument types in other previous wind farm studies as well (Demski, 2011; Ellis & Robinson, 2007) and in the analysis of journalistic discourse in Chapter 2. Jones et al. (2010) linked the abstractedness of project arguments directly to the democratic deficit hypothesis by suggesting that abstract arguments (i.e. project supporters' arguments) may be less motivating to act upon and this may discourage project supporters from expressing their own views.

Trust in wind farm developers

Trust in the wind farm developers was generally found to increase the chances of local wind farm acceptance (e.g. Botetzagias et al., 2015; Devine-Wright & Howes, 2010; Peterson et al., 2015; Jones & Eiser, 2009; Walker et al., 2010; Wolsink, 2012). For example, Devine-Wright & Howes (2010) identified that those affected residents who trusted the wind farm developer and agreed with their general-level arguments about the role of wind energy in increasing national energy security and mitigating climate change (see paragraph above) had more favourable attitudes to an existing wind farm and did not evaluate it as incompatible with the surrounding area. Therefore, local wind farm resistance may not solely stem from opposition to the proposed developments *per se* but also from the perceived untrustworthiness of the developers of commercial wind farms (Jobert et al., 2007; Loring, 2007), and therefore their pro-wind farm arguments may not be perceived to be reliable either.

Emotions about wind farm proposals

It has also been established in the wind farm literature that wind farm proposals are emotive issues amongst affected residents (e.g. Anderson, 2013; Cass & Walker, 2009; Haggett & Futák-Campbell, 2011; Ogilvie & Rootes, 2015; Woods, 2003). For

example, Devine-Wright and Howes (2010) linked negative feelings about offshore wind farm proposals, such as feeling angry and threatened, to place attachment (see Section 1.1.2), which was a strong predictor of local wind farm opposition. Furthermore, Wolsink (2012) argued that the strong negative emotional component of project opponents' attitudes increased their tendencies to participate in the public debates about wind farm proposals, while another qualitative study, albeit in relation to rural pro-hunting attitudes in the UK, also emphasised the role of anger and frustration in driving oppositional activism (Woods, Anderson, Guilbert, & Watkin, 2012).

Wind farm-related activity

Several qualitative wind farm studies (e.g. Anderson, 2013; Ellis & Robinson, 2007; Ogilvie & Rootes, 2015; Szarka, 2004; Toke, 2005; Wheeler, 2017) have argued that project supporters tend to engage in less frequent wind farm-relates actions than project opponents. Yet, people's tendencies to express their own opinions about local wind farm proposals through wind farm-related behaviour has only been subject to a small number of questionnaire-based studies. For example, the study by Devine-Wright and Howes (2010) measured the self-reported behavioural responses of local residents living near offshore wind farms in Wales, by capturing the frequency that respondents had undertaken various specific actions during the previous planning process (e.g. writing to politicians, signing a petition, joining a group). This offshore wind farm study found that stronger levels of place attachment were associated with higher frequency of behavioural responses to the proposal (and place-attachment was linked to project opposition).

Additional behaviour-related results came from an Australian questionnaire-based online study conducted by Read et al. (2013) that utilised the theory of planned behaviour (TPB) as a framework to evaluate intensions to oppose wind farms. The TPB is a concept initially proposed by Icek Ajzen (see Ajzen, 1991; Ajzen & Fishbein, 1980) which stipulates that people's behavioural intentions and behaviours are shaped by three psychological antecendents: 1) attitudes, 2) subjective norms (i.e. beliefs about the normative expectations of others) and 3) perceived behavioural control (i.e. beliefs about the ease or difficulty of performing the behaviour in question). The TPB states that in general, the more favourable the attitude and the subjective norm, and the greater the perceived behavioural control, the stronger the individual's intention is to

perform the behaviour in question. The results of the TPB study of Read et al. (2013) showed that subjective norms (i.e. perceived pressure from family, friends and other members of the community) and past behaviour were significant predictors of the intentions to oppose a hypothetical local wind farm. However, the results of this TPB study must be interpreted with caution because study participants were at the time not affected by wind farm proposals (although they reported that they lived within 10 km of an existing or proposed wind farm).

3.2.2 Linking the survey studies to the democratic deficit model

This section aims to explain how the survey studies in this chapter were designed to validate the proposed democratic deficit model (see Section 1.3.5) by surveying residents who were facing local wind farm proposals that were in their early stages of the planning process. The survey studies in this chapter are one of the few studies in the literature that targeted residents living actual onshore wind farm proposals specifically. It was crucial to conduct these survey studies during this initial stage of the planning process because the democratic deficit model was best informed about actual attitudes and behaviours to wind farm proposals when focusing on residents who were in a situation where a democratic deficit could have emerged (i.e. as opposed to residents living existing wind farms).

Firstly, it was anticipated based on Phase 1 and Phase 3 of the model that project supporters were an actual majority but they perceived themselves as a minority. Discrepancies between perceived and actual attitudes amongst supporters were already identified in the literature and this observation has been linked to social influence processes (e.g. Anderson, 2013; Jones & Eiser; 2009; Wheeler, 2017). Therefore the results can also inform the theory of pluralistic ignorance (Prentice & Miller, 1993, 1996; Schroeder & Prentice, 1998) in the specific context of onshore wind farm siting.

To enhance our understanding about Phase 2 of the proposed model, it was also important to measure tendencies to engage in wind farm-related actions (Devine-Wright & Howes, 2010; Read et al., 201) as well whether opponents and supporters of wind farm proposals differed along certain variables that may have had an impact on their willingness to engage in wind farm related actions. These were firstly, agreement with abstract project arguments, which was suggested to be less motivating for the

individual (Jones et al., 2010) and less convincing for others (Demski, 2011) than arguments about direct impacts. Secondly, lack of trust in the wind farm developer has been proposed to increase wind farm-related action to prevent the proposals (Jobert et al., 2007; Loring, 2007; Wolsink, 2012), and this construct was also raised as an important factor influencing risk-related behaviour by the SARF as well (e.g. Frewer, 2003; Frewer et al., 1996; Poortinga & Pidgeon, 2003). Finally, more negative feelings about local wind farms appeared to be linked to more willingness to take part in wind farm related action (Anderson, 2013; Wolsink, 2012; Woods, 2003) and therefore project supporters were expected to have less negative emotions, and carry out less frequent wind farm-related actions, with regards to local onshore wind far proposals than project opponents. The hypotheses of the current survey study and the links between the hypotheses and the proposed democratic deficit model are shown in Table 3.1 below.

Table 3.1 Linking the hypotheses of the survey study to the democratic deficit model.

Hypotheses	Corresponding phases of the proposed model
H_1: Project supporters are an actual majority.	Phase 1
H_2: Project supporters perceive themselves as a minority.	Phase 3
H_3: Project supporters agree with abstract project arguments more than opponents.	Phase 2
H_4: Project supporters trust the wind farm developers more than opponents.	Phase 2
H_5: Project supporters have less negative emotions about the proposal than opponents.	Phase 2
H_6: Project supporters are less active than opponents.	Phase 2

3.3 Study 1

This section will first explain the contextual background of the proposed Cottam Airfield wind farm (Study 1). The second section will outline the method of Study 1, including details about sample characteristics, the data collection procedure, and the measures and design of the Cottam Airfield survey. Then, it will provide the statistical analysis of the responses to the questionnaire.

3.3.1 Background to the Cottam Airfield wind farm proposal

Information about important events and the timeline of the development of the proposed Cottam Airfield wind farm was acquired from the following sources: 1) observations during the drop-in day event, 2) consultation reports, and 3) local news reports. The developer of the proposed Cottam Airfield wind farm was RWE Innogy UK who planned to build up to 10 turbines with the maximum height of 116 meters at a former WWII airfield. This site was located about 3.5 km away from the nearest residential areas of Langtoft, Garton on the Wolds and Sledgemere (see Figure 3.2 in Section 3.3.2). A summary of the context and background to proposed Cottam Airfield wind farm are shown in Table 3.2 below.

Table 3.2 Features of the Cottam Airfield wind farm proposal.

Project details	***Cottam Airfield proposal***
Current land use[a]	Former WWII airfield
Wind farm developer[a]	RWE Innogy UK
Number of turbines proposed[a]	Maximum 10
Turbine height to blade tip[a]	Maximum 116m
Distance to residential area[a]	Approximately 3.5km
Proposed community fund[a]	£90,000 per year
Planning submission[b]	Not yet submitted
State of proposal[b]	Abandoned on the 26th August '15
Consultation information	
Public engagement event[c]	30th Nov '13 (attended)
Main public argument in favour[c]	Need for renewable energy to mitigate climate change, Appropriate site
Main public arguments against[c]	Cumulative visual impact, Inefficient technology
Reported public attitudes[c]	34.5% supportive, 65.5% opposed
News reports	
Number of news reports[a]	9
Local opposition group[a]	None
Oppositional protest[d]	None
Main oppositional objects[d]	Visual impact
Main supportive arguments[d]	Public engagement, climate change mitigation, renewable energy targets, energy security

[a] Source: Publicly known information about the proposal
[b] Source: DECC database
[c] Source: Consultation reports
[d] Source: Local news reports

Public engagement event

Before the first public engagement event took place, booklets including invitations to the public exhibition event, feedback forms and freepost envelopes were blanket delivered to every household within 10 km of the proposed wind farm site. This poster-style exhibition was designed and run by Pegasus Group while various experts (i.e. landscape specialists, ecologists and engineers employed by the wind farm company) were also present to provide specific information about the plan, which was in its early stages, i.e. prior to submission of the plans. Local residents attending this event were also asked to provide information about their gender, age and location using stickers (see Figure 3.1. below) and to suggest view points for photomontages (i.e. computer generated pictures showing what the wind farm might look like from specific locations). By personal correspondence, I was informed that the attendance of this event was higher (N = 122) and the public opinions were more supportive towards the proposal than at other similar events of RWE Innogy UK. Furthermore, no local opposition groups were formed against the wind farm proposal either.

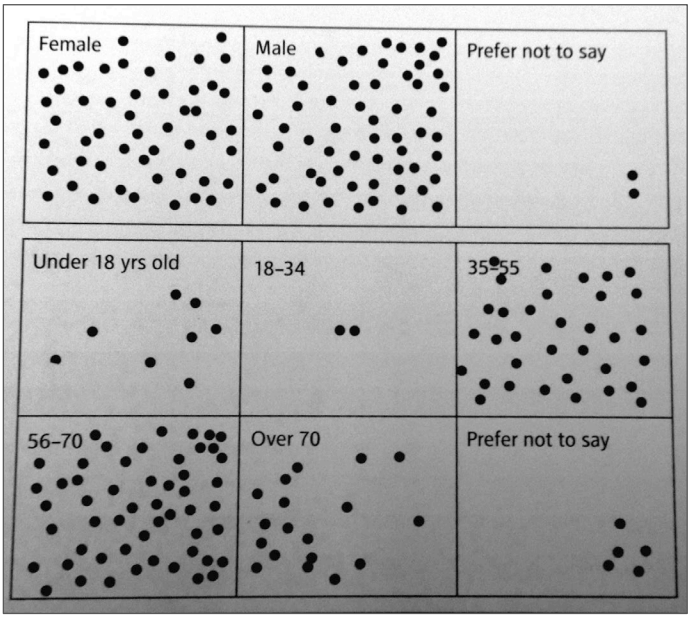

Figure 3.1 Consultation tool used at the drop-in day event of the proposed Cottam Airfield wind farm. Source*: Photograph by Author.*

Preliminary consultation report

A consultation report was published by Pegasus Group (2014) about the practices and the outcomes of the initial public engagement period about the proposed Cottam Airfield wind farm. According to this report, Pegasus Group first ran two informal round-table discussions with 21 representatives of the towns, parishes and wards within 15 km of the proposed site. These workshops generated feedback about a potentially effective consultation strategies (e.g. advice about notice board locations, stakeholders and press sources) which were then fed into the design of the drop-in day event detailed above. The preliminary report also summarised the results of the 319 feedback forms received from local residents via the freepost envelope and through the project's website. This report included a qualitative analysis of the comments received which concluded that 65.5% opposed and 35.5% supported the proposal. The key argument of supporters for the proposed wind farm was the need to increase renewable energy production. Furthermore, project supporters also stated that the chosen site was appropriate for the development and they also enjoyed the visual appearance of the turbines. Project opponents on the other hand were concerned about the turbines' potential adverse visual impact on the particular landscape, the cumulative visual impact of this and other wind farms in the area, and about the perceived lack of efficiency of onshore wind energy technology.

Newspaper coverage

Similarly to the results of the media analysis shown in Chapter 2, the potential visual impact on the exceptionally beautiful and unspoilt landscape was the most frequently discussed objection in the local newspaper articles published about the proposed Cottam Airfield wind farm. However, other common oppositional objections identified in Chapter 2 (e.g. cumulative impact, ground radar interference, noise impact, impact on tourism, etc.) were notably absent from these articles. Furthermore, besides the previously identified supportive actors (i.e. people associated with the wind farm proposal) and oppositional actors (i.e. local politicians and residents), there was a third group of actors present in the news discourse as well. This third group, which focused on the conservation of the environment and was neutral in their attitudes to renewable energy development in the area, consisted of: 1) local residents who proposed that wild flower meadows could be established on the site as a way to improve the potential

negative visual impact, and 2) local councillors who requested a feasibility study of a solar scheme on the same site from the developer as an alternative to the proposed wind farm. Finally, media reports about the Cottam Airfield case also promoted the public engagement process, whereby 6 out of the 7 articles gave detailed information about the ways in which locals may take part in the initial consultation about the proposal.

3.3.2 Method

This section consists of three main parts. The first part will explain the characteristics of the respondents of the survey. The second part will explain the study's procedure, including the survey distribution and the response rate of Study 1. The third part will focus on the survey design and the measures used to test the study' hypotheses.

Sample

Respondents' age in the Cottam Airfield survey ranged between 31 and 89 years (N = 80, M = 60.60; SD = 13.02), and 56.3% of them were male and 43.7% were female (N = 87). On average, respondents had lived in the local area for 22.91 years (N = 86, SD = 18.63), 84.2% owned their house they were currently living at (N = 76) and these homes were on average 7.11 km away from the proposed wind farm site (N = 84, SD = 3.94). Regarding employment activity, 44.4% were at the time of the survey in some form of employment and 45.6% were economically inactive (N = 71). Finally, 45% of the respondent had a university degree or a professional qualification, 36.2% gained either O-levels or GCSEs or A-levels, while 18.8% gained no educational qualifications at all (N = 80). Amongst those who opted in to the prize draw, two respondents received a £40 Amazon voucher for their participation. The demographic details of the respondents as well as the relevant population figures from the 2011 Census (see www.nomis.com/census) are shown in Table 3.3 below.

Table 3.3 Overview and comparison of demographic variables of the Cottam Airfield study and the 2011 Census data.

Variables	Responses	
	Survey data	Census data[a]
Age (years)	Average of 60.60	-
Gender		
Male	56.3%	-
Female	43.7 %	-
Highest level of qualification		
No qualification gained	18.8%	22.5%
O-level/GCSE/A-level	36.2%	47.2%
University/professional qualifications	45%	30.3%
Economic activity[b]		
Economically active	44.4%	72%
Economically inactive	45.6**%**	28%
Home ownership		
Own/paying mortgage on	84.2%	66.6%
Rent	15.8%	33.4%
Distance from the site (km)	Average of 7.11	-
Length of residency (years)	Average of 22.91	-

[a] The 2011 Census data was provided for the same postcode sector as the survey site (i.e. YO25 3) for residents aged 16 and over, except for 'economic activity' which was provided for residents aged 16-74 years

[b] 'Economically active' refers to being in employment (full-time, part-time or self-employed); 'Economically inactive' refers to being retired, unemployed, studying, and looking after home or family

Based on the information of the most recent Census data it can be concluded that respondents of Study 1 were older, acquired higher levels of education, were more likely to own their homes and tended to be less economically active than the general population in the respective area (similarly to Devine-Wright & Howes, 2010), which should be considered when making a generalisation from the current study.

Procedure

The research area of the Cottam Airfield wind farm survey was the YO25 3 postcode area (see Figure 3.3 below). This postcode area, instead of an area of a fixed radius around the proposed site, was used because this was the requirement of the distribution company. Therefore, the distance between the border of the survey area and the proposed Cottam Airfield wind farm site varied between approximately 4-12 km. In

July 2014, a distribution company was commissioned to blanket deliver one survey package to each of the 647 households registered in the postcode area. The survey package contained two surveys with information sheets and a freepost envelope. The information sheet explained that any resident who was 16-years or older and lived in the household was invited to fill in and return a survey. Furthermore, the information sheet contained a link to the online version of the survey to be accessed by those respondents who preferred to fill in the survey online. This method was deemed suitable because when a mixture of paper-based and online surveys were used by Warren & McFayden (2010) the statistical checks revealed no consistent differences between the two surveying techniques. A reminder leaflet was distributed to the same households as well by the same company three weeks after the initial survey distribution.

Figure 3.2 Survey area and wind farm site in the case of the proposed Cottam Airfield wind farm. Author's own illustration.

As the response rate was only 9% two months after the survey distribution, local residents were phoned individually in order to increase the response rate. Contact details of 205 households in the distribution area were acquired from the relevant phone book. Phone calls were then made to these numbers in an attempt to raise awareness of the surveys and to answer the questions that residents may have had about the survey. Then, additional surveys with freepost envelopes were sent to those who reported that they had not yet filled in the survey but wanted to participate in the

study. These surveys were individually addressed to those who requested them with a handwritten post-it note request affixed, which method was previously shown to increase completion rates (Garner, 2005).

This survey collection process took four months to complete during which a total of 98 responses were successfully received (96 responses via freepost and 2 online submissions). To be incorporated in the statistical analysis at least three quarters of the items in the questionnaire had to be answered (the criterion of a minimum 75% completion rate was deemed acceptable based on the wind farm case study of Jones et al., 2011). Using this selection criterion, a final sample of 91 respondents was attained from 69 households (response rate of 10.6% based on household numbers). A summary of the data collection process and the response rates achieved in Study 1 are shown in Table 3.4 below.

Table 3.4 Summary of data collection in Study 1.

Features of Study 1 procedure	**Cottam Airfield study**
Date of survey distribution	8th July 2014
Type and date of reminders	Postal (1st August 2014) and phone calls (8th - 21st October 2014)
Date of survey collection	10th July - 11th November 2014
Distribution method	Blanket delivery
Distributors	Distribution company
Response rate	10.6%

Materials and design

The questionnaire design entailed: 1) information about the research project and about the wind farm proposal (e.g. number of proposed turbines, location, name of the wind farm developers), 2) measures (see below), 3) demographics section, and 4) optional opt-ins to take part in future studies related to the wind farm proposal and in a prize draw. The reading age of the questionnaire was 6-8 years with a Flesch-Kincaid reading ease score of 5.3 (Kincaid, 1975), and therefore it can be assumed that the text was easily understandable for the respondents.

The measures used for the Cottam Airfield survey study are shown in Appendix 1 and the links between the relevant measures and the hypotheses are shown in Table 3.5 below.

Table 3.5 Linking the measures to the hypothesis of the survey study.

Hypotheses	Corresponding measures
H_1: Project supporters are an actual majority.	Actual project attitude
H_2: Project supporters perceive themselves as a minority.	Perceived majority position
H_3: Project supporters agree with abstract project arguments more than opponents.	Agreement with abstract project arguments
H_4: Project supporters trust the wind farm developers more than opponents.	Trust in the wind farm developer
H_5: Project supporters have less negative emotions about the proposal than opponents.	Negative emotions about the proposal
H_6: Project supporters are less active than opponents.	Willingness to speak out in a perceived minority position Past wind farm-related activity score Future wind farm-related activity score

Awareness about the proposal and the public exhibition event

Three items asked participants about their awareness of the Cottam Airfield wind farm proposal and of the drop-in day event (see also Section 3.3.1), and about their attendance of this event. The response options were 'Yes', 'No' and 'Don't know'. Then, those participants who answered that they were aware of the event were asked to explain their motivations for attending or not attending the event (free-text response option).

Lead-in items

Actual and perceived project attitudes (i.e. perceived majority position) were measured with two self-formulated items. These items were: "I support the construction of the proposed wind farm" and "I think that most people in my local community share my opinion about the proposed wind farm".

Participants were also asked to state the extent to which they agreed with the following self-formulated abstract pro-project arguments: "I think that the proposed wind farm would help to tackle climate change" and "I think that the proposed wind farm would help to improve the UK's energy security". These two items highly correlated with each other ($r = .79$, $N = 80$, $p < .001$) and were made a composite variable.

People's trust in the wind farm developer of the proposed Cottam Airfield wind farm was measured with the following item which was adopted from Devine-Wright and Howes' (2010) study: "I generally trust the developers of the proposed wind farm".

Respondents' opinions about the wind farm proposal and wind farms in general were measured with the following 5 self-formulated items: "I feel well informed about the proposal", "I could openly express my views about the proposed wind farm if I wanted to", "I can influence the decisions being made about the proposed wind farm if I wanted to", "I care about the decisions being made about the proposed wind farm" and "I generally support the construction of onshore wind farms in the UK".

Respondents' opinions about national energy policies and energy security were measured with the following 3 self-formulated items: "I feel well informed about the energy policies of the UK Government", "I am satisfied with the energy policies of the UK Government", and "I am concerned with the UK's energy security".

Respondents were asked to provide the extent to which they agreed with these 13 statements above on a Likert-scale ranging between 1 (Strongly disagree) and 5 (Strongly agree), while the sixth response option was 'Don't know'.

Social gap items

Five self-formulated statements were generated to describe the following types of wind farm-related attitudes: unqualified support, NIMBY, qualified support, democratic deficit and unqualified opposition. There were further two response options as well: 'I have no opinion about the proposed wind farm', and 'I don't know'. Participants were asked to indicate which statement best described their opinion about the proposal. While the social gap typology does not include unqualified supporters, Study 1 aimed to distinguish this attitude type (i.e. those who support for wind farms in general as well as locally) from the 'silent majority' (i.e. those who support the proposed wind farm but were concerned that others did not share their opinion).

Willingness to speak out in perceived minority position

An item measuring people's willingness to speak out in a perceived minority position was adopted from the spiral of silence study of Moy, Domke and Stamm (2001). Respondents were first asked to imagine being at a social gathering where they

perceive their own opinion about the proposed Cottam Airfield wind farm to be a minority viewpoint. Then, they were asked to indicate on a 5-point Likert-scale ranging from 1 (Extremely unlikely) to 5 (Extremely likely) how likely they would be to express their minority opinions in this hypothetical situation.

Emotions about the proposed wind farm

Participants were also asked to indicate how well certain emotions described their feelings about the proposed Cottam Airfield wind farm. These items were based on the emotion items used in Devine-Wright and Howes's (2010) study, and there were two positive emotions ("Happy" and "Calm") and two negative emotions ("Angry" and "Frustrated"). The 4 response options were: 'Does not describe me', 'Somewhat describes me', 'Describes me well' and 'Not sure'. The to negative emotion items highly correlated with each other and were made a composite variable (r = .77, N = 55, p < .001). The two positive emotion items correlated with each other only moderately (r = .54, N = 56, p < .001) and therefore were not made into a composite variable.

Wind farm-related actions

Participants' wind farm-related activity was measured by capturing the frequency that respondents had undertaken and were planning to undertake specific actions. These items were partly adopted from Devine-Wright and Howes' (2010) questionnaire and partly formulated based on the information acquired during the public engagement events about the behaviour that local residents frequently undertook to express their opinions (see Section 1.2.3). There were 3 neutral items (e.g. "Attend an information event about the proposed wind farm", "Participate in the consultation about the proposed wind farm"), 4 anti-wind farm items (e.g. "Write a letter to a local politician against the proposed wind farm", "Sign a petition against the proposed wind farm"), and 4 pro-wind farm items (e.g. "Write a letter to a local politician in favour of the proposed wind farm", "Sign a petition in favour of the proposed wind farm") on this list. There were two columns for the response options, the first one related to past behaviours ('Did in the past') and the second one related to behaviour intentions ('Will do in the future'), similarly to Read et al.'s (2013) study. Participants were asked to only tick a box if they had undertaken the relevant action in the past or planned to undertake it in the future. Individual activity scores were calculated based on the total

number of positive answers to these activity items, where a high score meant a greater frequency to undertake or willing to undertake actions.

Resistance to change

Respondents' inclination to resist changes in general was measured with the Resistance to Change Scale developed and validated by Oreg (2003). The Resistance to Change Scale had a good internal consistency with a Cronbach alpha coefficient reported of .81. In the current study the Cronbach alpha coefficient was .79.

Community attachment and place attachment

Respondents' attachment to their community was measured by adopting two items from Vorkinn & Riese's (2003) study (see also Jones et al., 2011). These items were: "I'd rather live in the community where I live now than anywhere else", "If I had to move away from my local community I would be very sorry to leave". Respondents were asked to provide the extent to which they agreed with these statements on a Likert-scale ranging between 1 (Strongly disagree) and 5 (Strongly agree). The two community attachment items highly correlated with each other (r = .83, N = 88, p < .001) and were made a composite variable.

Respondents' place attachment was measured with two items. The item "The place where I live means a lot to me" was adopted from the study of Williams and Roggenbuck (1989), and the item "I identify strongly with the place where I live" was adopted from the study of Williams and Vaske (2003) (see also Jones et al., 2011). The response options ranged from 1 (Strongly disagree) to 5 (Strongly agree). The two place attachment items highly correlated with each other (r = .79, N = 88, p < .001) and were made a composite variable.

Items not included in the analysis

A measure based on Moy, Domke and Stamm's (2001) study asked participants to provide their estimates in a matrix about the percentage of supportive, opposed and undecided people about the proposed Cottam Airfield wind farm amongst 1) their close friends and family, 2) people living in their community, and 3) other UK citizens. There were 39 respondents who completed this measure and whose answers were mathematically correct (i.e. the rows add up to 100%). This response rate was

considerably lower than the response rate to the perceived attitude item (N = 66), which item was equally suited to answer the study's second hypothesis about supporters' perceived minority position (see Section 3.2.2). Therefore, this measure was not included in the analysis.

Respondents' civic engagement was measured by 4 self-formulated items, which asked about participants' tendencies to attend community events, have interest in local politics and to vote on national elections. This scale did not have a good internal consistency, i.e. a Cronbach alpha coefficient of .50, and the items were neither related to the wind farm proposal nor could be directly linked to the proposed democratic deficit model. For these reasons, the civic engagement items were not included in the analysis.

There were two related items aiming to explore people's perceived media bias. Firstly, respondents were asked whether they had read or heard anything in the local news about the proposal. Secondly, those respondents who answered the first question positively were asked to report how they perceived the nature of these news reports (i.e. biased towards supporters' or opponents' views, or representing balanced views). However, only 8 respondents reported that they heard or read news about the proposal. Because of this low response rate the items were not included in the analysis.

Beliefs about climate change were explored with a measure adopted from Jones & Eiser's (2009) study. Respondents were asked to choose one item that they agreed with the most from a list of 6 items that explored people's beliefs in anthropogenic climate change (i.e. whether climate change is caused by human activities and/or natural processes). This measure did not directly relate to the proposed democratic deficit model or to the wind farm proposal itself. Furthermore, the most recent European Social Survey (ESS; Steg, 2018) found that internationally only 1.9% of ESS respondents believed that climate change is entirely caused by natural processes and only 6.9% believed that it is mainly cause by natural processes. Therefore, using this measure was deemed redundant in the current study and was not included in the analysis.

3.3.2 Results and discussion

This section aims to answer the following three questions: 1) what was the distribution of attitudes towards the wind farm proposal, and 2) was there a difference between project supporters and project opponents along other variables that related to the democratic deficit model and along further variables identified in the wind farm literature, and 3) amongst the factors important for the democratic deficit model, which ones predicted people's engagement in wind farm-related actions. From the current analysis, 'Don't know', 'Not sure' and 'Prefer not to say' responses were eliminated (see Foddy, 1994). The data was analysed with SPSS 20 statistical software.

Awareness about the proposal and the public exhibition event

Amongst all respondents, 65.1% were aware and 34.9% were unaware of the Cottam Airfield wind farm proposal prior to receiving the survey. Furthermore, 22.7% of them were aware and 77% were unaware of the previous public exhibition event, while only 2.4% (N = 2) attended the event. Both of these respondents answered that their motivation to attend the event was to gain more information about the proposal. Amongst those respondent who were aware of the event but did not attend it (N = 18), 9 respondents indicated that they were not available to attend, and the other respondents indicated that reasons for no-show was their agreement with the proposal (N = 3), the belief that they would not gain new information (N = 2), the belief that they would not be able to influence the decision (N = 1) and not being directly affected by the proposal (N = 1). Two eligible respondents did not answer this question.

Social gap items

Regarding respondents' support for wind farms, 30.6% were unqualified supporters of wind farms (including the proposed Cottam Airfield wind farm) while 32.9% were unqualified opponents of all wind farms. Amongst the explanations to the social gap in wind farm siting, 15.3% identified with the qualified support argument, 12.9% identified with the democratic deficit argument and no respondent identified with the NIMBY argument. Additionally, 8.2% reported that they had no opinion about the proposal.

Actual attitudes

The first step of the statistical analysis about actual attitudes was descriptive and it looked at the distribution of actual attitudes and the result is provided on Figure 3.3 below. The share of project opponents (i.e. those who opposed or strongly opposed the proposals) was 48%, the share of project supporters (i.e. those who supported or strongly supported the proposals) was 35.16% and a further 16.48% were undecided about the proposed Cottam Airfield wind farm. In the further steps of the analysis, the responses of those who were undecided about the proposals were not included and actual attitude was transformed as a categorical variable (i.e. oppositional vs supportive attitudes towards the wind farm).

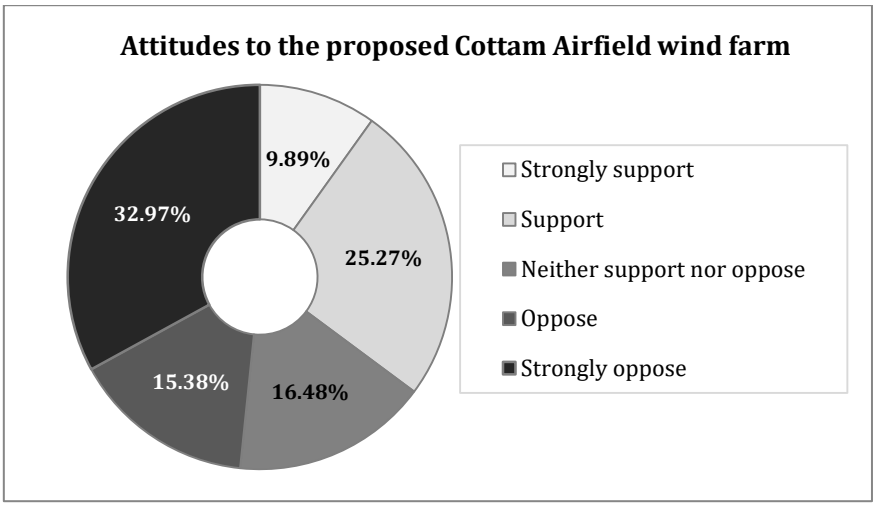

Figure 3.3 Attitudes to the proposed Cottam Airfield wind farm.

The second step was to assess the possibility that the sample was biased towards opponents because, as suggested by previous wind farm case studies (e.g. Jones & Eiser, 2009, see also Section 1.1.3), project opponents tend to voice their opinion more readily than project supporters. This tendency suggests that opponents might have been, at least to some extent, overrepresented in the Cottam Airfield sample. The idea that respondents might be different to non-respondents in mail surveys, i.e. the so-called non-response bias, has been an extensively studied methodological problem (see Dillmann, 1991; Kanuk & Berenson, 1975). To overcome this potential measurement error, Ferber (1948, p. 671) demonstrated that later respondents are "in effect, non-respondents" and argued non-response bias could be measured by the use of certain extrapolation methods. The most common type of extrapolation is carried over successive waves of the surveys, whereby those people who respond in later waves

(e.g. after a follow-up card or phone call) are assumed to be similar to non-respondents (Armstrong & Overton, 1977). Therefore, the second step of this analysis also aimed to assess whether people who responded less readily to the surveys tended to be more in favour of the local wind farm proposal in order to provide a more accurate understanding about the actual attitudes of the respondents.

A random sample of the local attitudes of those who responded before the follow-up calls was generated, i.e. 'wave 1 '(N = 14), and it was compared with the local attitudes of those who returned the survey after they were reminded of it and received a new copy of the survey, i.e. 'wave 2' (N = 14). Chi-square test showed no significant association between local attitudes (opposed vs supportive) and whether the surveys were returned in the first or second wave of the survey collection (X^2 (1, N = 24) = 0.89, $p > 0.05$), and therefore non-response bias was not found in Study 1.

Comparing project opponents and supporters

Multivariate analysis of variance (MANOVA) was used to test whether supporters and opponents of the proposed Cottam Airfield wind farm were different from each other on key characteristics that were derived from the proposed democratic deficit model. The independent variable was project attitude (supportive vs opposed). The initially selected dependent variables were: 1) perceived majority position, 2) agreement with abstract project arguments, 3) trust in the wind farm developer, 4) willingness to speak out in perceived minority position, 5) past wind farm-related activity score, 6) future wind farm-related activity score, and 7) negative emotions about the proposal.

The assumption testing for MANOVA revealed that the data did not violate the assumptions for univariate and multivariate outliers, linearity and homogeneity of variance-covariance matrices. The assumption of normality was not met and the data did not become normally distributed after statistical transformations either. However, according to the central limit theorem (Wilcox, 2010) normal distribution can be assumed regardless of the shape of the sample data when samples sizes are large enough (i.e. above 30), such as in the current sample (see also Gravetter & Wallnau, 2016). Furthermore, the correlations were weak between three dependent variables, namely willingness to speak out in minority position, past wind farm-related activity score and future wind farm-related activity score, and therefore separate one-way analyses of variance (ANOVA) were conducted for these variables. The remaining

four dependent variables in the MANOVA were moderately correlated. Finally, Bonferroni correction adjustment was made to the p-value in order to reduce the chance of Type 1 error. The application of the Bonferroni adjustment was carried out by dividing the original alpha level of .05 by the number of comparisons intended to make in the current analysis (i.e. 21 comparisons), giving a new alpha level of .002. The mean scores, standard deviations and p-values for the variables in the MANOVA and in the ANOVAs are shown in Table 3.6 below.

Table 3.6 Mean, standard deviation and p-values in Study 1.

Dependent variables	*Mean*		*SD*		*Sig*
	Project opponents	Project supporters	Project opponents	Project supporters	
Democratic deficit variables					
Perceived majority position	4.37	2.76	.88	.97	**<.001**
Agreement with abstract project arguments	1.85	3.55	.92	.91	**<.001**
Trust in the wind farm developer	1.63	3.47	.74	.62	**<.001**
Negative emotions about the proposal	2.55	1.05	.60	.16	**<.001**
Willingness to speak out in a perceived minority position	3.85	3.59	1.21	1.16	.36
Past wind farm-related activity score	1.00	.34	1.28	.74	.01
Future wind farm-related activity score	3.95	2.56	3.03	2.24	.03
Other lead-in items					
Feeling well informed about the proposal	2.02	2.47	.93	1.01	.05
Feeling able to openly express one's own views about the proposal	3.33	3.42	1.24	1.05	.76
Feeling able to influence the decision made about the proposal	2.10	2.47	1.07	1.00	.14
Caring about the decision made about the proposal	4.15	4.06	1.08	.43	.68
Supporting the construction of onshore wind farms in the UK	1.54	4.28	.86	.52	**<.001**
Feeling well informed about national energy policies	2.41	2.97	1.14	1.03	.04
Feeling satisfied with national energy policies	1.83	2.90	.89	1.12	**<.001**
Being concerned about national energy security	3.85	3.84	.91	.93	.94
Positive emotions					
Feeling happy about the proposal	1.24	2.38	.66	.74	**<.001**
Feeling calm about the proposal	2.07	2.50	.88	.69	.04
Resistance to Change Scale	2.60	2.76	.44	.46	.16
Community attachment	3.92	3.78	1.00	.95	.55
Place attachment	4.09	3.87	.76	.79	.24

$p < .002$; significant results are in bold

There was a statistically significant difference between project supporters and project opponents on the combined dependent variables ($F(4, 39) = 52.68$, $p < .001$; Wilks' Lambda = .15; partial eta squared = .84). When results for the dependent variables were considered separately, the differences to reach statistical significance, using a Bonferroni adjusted alpha level of .002, were perceived majority position ($F(1, 42) = 26.89$, $p < .001$), agreement with abstract project arguments ($F(1, 42) = 30.39$, $p < .001$) trust in the wind farm developer ($F(1, 42) = 72.32$, $p < .001$) and negative emotions about the proposal ($F(1, 42) = 23.36$, $p < .001$).

Three separate ANOVAs were conducted to compare scores by project attitudes on the variables that had outcome correlations that were not suited for MANOVA. There were no differences to reach statistical significance, using a Bonferroni adjusted alpha level of .002. Namely, non-significant differences were observed for willingness to speak out in a perceived minority position ($F(1, 70) = .82$, $p = .36$), past wind farm-related activity score ($F(1, 70) = 6.52$, $p = .01$) and future wind farm-related activity score ($F(1, 71) = 4.69$, $p = .03$).

Thirteen separate ANOVAs were conducted to compare scores by project attitudes on those variables that were not directly related to the proposed democratic deficit model. The differences to reach statistical significance, using a Bonferroni adjusted alpha level of .002, were support for the construction of onshore wind farms in the UK ($F(1, 71) = 248.62$, $p < .001$), feeling satisfied with national energy policies ($F(1, 71) = 20$, $p < .001$) and feeling happy about the proposal ($F(1, 44) = 30.38$, $p < .001$).

Predictors of wind farm-related activity

Standard linear regression analysis was conducted aiming to identify the variables predicting wind farm related activities (which is important for Phase 2 of the proposed model). As the number of factors that could be included in the regression analysis depended on the sample size, the limit of the number of factors was determined by the formula of Tabachnick and Fidell (1996, p. 132), which assumes a medium sized relationship between criterion and predictors. This formula $N \geq 50 + 8\ m$ (where m equals the number of predictors) was chosen because it was shown to be the most reliable amongst the so-called rule-of-thumb sample size estimations for multiple linear regression analysis (Green, 1991). Given this constraint, only 1 predictor variable could be entered into the regression analysis in the Cottam Airfield case ($N =$

64). This variable was perceived majority position (which is important for Phase 3 of the model) based on its relative importance for the democratic deficit model. The dependent variable was past wind farm-related activity score (which is important for Phase 2 of the model).

Assumptions were tested for linearity, outliers and homoscedasticity, with no violations found. However, the assumption for normality was not met and therefore the bootstrapping resampling method (see Fox, 2002) was employed, by using r = 1000 resamples (Hesterberg, 2015) and bias corrected and accelerated confidence intervals (Efron & Tibshiriani, 1993).

The result of the linear regression analysis is shown in Table 3.7 below. A significant regression equation was found ($F(1, 63) = 15.14$, $p < .001$), with an R^2 of .440. The bootstrapped coefficient showed that perceived majority position made a significant contribution to the model ($p < .001$) and it was positively related to the outcome variable (i.e. higher levels of perceived majority position were associated with more frequent wind farm-related actions).

Table 3.7 Linear regression analysis for Study 1. Dependent variable: past wind farm-related activity; with 95% bias corrected and accelerated confidence intervals based on 1000 bootstrap samples.

R^2	.440			
Independent variables	*b*	*BCa 95% CI*	*β*	*Sig.*
Perceived majority position	.417	.178, .674	.440	**< .001**

Method: Enter (significant result is in bold)
b: bootstrapped beta coefficient
β: standardised beta coefficient
BCa 95% CI: bias corrected and accelerated confidence interval

To conclude, project supporters were not found to be a majority opinion group in the sample and project opponent consisted of slightly less than half of the respondents. Several significant differences were found between project supporters and project opponents along the key variables important for the proposed democratic deficit model. Namely, project supporters were less likely to perceive themselves as a majority opinion group, agreed with abstract pro-wind farm arguments more, trusted the wind farm developer more and had less negative emotions about the proposal than project opponents. However, project supporters did not carry out significantly less wind farm-related actions than project opponents, which could be explained by the

generally low average activity scores observed in both opinion groups. Furthermore, the regression analysis found that perceived majority position was a significant positive predictor of past wind farm-related activity score. Yet, because of the relatively low sample size for a regression, it was not possible to control for the possible impact of project attitude on the activity score. Therefore, Study 2 aimed to overcome the limitations of Study 1 by surveying residents living near a more controversial wind farm proposal (which was expected to yield generally higher activity scores) and by aiming to increase the response rate in the second survey.

3.4 Study 2

This section will first explain the contextual background of the proposed Bagletts wind farm (Study 2). The second section will explain the method of Study 2, including the sample characteristics, data collection procedure, and the survey design and materials. Then, it will provide the statistical analysis of the responses to the questionnaire to answer the hypotheses of the current study.

3.4.1 Background to the Bagletts wind farm proposal

This section will provide the contextual background to the proposed Bageletts wind farm proposal based on the information acquired from: 1) a consultation report, 2) personal correspondence with residents living near the proposed Bagletts wind farm, and 3) local news media reports. This information includes details about the proposed developments, the consultation process, the newspaper coverage and the oppositional activities against the proposed Bagletts wind farm.

The developer of the proposed Bagletts wind farm was Lantanier UK who brought forward a plan to build 3 wind turbines, with the maximum height of 125 meters, at a site that has been used for agricultural purposes. This proposed site was relatively close to residential areas: about 700m away from Ellerker parish and within a mile of two other residential areas, namely the parish of Broomfleet and the Southern part of South Cave (see Figure 3.6 in Section 3.4.2). A summary of the features of the proposed Bagletts wind farm can be seen on Table 3.8 below.

Table 3.8 Features of the Bagletts wind farm proposal.

Project details	***Bagletts proposal***
Current land use[a]	Agricultural
Wind farm developer[a]	Lantanier UK
Number of turbines proposed[a]	Maximum 3
Turbine height to blade tip[a]	Maximum 121m
Distance to residential area[a]	Approximately 0.7km
Proposed community fund[a]	£34,500 per year
Planning submission[b]	Submitted on the 16th Dec '14
State of proposal[b]	Withdrawn on the 15th July '15
Consultation information	
Public engagement event[c]	27th November '13 (not visited)
Main public argument in favour[c]	Need for renewable energy to mitigate climate change
Main public arguments against[c]	Proximity to homes, House prices, Inefficient technology
Reported public attitudes[c]	12% supportive, 70% opposed, 18% undecided
News reports	
Number of news reports[a]	7
Local opposition group[a]	Stop Ellerker Wind Farm (SEWF)
Oppositional protest[d]	Beverly, 12th July '14
Main oppositional objects[d]	Cumulative impact, visual impact, impacts on wildlife and health
Main supportive arguments[d]	Public engagement, renewable electricity production

[a] Source: Publicly known information about the proposal
[b] Source: DECC database
[c] Source: Consultation reports
[d] Source: Local news reports

Public engagement event

According to the Statement of Community Involvement report produced by the environmental consultancy agency called ECUS Ltd. (2014), invitations to the public exhibition were distributed to all homes and businesses within a 5 km radius of the site were as well as to the elected local representatives. Those who attended the event (N = 114) were able to receive detailed information about the wind farm proposal from the staff of Lantanier UK, including the viewing of photomontages that showed computer-generated images of the the proposed wind farm from various view points. Attendants were also invited to complete the company's feedback form.

Consultation report

A consultation report was prepared by ECUS Ltd. (2014) and it covered the consultation events undertaken between the 15th-23rd November 2013. A week before the public exhibition event, Lantanier UK sent letters to parish councillors and ward members to invite them to a preview session of the exhibition and issued a press release to local newspapers. Feedback forms were only collected at the public exhibition event (N = 112) and based on these 12% of the attendees of the event were supportive, 70% were oppose and 18% were undecided about the Bagletts wind farm proposal. The main point in favour of the proposal was the need for renewable energy developments to mitigate climate change. By contrast, the oppositional arguments claimed that the technology is inefficient and that the close proximity of the proposed turbines would result in a negative visual impact and would negatively affect house prices as well. As a response to these concerns, Lantanier UK reduced the height of the turbines from 125 m to 121 m.

Newspaper coverage

Of the 7 examined news articles about the proposed Bagletts wind farm 4 were published in regional newspapers (i.e. *Hull Daily Mail* and *Yorkshire Post*) and 3 were published in the quarterly newspaper of the parish (i.e. *Ellerker News*). Based on these news reports, the main oppositional objects related to visual-, cumulative- wildlife and health impacts. These were presented by quoting local residents and councillors (i.e. high-power actors; see Chapter 2) who argued that the wind farm would ruin the natural beauty and the rural character of the landscape and the environment. The main supportive arguments, which were only mentioned in one newspaper article and were articulated by the wind farm developer's spokesperson, highlighted the turbines' potential to increase renewable energy production and the developers' community fund offer, and encouraged people to attend the public exhibition event. Moreover, these news articles pointed the readers to the websites of the oppositional campaign group (see below) but they did not provide a link to wind farm proposal's official website.

Local opposition

The local opposition group called Stop Ellerker Wind Farm (SEWF) was formally announced after the public exhibition event took place. Based on personal

correspondence with the former chairman of Ellerker Parish Council, SEWF claimed to fight against the plan on behalf of approximately 95% of the residents living in the nearest parish, Ellerker (see oppositional signs displayed in Ellerker on Figure 3.5 below). This opposition group had the support of the local council and and participated in a region-wide protest against local wind farms. They also hired the Royal Society for Protection of Birds (RSPB) to carry out their own environmental impact assessment and this report argued that the method used by ECUS Ltd, the environmental agency commissioned by WED Renewables, was flawed. The parish council in Ellerker also requested that my questionnaire study would not be conducted before a final decision about the proposal was reached. Before the survey collection took place, they also advised residents in Ellerker to not to take part in the current study.

Figure 3.4 Anti-wind farm signs in the centre of Ellerker that might have also been used during the Beverly March. Source: Photograph by Author.

3.4.2 Method

This section consists of three main parts. The first part will explain the characteristics of the respondents of the survey of Study 2. The second part will also outline the study's procedure, including the survey distribution and the response rate of Study 2. The third part will explain the study design and the measures used in the questionnaire.

Sample

The respondents' age in Study 2 ranged from 18 to 89 years (N = 175, M = 58.77, SD = 16.39) and 51.6% of the respondents were male and 48.4% were female (N = 186). The length of their residency in the local area ranged from 0.5 to 89 years (N = 184, M = 27.12; SD = 20.05) and 92.2% of the respondents owned their homes (N = 166). These houses were on average only 0.7 miles away from the proposed site (N = 186, SD = 0.19). Regarding respondents' economic activity, 45.8% were in some form of employment while 54.2% were economically inactive (N = 181). And finally, 50.3% gained a University degree or professional qualifications, 30% gained either O-levels or GCSEs or A-levels, and 19.7% had no educational qualifications at all (N = 186). Three respondents were also randomly selected to receive a £40 Amazon voucher in return for their participation. The demographic details of the respondents as well as the relevant population figures from the 2011 Census (see www.nomis.com/census) are shown in Table 3.9 below. Similarly to the Cottam Airfield case, respondents in the Bagletts case were older, more educated, more economically active and more likely to own their homes than the general population.

Table 3.9 Overview and comparison of demographic variables of the Bagletts study and the 2011 Census data.

Variables	Responses	
	Survey data	Census data[a]
Age (years)	Average of 58.77	-
Gender		
Male	51.6%	-
Female	48.4%	-
Highest level of qualification		
No qualification gained	19.7 %	19.5%
O-level/GCSE/A-level	30%	44.5%
University/professional qualifications	50.3%	36%
Economic activity[b]		
Economically active	45.8%	69%
Economically inactive	50.42%	31%
Home ownership		
Own/paying mortgage on	92.2%	86.3%
Rent	7.8%	13.7%
Distance from the site (km)	Average of 0.7	-
Length of residency (years)	Average of 27.94	-

[a] The 2011 Census data was calculated as an average for Ellerker, Broomfleet and South Cave for residents aged 16 and over, except for 'economic activity' which was provided for residents aged 16-74 years

[b] 'Economically active' refers to being in employment (full-time, part-time or self-employed); 'Economically inactive' refers to being retired, unemployed, studying, and looking after home or family

Procedure

Contact information of residents living within 1.5 km from the proposed site, i.e. residents of Ellerker, Crabley Creek, the Western part of Broomfleet and the Southern part of South Cave (see Figure 3.5 below), was acquired from the publicly available version of the electoral roll. This database contained the names and address details of 435 households and one person per household was randomly selected to be invited to fill in the surveys. In May 2015, personalised survey packages were distributed and collected on a door-to-door basis from these individuals. Some of these households were not found or appeared to be vacant during the distribution and therefore the total of 426 survey packages were delivered into the post boxes. These survey packages contained a survey with personalised affixed post-it notes and an information sheet. The date of the collection, which was a week after the distribution, was also clearly signalled on the surveys. Moreover, a postcard reminder was mailed to these respondents before the team returned to collect the surveys. Respondents were invited to leave completed surveys outside their houses on the stated collection date. Surveys were collected from outside the houses or if no surveys were found then the team members knocked on the door and spoke to the occupants. Those individuals who wanted to participate in the study but did no longer have the questionnaire received an additional copy of the survey along with a freepost envelope.

Figure 3.5 The site of the proposed Bagletts wind farm. Author's own illustration.

The collection period lasted for six weeks. Thirty-five respondents reported that they were unable to fill in the surveys (e.g. due to illness or absence from the address). From the remaining 243 surveys received, 30 respondents opted out (i.e. they wrote on the survey or said that they did not wish to take part in the study), 27 surveys were returned blank, and a further 186 surveys were returned either as complete or with omissions. The selection criteria for the surveys to be incorporated in the statistical analysis was that at least three quarters of the items had to be answered (this was based again on the minimum 75% completion rate used by Jones et al., 2011). This criterion left 181 viable respondents in this second dataset (i.e. a response rate of 47.5%[11]). Importantly, each targeted community was well represented in the final sample (i.e. the response rates were 49.9% for Ellerker, 47.5% for Broomfleet and 44.1% South Cave). The summary of the data collection and the response rate achieved in Study 2 are shown in Table 3.10 below.

Table 3.10 Summary of data collection procedure in Study 2.

Features of Study 2 procedure	Proposed Bagletts wind farm
Date of survey distribution	19th May '15
Type and date of reminders	Postal (25th May '14)
Date of survey collection	29th May to 30th June '15
Distribution method	Door-to-door
Distributors	Group of students
Response rate	47.5%

Materials and design

The current study aimed to improve the questionnaire used in Study 1. To increase the response rate in Study 2, the Resistance to Change Scale was removed because it was learnt during the phone calls made to increase the response rate of Study 1 (see Section 3.3.2) that some people found these questions 'too personal' and gave this as a reason for not completing the survey. Additionally, items that related to alternative explanations of the social gap (i.e. social gap items and place attachment items) were removed to better reflect the aim of this dissertation to validate the proposed democratic deficit model specifically. Furthermore, some of the items not included in the analysis of Study 1, namely Moy et al.'s (2001) matrix and the item measuring

[11] Percentage is based upon a maximum total of 391 potential respondents as it discounts respondents that could not be found or who stated that they would not be able to participate.

belief in anthropogenic climate change were also removed. Items about respondents' awareness about the proposal and the public exhibition event were removed from the second questionnaire because respondents in Study 2 lived in the close proximity of the proposed site and therefore they were expected to be aware of the proposed wind farm, which was also confirmed by personal communication made with some residents during the door-to-door survey distribution.

New items were also included in the second survey (see details below). An item was added to the lead-in questions to account for the possibility that respondents' views may have been shifted by the information gathered during the early stage of the planning process (e.g. public engagement event) but this item did not relate to the study's hypotheses. Furthermore, based on the information that the share of respondents who read or heard about the Cottam Airfield wind farm proposal in Study 1 was low, the second survey also aimed to explore respondents' preferences about information sources abut the proposal, but this item did not directly relate to the study's hypotheses either. A scale measuring trust in the wind farm developer was also included in the second survey to allow for a more reliable measurement of this construct than it was possible with a single item. This trust scale corresponds to the fourth hypothesis of the current study and also informs Phase 2 of the proposed model. Finally, two items were added to learn more about the extent to which respondents expressed their opinions publicly. These related to the sixth hypothesis of the study (wind farm-related activities) and aimed to contribute to Phase 2 of the proposed model.

The questionnaire used in Study 2 had the same structure as the survey used in Study 1: background information about the wind farm proposal and the questionnaire, measures (see below), demographic section, and optional opt-ins for future studies and for a prize draw. The reading age of the questionnaire of Study 2 was 6-8 years, with a Flesch-Kincaid reading ease score of 5.3, and therefore it can be assumed that the text was easily understandable for the respondents. The materials used in Study 2 are shown in Appendix 2.

Lead-in items

One additional item was added to the lead-in items in Study 1: 'My views about the proposed wind farm have not changed over time'. The two abstract pro-project

arguments highly correlated with each other (r = 0.90, N = 153, p < .001) and were made a composite variable.

Willingness to speak out in a perceived majority position

The same item was used as in Study 1.

Emotions about the proposed wind farm

The same items were used to measure positive and negative emotions about the proposed wind farm as in Study 1. The negative emotion items highly correlated with each other (r = 0.78, N = 103, p < .001) and were made a composite variable.

Wind farm related activities

The same items were used to establish past and future wind farm-related activity scores as in Study 1.

Trust scale

Trust in the wind farm developer was explored using a scale with 6 items adopted from the survey study of Jones & Eiser (2009). Respondents were asked to indicate whether they trusted the wind farm developer to 1) "Keep local residents informed of the plans as they developed", 2) "Seek local residents' views about the proposal", 3) "Take local residents' views into account", 4) "Tell the truth about any risks that may be involved", 5) "Keep local residents' interests at heart", and 6) "Act fairly when choosing where the wind farm turbines should be sited". There were 5 response options to these trust-related questions which ranged from 'Definitely no' to 'Definitely yes'. The trust scale had a good internal consistency with a Cronbach alpha of .92.

Interest in various information sources

Respondents were asked to indicate their interest in hearing more about the proposed wind farm from the following information sources: 1) East Riding Council, 2) WED Renewables, 3) Supporters of the proposal, 4) Opponents of the proposal, 5) Independent scientists and 6) Local media sources. There were 5 response options which ranged from 'Definitely not interested' to 'Definitely interested'.

Opinion expression in public

Respondents were asked whether they engaged in a discussion about the proposal with 1) their close friends and relatives, 2) someone else from their community (other than their family and friends) whereby the wording of the items was linked to that of Moy et al. (2001) (see Section 3.3.2). The response options were 'No', 'Yes, sometimes', 'Yes, often', and 'Don't know'.

Community attachment

The same items were used to measure community engagement as in Study 1. The two items highly correlated with each other ($r = 0.74$, $N = 177$, $p < 0.01$) and were made a composite variable.

Items not included in the current analysis

The questionnaire in Study 2 included a trust scale and therefore the lead-in item about trust in the wind farm developer was not included in the current analysis. Secondly, the scale measuring respondents' civic engagement did not have a good internal consistency, i.e. a Cronbach alpha of coefficient of .52, and was therefore not included in the current analysis. Finally, only 14 respondents heard or read news about the proposed Bagletts wind farm and therefore the two items exploring media awareness and perceived media bias were not included in the analysis.

3.4.3 Results and discussion

This section aims answer the study's research questions by investigating 1) the distribution of attitudes to the proposed Bagletts wind farm, 2) the difference between project supporters and project opponents along variables that are important for the proposed democratic deficit model and along other wind farm-related variables, and 3) to identify those factors that may predict wind farm-related actions, while controlling for project attitude.

Actual attitudes

The first step of the analysis about actual attitudes was descriptive and it looked at the distribution of actual attitudes (see Figure 3.6 below). The share of project opponents

(i.e. those who opposed or strongly opposed the proposals) was 48%, the share of project supporters (i.e. those who supported or strongly supported the proposals) was 31.07% and a further 20.9% were undecided about the proposed Bagletts wind farm. In the further steps of the analysis, actual attitude was transformed as a categorical variable (i.e. opposed versus supportive) without including the responses of those who were undecided.

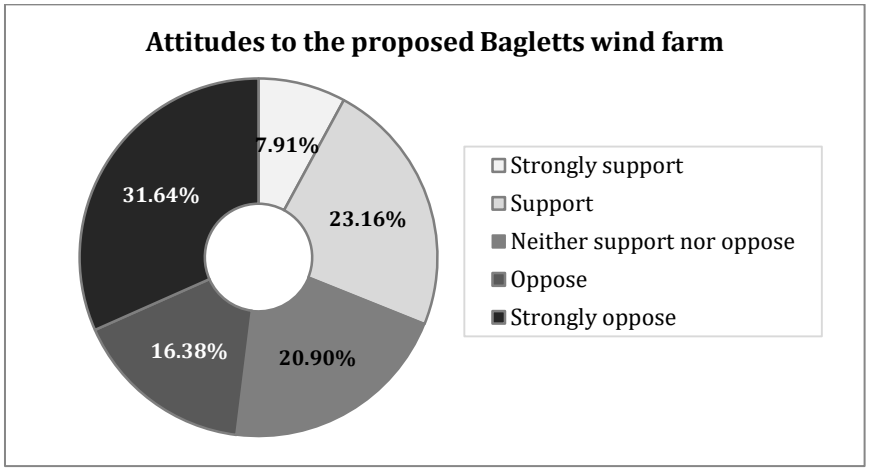

Figure 3.6 Attitudes to the proposed Bagletts wind farm.

The second step was to assess the possibility that the sample was biased towards opponents because, as suggested by previous wind farm case studies. Non-response bias (see Section 3.3.3) was measured in the case of the proposed Bagletts wind farm by comparing local attitudes of respondents in 'wave 1' (N = 46) which consisted of a random sample of the responses who returned their surveys on the collection date, with responses in 'wave 2' (N = 46) which included those whose responses who mailed their surveys in the free-post envelopes that were left in their letter boxes on the collection dates. Chi-square test showed that, with an alpha level set for .002 with Bonferroni adjustment correction, there was no significant association between type of wave and local attitudes (X^2 (1, N = 92) = 3.35, p = 0.03).

Comparing project opponents and supporters

Multivariate analysis of variance (MANOVA) was used to test whether supporters and opponents of the proposed Bagletts wind farm were different from each other on key variables that were anticipated to underpin the emergence of a democratic deficit. The independent variable was project attitude (supportive vs opposed) and the initially selected dependent variables were: 1) perceived majority position, 2) agreement with

abstract project arguments, 3) trust scale score, 4) willingness to speak out in a perceived minority position, 5) negative emotions about the proposal, 6) past wind farm-related activity score, 7) future wind farm-related activity score, 8) tendency to discuss the proposal with family and friends, 9) tendency to discuss the proposal with other community members.

Further preliminary assumption testing was conducted to check for linearity, univariate and multivariate outliers, and homogeneity of variance-covariance matrices, with no violations noted. The assumption of normality was violated but according to the central limit theorem (Wilcox, 2010), parameter estimates of the population have normal distribution when the samples sizes are 30+ (see Gravetter & Wallnau, 2016), as it was in this case. However, the correlations were weak between five dependent variables, namely, willingness to speak out in a perceived minority position, past wind farm-related activity score, future wind farm-related activity score, discussing the proposal with family and friends, and discussing the proposal with other community members, and therefore separate ANOVAs were conducted for these variables. The remaining dependent variables were moderately correlated. The mean scores, standard deviations and p-values of the variables in the MANOVA and in the ANOVAs are shown in Table 3.11 below.

There was a statistically significant difference between project supporters and project opponents on the combined dependent variables ($F(4, 80) = 72.67$, $p < .001$; Wilks' Lambda = .21; partial eta squared = .78). When results for the dependent variables were considered separately, the differences to reach statistical significance, using a Bonferroni adjusted alpha level of .002, were perceived majority position ($F(1, 83) = 17.35$, $p < .001$), agreement with abstract project arguments ($F(1, 83) = 191.62$, $p < .001$) trust scale score ($F(1, 83) = 41.36$, $p < .001$) and negative emotions about the proposal ($F(1, 83) = 72.49$, $p < .001$).

Five separate ANOVAs were conducted to compare scores by project attitudes on the variables that had outcome correlations that were not suited for MANOVA. The differences to reach statistical significance, using an alpha level of .002, was past wind farm-related activity score ($F(1, 138) = 13.55$, $p < .001$). Non-significant differences were observed for willingness to speak out in a perceived minority position ($F(1, 138) = 2.19$, $p = .14$), past wind farm-related activity score ($F(1, 138) = 5.55$, $p = .02$), future wind farm-related activity score ($F(1, 138) = 5.55$, $p = .02$), discussing the

proposal with family and friends ($F(1, 136) = 5.33$, $p = .02$), and discussing the proposal with other community members ($F(1, 135) = 7.17$, $p = .01$).

Table 3.11 Mean, standard deviation and p-values in Study 2.

Dependent variables	*Mean*		*SD*		*Sig*
	Project opponents	Project supporters	Project opponents	Project supporters	
Democratic deficit variables					
Perceived majority position	3.74	2.64	1.15	1.09	**<.001**
Agreement with abstract arguments	1.85	4.21	.79	.59	**<.001**
Trust scale score	2.12	3.35	.90	.64	**<.001**
Negative emotions about the proposal	2.35	1.19	.64	.45	**<.001**
Willingness to speak out in a perceived minority position	3.68	3.41	1.05	1.04	.14
Past wind farm-related activity score	1.84	.60	2.15	1.59	**<.001**
Future wind farm-related activity score	3.98	2.76	3.05	2.91	.02
Discussing the proposal with family and friends	1.89	1.61	.66	.70	.02
Discussing the proposal with other community members	1.65	1.38	.59	.59	.01
Other lead-in items					
Feeling well informed about the proposal	2.36	2.73	1.17	1.32	.85
Feeling able to openly express one's own views	3.22	3.68	1.17	.97	.02
Feeling able to influence the decision made about the proposal	2.18	2.64	1.05	1.06	.01
Caring about the decision about the proposal	4.23	4.00	.96	.74	.13
Having had consistent views about the proposal	3.84	4.13	.87	.60	.03
Supporting the construction of onshore wind farms in the UK	1.94	4.20	1.00	.58	**<.001**
Feeling well informed about national energy policies	2.59	3.24	1.10	1.05	**<.001**
Feeling satisfied with national energy policies	2.31	3.33	.85	.86	**<.001**
Being concerned about national energy security	3.82	4.02	.84	.94	.20
Positive emotions					
Feeling happy about the proposal	1.04	2.44	.26	.68	**<.001**
Feeling calm about the proposal	2.02	2.79	.69	.41	**<.001**
Community attachment	4.19	4.10	.91	.90	.57
Information source of interest					
East Riding Council	3.96	3.79	1.06	1.05	.35
WED Renewables	3.65	3.65	1.30	1.01	.97
Supporters of the proposal	3.34	3.18	1.27	1.25	.52
Opponents of the proposal	3.76	2.72	1.07	1.20	**<.001**
Independent scientists	3.82	3.73	1.11	1.11	.66
Local media sources	3.41	3.06	1.22	1.20	.12

$p < .002$; significant results are in bold

Eighteen separate ANOVAs were conducted to compare scores by project attitudes on those variables that were not directly related to the proposed democratic deficit model. The differences to reach statistical significance, using a Bonferroni adjusted alpha level of .002, were support for the construction of onshore wind farms in the UK ($F(1, 137) = 229.76$, $p < .001$), feeling well informed about national energy policies ($F(1, 130) = 11.00$, $p < .001$), feeling satisfied with national energy policies ($F(1, 124) = 43.46$, $p < .001$), feeling happy about the proposal ($F(1, 94) = 198.48$, $p < .001$), feeling calm about the proposal ($F(1, 98) = 42.10$, $p < .001$) and having an interest to hear more about the proposal from project opponents ($F(1, 115) = 23.88$, $p < .001$).

Predicting wind farm-related activity

Hierarchical multiple regression analysis was conducted to establish the extent to which variables of the proposed democratic deficit model were predictive of past wind farm-related activity score, whilst controlling for the impact of project attitude. The formula of Tabachnick (1996, p. 132), $N \geq 50 + 8\ m$ (where m equals the number of predictors), was used when assessing the number of variables that could be entered into the regression analysis. Based their substantive theoretical importance for the proposed democratic deficit model, the following four predictor variables were initially selected for the regression analysis: 1) project attitude (which is important for Phase 1 of the proposed model), 2) perceived majority position (which is important for Phase 3 of the proposed model, for the theory of pluralistic ignorance and for the spiral of silence theory), and 3) willingness to speak out when in minority position (which is important for Phase 2 of the proposed model and for the two social influence theories) and 4) trust in the wind farm developer (which is important for Phase 2 of the proposed model and for the SARF) ($N = 102$). The dependent variable (i.e. outcome variable) was past wind farm-related activity score.

Assumptions were tested for multicollinearity, linearity, outliers and homoscedasticity, with no violations found. However, the assumption for normality was not met and therefore the bootstrapping resampling method was employed, by using r = 1000 resamples (Hesterberg, 2015) and bias corrected and accelerated confidence intervals (Efron & Tibshiriani, 1993).

The results of the hierarchical multiple linear regression analysis can be observed in Table 3.12 below. A significant regression equation was found ($F(1, 101) = 10.73$, $p <$

.001), with an R^2 of .096, in Block 1. Project attitude was a significant predictor of past wind farm-related activity ($p < .001$) which was negatively related to the outcome variable (i.e. higher levels of project support were associated with less frequent wind farm-related actions). Furthermore, a significant regression equation was found ($F(1, 101) = 4.02$, $p < .005$), with an R^2 of .141, for the model as a whole. The only significant predictor was willingness to speak out in a perceived minority position ($p < .005$) which positively related to the outcome variable (i.e. higher levels of willingness to speak out in a perceived minority position were associated with more frequent wind farm-related actions).

Table 3.12 Multiple linear regression analysis for Study 2. Dependent variable: past wind farm-related activity; with 95% bias corrected and accelerated confidence intervals based on 1000 bootstrap samples.

R^2	.141			
Independent variables	*b*	*BCa 95% CI*	*β*	*Sig.*
Project attitude	-1.397	-2.160, -.565	-.310	**< .001**
Perceived majority position	.020	-.458, .570	.011	.932
Willingness to speak out in minority position	.493	.070, 1.004	.213	**< .005**
Trust scale score	.024	-.555, .590	.011	.948

Method: Enter (Step 1: project attitude; Step 2: other items) (significant results are in bold)
b: bootstrapped beta coefficient
β: standardised beta coefficient
BCa 95% CI: bias corrected and accelerated confidence interval

To conclude, Study 2 replicated the findings of Study 1 with regards to actual attitudes, i.e. project supporters were not a majority opinion group in the case of the proposed Bagletts wind farm either. Furthermore, supporters of the proposed Bagletts wind farm were significantly less likely to perceive themselves as a majority opinion group, agreed with abstract pro-wind farm arguments more, trusted the wind farm developer more, had less negative emotions and had lower past wind farm-related activity scores than project opponents. Furthermore, willingness to speak out in a perceived minority position was a significant predictor of past wind farm-related activity, even when the effect of project attitude was controlled for.

3.5 Discussion

The current survey study explored the wind farm-related attitudes and behaviours of residents living near two onshore wind farm proposals, which were in their initial stages of the planning process. The results can contribute to our understanding about all three phases of the proposed democratic deficit model. Phase 1 is informed by the results about actual attitudes towards the proposed wind farms. Phase 2 is informed by the differences between project supporters and opponents along agreement with abstract project arguments, trust in the wind farm developer, negative emotions and the behaviour-related items. Phase 3 of the proposed model is informed by results about perceived minority position. Furthermore, the analysis also aimed to test selected predictors of wind farm related action, while controlling for project attitudes, which related to perceived majority position (based on the theory of pluralistic ignorance and the spiral of silence theory), willingness to speak out in a perceived minority position (also based on the two social influence theories) and trust in the wind farm developer (based on the SARF).

This section consists of three main parts and it aims to discuss the findings of both survey studies. The first part will address the six main research questions of the current study and will explain how the findings relate to the previous findings in the wider wind farm literature. The second part will detail how the results can inform the proposed theoretical democratic deficit model, the wider democratic deficit literature and other explanations of the social gap. Finally, this chapter will also discuss the limitations of the current study and will explain how future studies could help to address these, before concluding this chapter.

3.5.1 General discussion

The first hypothesis of the current survey study related to actual attitudes to the proposals, and argued that project opponents are a numerical minority while supporters are a numerical majority. The results in both studies failed to confirm this hypothesis by showing that project opponents consisted of marginally less than 50% of the samples while only 31-35% of the respondents were supportive of the wind farm proposals. However, there are reasons to believe that project opponents might be overrepresented in the samples and therefore the share of opponents within the wider

population may be smaller than what the actual attitude figures in the surveys are showing. Firstly, residents in both surveyed areas differed from the general population of the respective areas on various demographic characteristics, only one of which, i.e. higher levels of home-ownership, has been previously shown to be a significant predictor of local wind farm attitudes, namely of oppositional views (Jones & Eiser, 2009). Secondly, while a non-response bias was not found with the adjusted alpha level, the activity levels of opponents was significantly higher than supporters' in the Bagletts case, and it can be argued on this basis that project opponents may have been more likely to take the action of completing the survey as well. Yet, these two additional indicators do not provide firm evidence for biased samples to the extent that project supporters could have been a numerical majority (i.e. above 50% instead of 31-35%) within the general population of the surveyed area. In summary, project supporters did not represent a numerical majority of the affected residents as it was suggested in the democratic deficit literature (e.g. Bell et al., 2005, 2013; Hindmarsch & Matthews, 2008; van der Horst & Toke, 2010) and in Phase 1 of the proposed model.

The second hypothesis of the current study anticipated that project supporters perceived themselves as minority, which was confirmed by the findings of both survey studies. Yet, contrary to the findings of other qualitative wind farm studies advocating that project supporters falsely perceive themselves as a minority (e.g. Anderson, 2013; Hindmarsh & Matthews, 2008), project supporters were correct in their judgements that they represented a majority opinion within the host communities. On the contrary, while project opponents perceived themselves as a minority opinion group, they did not represent a numerical majority, and therefore project opponents' perception of a representing the dominant viewpoint within the host communities, especially the extent to which it was suggested by the SEWF campaign group (i.e. 95% of the affected residents), was incorrect.

The third hypothesis aimed to investigate endorsement of global-level and abstract wind farm arguments. In line with the prediction of this hypothesis and with previous findings in the wind farm literature (e.g. Demski, 2011; Ellis & Robinson, 2007; Haggett & Toke, 2006; Jones et al., 2010), project supporters agreed with arguments about the wind farms' ability to mitigate climate change and increase energy security significantly more than project opponents, in both survey studies. This finding is

therefore not surprising, however important conclusions can be drawn when contrasting this result with the finding that project opponents were also significantly less likely to endorse national-level energy policies and the siting of wind farms in general than project supporters. Namely, it can be argued that objection to onshore wind farms could not only stem from arguments about adverse local impacts but also from a general-level concern about the process of increasing wind energy installations nationally.

The fourth hypothesis aimed to assess the claim that wind farm supporters and opponents differ from each other in terms of their trust in the wind farm developers. In line with the prediction and with other findings in the wind farm literature (e.g. Botetzagias et al., 2015; Devine-Wright & Howes, 2010; Jones & Eiser, 2009; Peterson et al., 2015; Walker et al., 2010; Wolsink, 2012), project supporters trusted the wind farm developers significantly more than project opponents, in both survey studies. Furthermore, because wind farm developers tended to argue for the local wind farm proposals when talking to journalists and during the public engagement events on the basis that these could help to address national energy policies and climate change, these arguments may not have been fully considered by project opponents if they did not trust the wind farm developers as information sources.

The fifth hypothesis of the current study focused on negative emotions about the proposals. In line with the hypothesis and with previous findings in the literature, (e.g. Cass & Walker, 2009; Devine-Wright & Howes, 2010), project opponents were found to have significantly more negative feelings (i.e. anger and frustration) about the proposals than project supporters, in both survey studies. On the other hand projects supporters felt happier, and in the case of the proposed Bagletts wind farm, calmer about the proposals. Furthermore, in the case of the proposed Bagletts wind farm, project supporters were significantly less likely to be interested in hearing more about the proposal from project opponents, which indicates that project supporters wished to stay away from opponents, in line with previous findings of qualitative case studies (e.g. Anderson, 2013; Cass & Walker, 2009; Haggett & Futák-Campbell, 2011; Woods, 2003). Yet, it is important to acknowledge that the complexity of people's emotional responses to these proposals may not have been fully captured by the items used in the survey studies and therefore more information is needed to better address these results. For example, opponents' negative emotions may have related to the tensions within the

community, the decision-making process, the ownership model or to perceived injustice, amongst other potentially important factors.

The sixth hypothesis, which stipulated that opponents were more active than supporters, was tested with a number of behaviour measures. Project supporters were significantly less active than project opponents in the past in the Bagletts case only, whereas there were no significant differences in future behaviour intentions between the two attitude groups in either cases. This could on one hand indicate that project supporters aimed to close this this gap in wind farm-related activities by increasing their involvement in the planning process. On the other hand, based on the TPB study of Read et al. (2013), future wind farm-related behaviour is predicted by past wind farm-related behaviour, and therefore it can be argued that project supporters would have likely remained inactive whereas project opponents would have likely remained more actively engaged in the planning process of the proposed Bagletts wind farm.

Yet, it is a key finding of the Bagletts survey that project opponents were more active in terms of the actual wind farm-related actions they undertook than project supporters, and it is consistent with the arguments of other conceptual articles (e.g. Bell et al., 2005, 2013; Hindmarsch & Matthews, 2008; Ogilvie & Rootes, 2015; Wolsink, 2007b) and survey studies (e.g. Devine-Wright & Howes, 2010; Read et al., 2013; Toke, 2005) in the wind farm literature. The reason for the lack of significant differences on the past wind farm-related activity scale in the proposed Cottam Airfield wind farm could be explained by the general disengagement observed in this case during this very early stage of the planning process.

Finally, the regression analysis in Study 2 also found that when the impact of project attitudes was controlled for, willingness to speak out in perceived minority position was a significant positive predictor of wind past farm-related activity. This unexpected finding indicates that there was a group consisting of both project opponents and supporters who would have readily expressed their opinions about the proposed wind farm in a situation where the perceived opinion climate contradicted their own views. The result about this group who reportedly resisted normative pressure can be addressed by previous findings within the spiral of silence literature, which will be discussed in the section below.

3.5.2 Implications for the democratic deficit model and the social gap

This section will first detail the implications of the current survey study on the three phases of the proposed democratic deficit model (see Section 1.3.4) and will also detail how the results can contribute to the literature about the SARF (see Section 1.3.2), the spiral of silence theory (see Section 1.3.3) and the theory of pluralistic ignorance (see Section 1.3.4) in the specific context of onshore wind farm siting. Finally, this chapter will also link the findings to the place-protector and the NIMBY explanations of the social gap in wind farm siting.

Implications for the proposed theoretical model

While opponents of the proposed wind farms represented marginally less than half the local residents, project supporters were not overrepresented in the samples to the extent it was suggested in Phase 1 of the proposed democratic deficit model. Furthermore, the findings about perceived attitudes did not fully correspond to the assumption of Phase 3 of the model either. On one hand, project supporters correctly estimated that they were in a minority, which goes against the model's prediction that supporters were an actual majority but a perceived minority group. On the other hand, project opponents incorrectly estimated that they were dominant opinion group within the host communities (even though they were the largest opinion group). Therefore, in the context of the proposed Cottam Airfield and Bagletts wind farms, a pluralistic ignorance could not be observed, i.e. the perceived norm (i.e. project opposition) was not only endorsed by as small minority as in other cases about campus drinking (Prentice & Miller, 1993) and body type preferences (Chia & Gunther, 2006), for example. Yet, the results also showed that project opponents incorrectly perceived themselves as a majority, and this result highlights the possibly that a pluralistic ignorance could emerged later on during the planning process if project support would have increased as a result of a public engagement process yet at the same time supporters would remain relatively inactive compared to project opponents, in line with the findings of the TPB study of Read et al. (2013).

The findings of the current study can also contribute to our understanding about Phase 2 of the proposed democratic deficit model. Namely, in line with the models' predictions, project supporters were less actively engaged in the planning process, agreed with abstract pro-wind farm arguments more, trusted the wind farm developers

and had less negative emotions about the proposals than project opponents. Yet, trust in the developer did not predict wind farm-related action, when the effect of project attitudes was controlled for. The current survey studies did not have large enough samples sizes to explore whether negative emotions and agreement with abstract project arguments were predictive of wind farm-related actions.

The distrust that project opponents felt towards the wind farm developers is also in line with the findings of the SARF literature (e.g. Frewer, 2003; Frewer et al., 1996; Kasperson, Golding, & Tuler, 1992; Poortinga & Pidgeon, 2003) yet trust was not a predictor of wind farm-related attitudes (when the impact of project attitude was controlled for). This draws attention to the limitation of SARF being an explanatory framework: it can explain that trust plays an important role in risk communication but it can not make predictions about people's actions based on how trustworthy they find the information source.

Furthermore, an important finding of Study 2, which relates to both Phase 2 and Phase 3 of the model, was that those respondents (i.e. project supporters and project opponents) who indicated that they were likely to speak out about their opinion about the Bagletts wind farm proposal in a perceived minority position were also more likely to have engaged in previous wind farm related activities. This finding contradicts the prediction of the spiral of silence theory that people in a minority position feel a pressure to conceal their stands (e.g. Glynn, Hayes, & Shanahan, 1997, Moy, Domke, & Stamm, 2001; Scheufele et al., 2001) yet the spiral of silence theory is also able to explain the above mentioned finding. Namely, some authors in the spiral of silence literature (e.g. Baldassare & Katz, 1996; Matthes, et al., 2010; Noelle-Neumann, 1974) who explored the role of attitude certainty found that those individuals who held strong opinions about the target issue (i.e. the 'hardcore group'; see Noelle Neumann, 1974) were more able to resist self-silencing than people with low or moderate attitude certainty. Therefore, it can be argued that there was a group of people in the Bagletts sample with strongly supportive or oppositional views about the proposal who advocated their views regardless of the perceived climate of opinion.

Further implications for the democratic deficit hypothesis

The results above highlight that some key aspects of how perceived minority position influences people's wind farm-related activities remain unknown. For example, larger

sample sizes would have allowed to investigate questions about the frequency of wind farm related activities of different 'minority groups', i.e. project supporters/opponents who are susceptible to self-silencing and project supporters/opponents who are not. In this respect, borrowing from the collective action literature (e.g. Liu et al., 2018; Zomeren, Postmes & Spears, 2008; Wolsink, 2000) and from the NIMBY hypothesis (e.g. Botetzagias et al., 2015; Gross, 2007; Wolsink, 2007), might shed light on the validity of the idea that opponents in a perceived minority position might be galvanised to act against the proposal if they perceive a salient injustice, which was indicated by their lack of agreement and satisfaction with national energy policies that encourage wind energy implementation. On the other hand, in line with the theory of pluralistic ignorance and the spiral of silence theory, project supporters who believe that they are a minority might be less inclined to speak out about their opinion because of normative pressure and fear of isolation, yet there may be a group of supporters who can actively overcome normative pressure, perhaps because of their strong feelings about the need to mitigate climate change and increase energy security.

The findings of the current survey study have further implications for the wider democratic deficit literature. Firstly, as explained in Section 3.5.2, the makeup of public opinions in the two cases were fairly similar to each other, yet according to other sources (e.g. the wind farm developers' survey, newspaper reports and the SEWF campaign group) opposition to the proposed Bagletts wind farm was more widespread within the host community than the self-reported attitudes in the current survey. This difference in the measured project attitudes demonstrate that project opponents tended to participate in the surveys that could have influenced the planning outcomes (i.e. wind farm developers' surveys) more readily than in the questionnaires of the current study (i.e. which did not intend to influence the planning outcomes). This observation provides support for a central argument of the democratic deficit literature, which relates to the intention of strategic oppositional campaign groups to dominate the wind farm discourse (e.g. Anderson, 2013; Ellis et al., 2009; Loring, 2007; Fudge et al., 2012; Woods et al., 2012).

This supports the argument raised in the social gap article of Bell et al. (2013) that oppositional campaign groups and opinion leaders may work to try to influence people's perceptions about the opinion climate about local wind farm proposals. Secondly, Bell et al. (2013) also argued that oppositional campaign groups may find

other stakeholders to cooperate with and to seek to influence the decision-making about onshore wind farm proposals. An example of this was found in the Bagletts wind farm case where SEWF hired the RSPB, and they were able to refute some of the results of the environmental impact assessment that was commissioned by the wind farm developer, and this information could have likely influenced the planning decision at a later stage of the planning process.

Implications for the place protector and the NIMBY explanation of the social gap

The current study found no difference between project supporters and project opponents in terms of their place-attachment scores in either of the cases, and no difference was found between the two opinion groups in terms of community attachment either. In fact, place-attachment and community attachment scores were high across both opinion groups. These results indicate that, in line with the previous argument raised in the wider place attachment literature about renewable energy siting (e.g. Devine-Wright, 2011; Devine-Wright & Howes, 2010), it is the perceived lack of fit of the proposed developments with the place, rather than people's attachment to the pace, that could drive place-protector attitudes.

The current survey study has implications for the other explanations of the social gap phenomenon as well. As noted above, project opposition can stem from perceived injustice about the procedure of onshore wind farm siting which has been acknowledged by the most recent studies aiming to better understand NIMBYism (e.g. Aitken, 2010a; Burningham, 2000; Jones & Eiser, 2010; Jones et al., 2011; Wolsink, 1994, 2000, 2007a, 2007b), i.e. that it is perceived injustice rather than self-interest is the motivation for this type of opposition. This finding was further supported by the fact that none of the respondents identified with the NIMBY argument that was based on personal negative impact in the Cottam Airfield case, which supports that research on NIMBYism needs to move away from labelling NIMBYies as self-interested individuals.

3.5.3 Limitations and future research

While the current study was able to contribute to our understanding about the proposed democratic deficit model, the theories underlying the model and to the wider wind

farm literature, it had certain limitations as well. It is important to note that greater confidence can be attached to the results of Study 2 (i.e. the Bagletts study), even though the result of Study 2 do not contradict the results of Study 1, for the following two main reasons. Firstly, there are reasons to believe that the proposed Bagletts wind farm was well known amongst the respondents whereas about a third of the respondents have not heard about the proposed Cottam Airfield wind farm prior to receiving the survey. Yet, the surveys commenced with an information page that contained information about the proposals itself and about the projects' websites, and respondents could have used these to gain more information before completing the survey. Therefore, it can be argued that all participants were provided the necessary information to form an initial opinion about the proposal before they completed the survey. Secondly, Study 2 had a response rate of 47.5% as opposed to the 10.6% response rate of Study 1. There were four main differences between the procedure and the design of the studies that could explain the improved response rate in Study 2: 1) the survey packages were personally addressed to the respondents (similarly to Groth & Vogth, 2014), 2) the door-to-door delivery method was potentially more reliable than the distribution company's blanket delivery method, 3) being visible with a team of students in the affected communities was also expected to increase trust in the project and therefore increase response rate, and 4) the questionnaire used in the Bagletts study was slightly shorter and more focused on the proposal as well. However, these response rates are fairly typical of, or in the case of the proposed Bagletts study even a slightly better, than other questionnaire-based studies with residents living near onshore wind farms (e.g. Anton & Lawrence, 2016; Groth & Vogt, 2014; Warren & McFayden, 2010).

Secondly, the demographic characteristics of the respondents of the current studies were different to those in the general population (similarly to the study of Devine-Wright & Howes, 2010). This issue could have been mitigated firstly, by increasing the response rates to the surveys. While, as noted in the above paragraph, the response rate increased from 11% in Study 1 to 48% in Study 2, a further increase of up to around 70% may have been possible with more face-to-face-contact with and repeated visits to respondents (e.g. Devine-Wright & Howes, 2010; Jones & Eiser, 2009) or by acquiring letters of support about the studies from local councillors prior to data collection (e.g. Musall & Kuik, 2011). Secondly, conducting interview studies (which

were prevented by the withdrawal of the proposals) with those respondents who expressed their interest to take part in future studies would have allowed for matching the sample of the interview studies with the general population along the key demographic variables.

Finally, the current survey study was also not designed to decipher the difference between those activities that might have taken more effort and that may have had more potential impact (e.g. signing a petition about the proposal), and those that were easier to perform and may have had less impact on the planning outcome (e.g. looking up information about the proposal). After this study, it was realised that this issue could have been overcome by using weighted activity items. Therefore, the experiments in Chapter 4, used pilot studies where participants in the target population (i.e. project supporters) were asked to rate a set of items describing various wind farm-related activities according to how much effort they would take to perform, and these weighted items were later used for the behaviour intention measure in the subsequent experiments.

Conclusion

Two questionnaire-based survey studies were conducted with residents living near two proposed wind farm sites in East Riding of Yorkshire, England in order to explore some of the key factors that were proposed to be associated with the emergence of a democratic deficit in wind farm siting. The proposals were different in terms of how controversial they appeared to be, i.e. based on the information acquired from an oppositional campaign group, news reports, and consultation documents, the proposed Bagletts wind farm (Study 2) appeared to be more controversial than the proposed Cottam Airfield wind farm (Study 1).

The results of the current study found that project opponents represented a lower share of the sample than those claimed in the examined documents above which indicates that project opponents aimed to strategically influence the climate of opinion in situations where this could have influenced the decision-makers (which is important for Phase 3 of the model). In the current surveys, the share of opponents was

marginally less than 50% of the sample while project supporters were also a numerical minority (which is important for Phase 1 of the proposed model). Furthermore, these findings indicate that there may be multiple minority groups present in the sample: project supporters and opponents who speak out in a perceived minority position, and project supporters and opponents who are susceptible to self-silencing (which has implications for the spiral of silence theory). Furthermore, project supporters correctly perceived themselves as a minority whereas project opponents incorrectly perceived themselves as a majority opinion group within their own communities (which have implications for both the spiral of silence theory and the theory of pluralistic ignorance).

Respondents in the less controversial Cottam Airfield case showed a general lack of engagement with the proposal, whereas project opponents carried out more wind farm-related actions in the Bagletts case (which is in line with the prediction of Phase 2 of the proposed model). Furthermore, in both cases project supporters agreed with abstract pro-wind farm arguments more, trusted the wind farm developer more and had less negative emotions about the proposals than project opponents (which are also important for Phase 2 of the proposed model). Yet, trust in the wind farm developer was not a significant predictor of wind farm-related activism, when the effect of project attitude was controlled for (which has implications for the SARF).

Additional results also highlighted that place-protector attitudes may stem from a perceived lack of fit between the proposed developments and the places (which is important for the place-protector explanation of the social gap), and that project opposition may stem from general dissatisfaction and disagreement with national energy policies as well (which is important for the NIMBY explanation of the social gap).

Chapter 4

Reversing the democratic deficit in wind farm siting: Can imagined intergroup contact mobilise project supporters?

The wind farm literature maintains unequivocally that wind farm supporters are less actively engaged in the planning process about commercial wind farm proposals than project opponents. A central argument of the democratic deficit hypothesis is that the emergence of a democratic deficit, where a minority of opponents have a disproportionate sway over the planning outcomes, is aided by passive wind farm supporters who are less likely to participate in public debates about wind farm proposals than opponents. Based on the theory of pluralistic ignorance and the spiral of silence theory, it can be argued that project supporters do not speak out publicly about their own convictions because they want to avoid emotional discomfort, i.e. the normative pressure that they would face as members of the perceived minority group. Therefore, the experiments in this chapter were set out to address the problem of supporters' apathy.

This chapter has five main sections. It will begin by linking the current study to the theories that underline the proposed democratic deficit model as well as to those phases of the model that this experimental study aims to validate. Secondly, it will detail the theoretical background to the imagined contact hypothesis (Crisp & Turner, 2009; Miles & Crisp, 2014), the implicit bystander paradigm (Garcia, Weaver, Moskowitz, & Darley, 2002), and the attitude resistance paradigm (Martin, Hewstone, & Martin, 2003, 2008) and will explain how these were adopted to formulate the instruction for the mental imagery about a specific wind farm scenario. The third section will discuss the method and results of the two pilot studies, and the fourth section will detail the design and results of the two experiments. Finally, this chapter will also discuss the results of the experiments, it will explain how these can inform the proposed theoretical model as well as the wider democratic deficit literature, and will also address the limitations of the studies in order to suggest some promising directions for future research, before concluding this chapter.

4.1 Rationale of the current experimental study

The idea that more targeted efforts are needed to encourage people with supportive viewpoints to publicly express their own convictions has been a key recommendation for wind farm policy in the wider democratic deficit literature (e.g. Anderson, 2013; Bell et al., 2005, 2013; Bernett et al., 2012; Bidwell, 2013; Hindmarsh & Matthews, 2008; Jones et al., 2010; Read et al., 2013; Wheeler, 2017). Yet, the wind farm literature is lacking empirical studies about intervention tools that were designed to reverse supporters' apathy, and the current study aims to fill this gap in the literature. Previous wind farm studies about public engagement events evidenced that these tended to have a tense atmosphere (e.g. Anderson, 2013; Cass & Walker, 2009; Loring, 2007; McKay, 2015; Ogilvie & Rootes, 2015) and that oppositional viewpoints tended to be overrepresented (e.g. Anderson, 2013; Jones et al., 2010; see also the document analysis in Chapter 2). Therefore, the departure point for the current experimental study was the argument that if local supporters could take part in wind farm-related group debates where 1) they would be a numerical majority, and 2) where the atmosphere would be friendly, positive and calm, then these factors might reverse the democratic deficit effect, i.e. increase supporters' willingness to express their own opinions publicly. In turn, this unbiased representation of oppositional and supportive attitudes could make the planning process more inclusive and the planning outcome more democratic. While it is out of scope for this dissertation to explore this idea in real-life context, borrowing from the imagined contact hypothesis, which has been shown to be effective in stimulating intergroup contact even in severe conflict sitations (see Section 4.2.1), it was still possible to ask supporters of local wind farm proposals to mentally simulate the scenario described above.

The two factors that were anticipated to mobilise project supporters (i.e. positive atmosphere and numerical majority position) were derived from the theories underpinning the proposed democratic deficit model. Namely, previous studies on the theory of pluralistic ignorance identified that interpersonal concerns about fear of rejection can reduce the willingness of members of a perceived minority group to publicly challenge a dominant view (e.g. Bjerring et al., 2014; Geiger & Swim, 2016), especially in face-to-face situations (e.g. Bond, 2005; Price & Allen, 1990). This assumption forms the basis of Phase 2 of the proposed model, which stipulates that project supporters are less involved in activities that reflect their private beliefs than

project opponents because supporters want to avoid the emotional discomfort that confronting members of oppositional campaign groups would bring. However, correcting wind farm supporters' inaccurate views about their minority position (which is important for Phase 3 of the proposed model) could bolster their willingness to engage in wind farm-related activities because this intervention tool was already shown to be effective in reversing the pluralistic ignorance effect (e.g. Geiger & Swim, 2016; Schroeder & Prentice, 1998; Tankard & Paluck, 2016).

Furthermore, the spiral of silence theory also supports the assumption that members of perceived minority groups tend to avoid expressing their opinions publicly (which is important for Phase 2 of the model) when they perceive that their audience would disagree with them, i.e. that they believe in a minority viewpoint (which is important for Phase 3 of the model) (e.g. Glynn et al., 1997; Hayes, 2007; Moy et al., 2001, Petric & Pinter, 2002; Scheufele et al., 2001). Moreover, it can also be argued based on the spiral of silence theory that media outlets will be more likely to feature majority viewpoints (which is import for Phase 3 of the proposed model) as a result of the minority group's lack of willingness to share their own views, which in turn may further discourage people with minority views from taking expressive action (Allen et al., 1994; Boyle et al., 2006; Entman & Rojecki, 1993; Zhou & Moy, 2007).

In summary, the present experimental study was set out to validate Phase 2 of the proposed democratic deficit model by testing whether perceived majority position and the removal of emotional discomfort will increase project supporters' willingness to express their opinions through various wind farm related activities (which has implications for the theory of pluralistic ignorance) as well as through specific media-related activities (which has implications for the spiral of silence theory). Furthermore, the current experimental study aimed to validate Phase 3 of the proposed democratic deficit model by testing whether making project supporters aware of their majority position would increase participants' perception about the share of project supporters in their own communities (which has implications for both underlying theories of the proposed model).

4.2 Theoretical background and hypotheses

This section consists of three main parts. The first part will introduce the imagined contact hypothesis (Crisp & Turner, 2009; Miles & Crisp, 2014) and the second part will provide the theoretical background to the attitude resistance paradigm (Martin et al., 2003, 2008). The third part of this section will detail how these two paradigms, together with the wording of the instruction used in an implicit bystander study (Garcia et al., 2002), were used to formulate the hypotheses and to design the subsequent experiments.

4.2.1 The imagined contact hypothesis

Gordon Allport's (1954) intergroup contact theory, the idea that positive intergroup encounters can lead to improved outgroup attitudes as well as to reduced stereotyping and intergroup anxiety, has been one of the most widely researched topic in social psychology (for a meta-analysis see Pettigrew & Tropp, 2006). For example, direct intergroup contact was shown to cause meaningful reduction of prejudice towards stigmatised targets such as ethnic groups (Amir, 1969; Voci & Hewstone, 2003), homosexuals (Herek & Capitanio, 1996) and the elderly (Caspi, 1984). However, such face-to-face intergroup contacts may not be possible in situations where there is little motivation or ability for groups to engage in a contact with each other (Binder et al., 2009; Dixon, Durrheim, & Tredoux, 2005). Recent developments in the field of human conditioning studies and neuroscience studies showed that simulated incidents can elicit similar emotional and motivational responses as real experiences (Dadds, Bovbjerg, Redd, & Cutmore, 1997) and that the use of the same neurological pathways can be traced during imagery tasks as during other cognitive mechanisms, such as perception and motor control (Abraham, 2016; Kosslyn, Ganis, & Thompson, 2001). Therefore, Turner, Crisp and Lambert (2007), who were inspired to overcome the limitation of the intergroup contact theory, looked at the mental imagery of intergroup contact and formulated the imagined contact hypothesis.

During the past decade, imagined contact studies successfully demonstrated that the mental imagery of a pleasant intergroup encounter can be a viable alternative to real contact, even in severe conflict situations where intergroup contact is highly unlikely, e.g. between Turkish and Greek Cypriots (Husnu & Crisp, 2010b), and in countries

such as Cyprus and Jamaica where anti-gay prejudice is highly prevalent (West, Husnu, & Lipps, 2015). This tool has been shown to prepare for successful intergroup encounters by stimulating more positive perceptions of outgroups and by lowering intergroup anxiety and prejudice (for a review and a meta-analaysis see Crisp & Turner, 2009; Miles & Crisp, 2014). Therefore, mental simulation of a pleasant encounter has been promoted as a simple, flexible and cost-effective solution that can produce positive contact effects without there being actual contact.

For example, the mental imagery of positive intergroup contact was shown to lower prejudice (West et al., 2014) and increase the projection of positive traits towards members of the outgroup (West, Hewstone, & Lolliot, 2014), and it can also lower the anticipatory anxiety relating to future contact (i.e. measured by skin conductance responses) (West, Turner, & Levita, 2015). Moreover, imagined contact studies also identified a direct link between imagery, behavioural intentions and even actual behaviour, which suggests that if participants imagine a positive intergroup encounter they may feel more positive about the intergroup interaction and will be more likely to approach the outgroup in the future. Several studies found that participants who imagined a positive interaction with an outgroup member, e.g. with asylum seekers and religious or ethnic minorities, subsequently reported stronger tendencies to approach them than participants in the control condition (see Turner & West, 2011; Turner, West, & Christie, 2013; Vezzali, Crisp, Stathi, & Giovannini, 2015).

The design of the imagined contact experiments consists of three mandatory elements. First, participants are instructed to take between a minute or a few minutes to imagine a scenario that is either a positive interaction with a member of an outgroup or the imagery scenario of the control condition (typically a positive outdoor scene). The second step is manipulation reinforcement where participants are requested to write down the imagined scenario. Finally, several independent variables can be tested to establish the effects of the imagined positive encounter. Further refinements to the paradigm have indicated that mental imagery instructions that are more elaborate (Husnu & Crisp, 2010a) and more positive (Stathi & Crisp, 2008) enhanced the imagined contact effect compared to less vivid and more neutral instructions.

4.2.2 Majority versus minority influence in persuasion studies

One of the most influential theoretical frameworks of the psychology of social influence is Moscovici's (1980, 1985) dual-process model of majority and minority influence, which assumes that both majorities and minorities exert influence on others but through different mechanisms and with different impacts. Namely, a minority group that is advocating a consistent, clear and coherent message is able to challenge the dominant view thereby creating 'conversion behaviour', whereas majority influence creates 'compliance behaviour' where the individual is urged to respond in a desired way even in the absence of private acceptance (Cialdini & Goldstein, 2004; Moscovici & Lage, 1976). Historically, European research traditions have favoured the advantages of minority influence (e.g. Maass & Clark, 1984; Moscovici, 1980; Nemeth, 1986) and argued that conversion behaviour, which is characterised by a greater change in people's private responses than in their public responses, can be effective in leading to a genuine change in norms and perceptions over time. On the other hand, the American research tradition (e.g. Asch, 1956; Latane & Wolf, 1981; Tanford & Penrod, 1984) has emphasised that majorities exert more influence on public, direct responses of people because people view the majority position as a source of social norms that they want to adhere to. In the years since Moscovici's classic analysis of majority and minority influence, research has shown that numerical majorities typically exert greater influence than numerical minorities because people tend to avoid aligning themselves with deviant sources; however, those minorities that advocate their views with great consistency may sometimes be influential (see meta-analysis by Wood, Lundgren, Ouellette, Busceme, & Blackstone, 1994).

Social influence in the persuasion literature examines the effects of a group's majority versus minority status on persuasion, i.e. whether the message was endorsed by a numerical majority or minority source (see reviews by Crano & Seyranian, 2007; Martin & Hewstone, 2008; Tormala, Petty, & DeSensi, 2010). These experiments stem from the dual-process theories of persuasion, such as the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) and the Heuristic/Systematic Model (HSM; Chaiken, Liberman, & Eagly, 1989) which both distinguish between two routes of information processing in persuasion settings. The heuristic-processing/low elaboration situation in these studies means virtually no thinking about the message (e.g. when the topic is low in personal relevance or a distracter task is present) while

systematic-processing/high elaboration situation evokes a very detailed consideration of the message content (Petty, Cacioppo, Strathman, & Priester, 2005). Therefore, attitudes that have been changed under 'central-route persuasion' (ELM) or 'systematic processing' (HSM) (i.e. minority influence) should resist counter-persuasion while attitude change via the 'peripheral-route persuasion' (ELM) or 'heuristic processing' (HSM) occurs as a response to cues in the persuasion environment (i.e. majority source status leading to compliance behaviour) or due to simple heuristics (e.g. 'the majority is always right', 'several pair of eyes are better than one'). Indeed, several studies have confirmed that in high-elaboration conditions, endorsement of an issue by a numerical minority (vs majority) has led to attitude change, while in low-elaboration conditions, information regarding source status served as a simple cue, with the majority source leading to more persuasion than the minority source (e.g. Baker & Petty, 1994; DeDreu & DeVries, 1993, 1996; Horcajo, Brinol, & Petty, 2014; Horcajo, Petty, & Brinol, 2010; Mackie, 1987; Martin et al., 2003; Trost, Maass, & Kenrick, 1992). Furthermore, in intermediate elaboration conditions, where there is no obvious intentional focus and which is arguably the most typical for persuasion settings (Petty et al., 2005), source variables can determine the extent of the elaboration (see Martin et al., 2003; Martin, Hewstone, & Martin, 2007; Martin et al., 2008).

Within the literature on persuasion studies, it is the attitude resistance paradigm (see Martin et al., 2003) that explored how attitudes that were changed after majority vs minority influence can resist counter-persuasion. Typically, the target issue in these experiments was the legalisation of voluntary euthanasia, i.e. a controversial issue which most students were expected to have favourable attitudes towards. For the statistical analysis, only those responses were retained that came from participants whose initial attitude was congruent with this expectation. The design of these experiments (e.g. Martin et al., 2003; Martin et al., 2007) included two messages which argued opposing positions (i.e. an initial pro-attitudinal message and a subsequent, counter-attitudinal message) and attitudes were measured after each message. Message direction was then reversed to ensure that the results were not due to a confound between attitudinal direction (pro- versus counter-attitudinal) of the initial message and the initial message and counter message. These studies confirmed Moscovici's theory, namely that minority influence instigates systematic processing of

its arguments leading to attitudes that resist counter-persuasion (i.e. minority source participants resisted the second message).

However, in a similar experiment that manipulated the message quality (weak vs strong arguments), Martin, Hewstone and Martin (2008) found that attitudes after strong arguments (that encourage greater message-congruent elaboration than weak messages) also resisted counter-persuasion following both majority and minority influence. These arguments about the legalisation of voluntary euthanasia were based on Petty & Cacioppo's (1986) s*trong* (and persuasive) arguments which elicited mostly favourable thoughts, and *weak* (and non-persuasive) arguments which elicited mostly unfavourable thoughts when people were instructed to think about them during pilot testing. In Experiment 2 of this study of Martin et al. (2008) half of the participants were informed that they would later be asked to recall the arguments they have read in order to evoke high message processing which should increase resistance to the counter-message. After that, they were informed that either 82% (majority) or 18% (minority) of students in general were in favour of the target issue (this information also contained several arguments that summarised the majority or minority position). Participants then read either strong or weak arguments against voluntary euthanasia (initial message). Then, participants were asked to estimate the number of students in their university whom they believed would support the initial message (source manipulation check) after which they completed a though-listing task before their attitudes were measured again. The second counter-message contained strong arguments that conveyed the opposite perspective to the initial message (counter message) and finally, attitudes were measured one more time. The results showed that under high message processing, when majorities employ strong arguments in the initial message, participants' attitudes are also able to resist counter-persuasion. Therefore, majority influence may also instigate systematic processing of its arguments, at least in those situations that encourage message processing.

4.2.3 Simulating public debates about local wind farm proposals

As discussed above, the imagined contact paradigm is an effective method for increasing behavioural tendencies towards members of an outgoup, even in severe conflict situations where the likelihood of actual interaction is low. Based on previous

wind farm literature, public debates about wind farms are likely to be conflict situations (e.g. Anderson, 2013; Cass & Walker, 2009; Haggett & Futák-Campbell, 2011; Woods, 2003; see also below). Furthermore, the proposed theoretical model argued that supporters' relative inactivity will create the false impression that they are a minority which will further decrease the likelihood that they will voice their opinions. However, the attitude resistance paradigm showed that majority source status (i.e. being a majority as a wind farm supporter) can protect against subsequent counter-attitudinal arguments (i.e. arguments about the negative impacts of a proposed local wind farm) under high message processing (i.e. via the mental imagery of the contact). Therefore, it seemed logical that the imagined contact hypothesis and the attitude resistance paradigm would be ideal methods for promoting project supporters' engagement in wind farm-related actions in the context of the democratic deficit hypothesis.

The mental simulation of the intergroup contact was a public debate about a hypothetical local wind farm proposal because such public meetings are typically held for community members as part of the planning process (see Section 1.1.3). To simulate the imagery of a well-attended and positive public meeting where supporters are a majority, the imagined scenario in the following experiments had to fulfil the following three criteria, detailed below: 1) the imagined scenario had to evoke the mental simulation of a crowded public meeting, 2) the imagined scenario had to be positive, and 3) participants, who were supportive of local wind farms, had to imagine being a majority. This design for the imagery instruction that matches these criteria was realised by combining elements of the imagined contact hypothesis, the implicit bystander effect and the attitude resistance paradigm.

Firstly, the imagined scenario had to evoke the implicit presence of others, i.e. a busy meeting where people exchange ideas about the wind farm proposal in question. This was important because if project supporters would speak out about their own convictions publicly then local attitudes would be represented more accurately (see Section 1.1.2). However, previous imagined contact instructions typically involved the encounter of two individuals rather than groups and therefore the instruction used in the current experiments had to be adapted to evoke the mental imagery of a group encounter. To imitate a well-attended public debate, which is typical of local wind farm events (see media reporting in Chapter 2), the phrasing of the 'large group'

instruction used in an implicit bystander study (Garcia et al., 2002) was adopted to prime participants for the psychological situation of being in a group. In a nutshell, the implicit bystander variation of bystander effect study tested the effects of the implicit activation of the situation where they asked participants to imagine being in a crowded place, after which participants' helping behaviour (dependent variable) was measured. Similarly to previous explicit bystander experiments (Latané & Darley, 1968, 1969; for a review see Latané & Nida, 1981), participants under the implicit activation of the presence of many others exhibited less helping behaviour in the subsequent task than those who imagined being in smaller groups or those in the neutral condition (who only completed to dependent measure). There are two competing explanations to this well-established empirical phenomenon: 1) diffused accountability, i.e. the more bystanders the less clarity about who should provide help in these situations (Garcia et al., 2002; Latané & Darley, 1968, 1969), and 2) pluralistic ignorance i.e. bystanders who are themselves unsure about the seriousness of a critical situations may assume that other bystanders are thinking differently, despite simply acting similarly to themselves (Rendsvig, 2014). What is important from the implicit bystander study for the experiments in this chapter is the imagery instruction that was used to describe the crowded place. Because of the ability of that instruction to evoke the implicit presence of numerous other people, it was also suitable to evoke the imagery of a crowded public meeting at a community hall where affected residents are discussing a local wind farm proposal.

According to the second criteria for the design of the instruction of the mental simulation, the imagined scenario had to contradict the real-life public wind farm debates by having a positive and relaxed atmosphere. As mentioned about the rationale for the current experimental study (see section 4.1), public wind farm debates tend to be tense, which may cause emotional discomfort to those with a minority position (i.e. project supporters). As a result, deep divisions have been observed between supporters and opponents within the host communities who are facing a controversial wind farm proposal (e.g. Anderson, 2013; Cass & Walker, 2009; Haggett & Futák-Campbell, 2011; Woods, 2003; see also the 'war methaphor' in Chapter 2 and the finding in Chapter 3 indicating that supporters tried to stay away from opposition). Indeed, it has been argued in the contact literature, that such conflict situations can minimise intergroup contact and increase the differences in the status between the groups, as

individuals initiating intergroup contact in these situations may be expectant of rejection, discrimination or offensive behaviour (Husnu & Crisp, 2010b; Stephan & Stephan, 1985; Tumer, Hewstone, & Voci, 2007; West et al., 2015). Conversely, study participants, who were project supporters, were instructed to imagine a public wind farm debate where the atmosphere was 'friendly, calm and relaxed', because these types of positive an elaborate instructions were shown to enhance the imagined contact effect (e.g. Husnu & Crisp, 2010a; Stathi & Crisp, 2008). Therefore, it was anticipated that this elaborate positive instruction would incerase participants' behavioural tendencies on the subsequent tasks in the current experimental study as well.

The third requirement of the imagery instruction was that it had to make it explicit that participants, who had supportive views for local wind farm proposals, were a majority during the public debate about the hypothetical local wind farm proposal. This simulation contradicts with the information about typical real-life situations, where opposition was widely observed in wind farm studies (e.g. Anderson, 2013; Hindmarsh & Matthews, 2008; Jones et al., 2010; McKay, 2015; Ogilvie & Rootes, 2015; see also Chapter 2) and it aimed to reverse participants' perception about their minority position (e.g. Geiger & Swim, 2016, Schroeder & Prentice, 1998). Thus, participants in the experimental condition were first asked to imagine that the majority of people agreed with the proposition of project support (i.e. the attitude-congruent message) during a hypothetical wind farm debate, similarily to the majority influence employed in the attitude resistance paradigm study of Martin et al., 2008.

Therefore, it can be reasonably assumed that this mental imagery, together with the subsequent manipulation reinforcement task, instigated systematic processing of attitude-congruent arguments under majority source position (i.e. the majority of people raised supportive argumenst during the public wind farm debate). Furthermore, based on the availability heuristics (see Tversky & Kahneman, 1973), it was argued that once participants imagine the hypothetical wind farm scenario explained above, the event will be more cognitively available to them and therefore they will believe that the same situation could occure again, which effect has been reliabliy demonstated in the wider social psychology literature (e.g. Gregory, Cialdini, & Carpentener, 1982; Sherman, Cialdini, Schwartzman, Reynolds, 1985; Sherman, Skov, Hervitz, & Stock, 1981). This effect was also found in the study of Meleady, Hopthrow and Crisp (2013) where participants' mentaly simulation of a positive group discussion heightened their

judgements of the likelihood of the same positive outcome within their own peer group. Moreover, Husnu & Crisp (2010a) observed the same effect when testing an elaborated task variant of the imagined contact hypothesis on the judgements of future behaviour intentions.

Finally, participants read a counter-attitudinal message before completing the dependent measures. This message was designed to shown a set of anti-wind farm arguments (i.e. highlighting some potential risks of the hypothetical wind farm proposal) similarly to the ones used in the counter-arguments from the attitude-resistance paradigm (e.g. Martin & Hewstone, 2003; Martin et al., 2003; Martin, Martin, Smith, & Hewstone, 2007; see also Section 4.2.2).

It was expected that the effects of the mental simulation of a positive wind farm debate, which also informed participants that the majority of others agreed with their position, would make participants resist counter-persuasion by 1) heightening their judgements of the likelihood of majority project support within their own communities (which is important for Phase 3 of the proposed model), and 2) stimulating them to take part in wind farm-related action, including media-related action, to voice their own opinions (which is important for Phase 2 of the proposed model). Therefore, the experiments were designed to explore the following three hypotheses:

H_1: Participants who imagine being at a positive wind farm debate at a crowded public debate about a local wind farm proposal will estimate the share of people living in their neighbourhood who would support a local wind farm to be significantly higher than participants in the control condition.

H_2: Participants who imagine being at a positive wind farm debate at a crowded public debate about a local wind farm proposal will report greater intentions to engage in more wind farm related activities than participants in the control condition.

H_3: Participants who imagine being at a positive wind farm debate at a crowded public debate about a local wind farm proposal will be a) more willing to talk to the media about their opinion and b) more willing to be identified in the newspaper report than participants in the control condition.

4.3 Pilot studies

Wind farm related scenarios, arguments and behavioural intention items have not been used in previous persuasion or imagined contact studies. Therefore, a relatively large set of such items had to be assessed in two pilot studies before the selected items could be used in the experiments. The sections below will detail the rationale, method and results of the pilot studies. The pilot studies described in this section were approved by the Ethics Committee of the Department of Psychology of the University of Sheffield.

4.3.1 Background to the pilot studies

There were several reasons why the items used in the experiments had to be assessed during two pilot studies. Firstly, the topics of the wind farm-related risk factors, which were used to formulate the counter-attitudinal message, had to be relevant specifically for the target populations. The wind farm literature already established that certain factors, such as the potential visual, noise or wildlife impacts of the wind turbines, play an important role in how people perceive wind farms (see Section 1.1.2). However, these observations were made about affected residents who were mostly older, employed, owned their home, and lived in rural areas, similar to what was observed in the survey studies (see Chapter 3). Because of these demographic differences, it could not be assumed that the same risk-factors were relevant for student participants who were mostly likely young, not yet in employment, not yet home owners and living in larger towns.

Secondly, wind farm-related counter-attitudinal arguments have not yet been used in counter-persuasion studies. Therefore, a list of arguments about the negative impacts of a hypothetical local wind farm proposal had to be assessed according to how persuasive participants found them.

Finally, a set of behavioural intention measures had to be tested in terms of how much effort the actions were perceived to take to perform. This scale was created based on the items used in the survey studies (Chapter 3) but aimed to overcome the limitation that the differences in the effort that various actions took could not be accounted for in the survey studies (see Section 3.6.3).

4.3.2 Pilot study 1

Pilot study 1 aimed to explore: 1) the perceived relevance of wind farm related risk factors, 2) the perceived persuasiveness of arguments about these risks, and 3) the perceived effort that certain wind farm-related action would take to perform. The instructions and items used in the first pilot study can be seen in Appendix 3.

Method

Participants and design: The first pilot study was conducted with 9 participants (6 female and 3 male) whose average age was 18.67 years old (*SD* = .50). They were first-year Psychology students at the University of Sheffield who received one course credit in return for their participation, and they accessed the online study on the Qualtrics platform via a direct link.

Procedure: The study entailed two instruction pages, a consent form, the three tasks below, a demographics form, and a debriefing page. The initial instruction pages asked participants firstly, to only start the study if they have at least 15 minutes that they can dedicate to this online experiment and to answer all question in one go, and secondly, to maximise their browser windows and to switch off everything else distracting. Then, participants completed the three tasks explained below. After these, the demographics form asked participants about their gender, age, first language, and email address (so that credits could be granted later). Finally, the purpose of the study and the research design were explained in the debriefing form that also included references to key articles on the research topic. All participants completed the following three tasks.

Stimuli: The first task aimed to assess participants' perceptions about some of the factors commonly associated with onshore wind farms. This task shares some similarities with that of Wolsink's (2007b) who asked participants to rate a set of potential risk factors of wind farms according to how significant they found them. These items were selected and formulated based on results in the wider wind farm literature about the factors that influence people's attitudes to local wind farm proposals (Peterson et al., 2015; see also Section 1.1.2). In Pilot Study 1, a total of 12 items were displayed in random order, and participants were asked to rate each one of them according to how relevant they would find them in case a wind farm was proposed to be built near where they lived. The response options ranged from 1 (Not relevant at all) to 7 (Vey relevant).

The second task of Pilot Study 1 involved reading a set of 30 self-formulated statements, which argued about the negative impact of the hypothetical wind farm. These statements related to those 12 factors that were used in the previous task, similarly to criteria used by Petty & Cacioppo (1986). These statements were all intuitively persuasive but different in their level of persuasiveness, e.g. “The wind farm will have a slightly negative impact on the look of the landscape”, “The wind farm will have a strong negative impact on the look of the area”. Participants were asked to rate each of these statements, which were displayed in a random order, according to how persuasive they perceived them for the average person who is faced with a local wind farm proposal. The response options ranged from 1 (Not persuasive at all) to 7 (Very persuasive).

The third task included a set of 13 self-selected and self-formulated items displayed in random order that described action that people might take in relation to a local wind farm proposal. These items were partly the same as the items used in the survey studies (Chapter 3) but included some new items as well that were found to be prevalent during the observations made while conducting the survey studies (e.g. “Knock on the doors of locals and give them flyers arguing in favour/against the wind farm proposal”). Participants were asked to rate these behavioural intention items on a scale form 1 (Does not take much effort) to 7 (Takes a lot of effort) according to how much effort they would take to perform for the average person who is faced with a local wind farm proposal.

Results

The initial aim of this pilot study was to identify two sets of arguments (i.e. weak vs strong; similarly to Martin et al., 2008; Petty & Cacioppo, 1986) about the factors that were also perceived to be moderately relevant on average, i.e. neither salient nor irrelevant (similarly to Gibbons, Busch, & Bradac, 1991; Hosman, Huebner, & Siltanen, 2002; Maass & Clark, 1983), by the participants. However, such distinction between the arguments did not occur in the dataset (i.e. it was not possible to find a set of 3-5 moderately relevant factors that each had one related persuasive and one related non-persuasive argument). Namely, participants tended to find these arguments at least moderately relevant on average. Therefore, in order to still be able to create a counter attitudinal message consisting of counter-persuasive arguments, a set of moderately

persuasive arguments were selected which were also moderately relevant for the target group. These 4 factors were: 1) negative effect on property prices (M = 4.89, SD = 0.60), 2) intermittency of electricity generation (M = 4, SD = 1.32), 3) amount of community fund (M = 4.11, SD = 1.45) and 4) bird and bat mortality (M = 3.89, SD = 1.26). The four arguments about these topics were also similar in terms of their length (similarily to Martin et al., 2008), i.e. they consisted of minimum 14 and maximum 17 words (see Table 4.1 below).

Table 4.1 Anti-wind farm arguments selected for the experiments.

Arguments	***Perceived relevance***	
	Mean	***SD***
If the wind farm is constructed at this location it will kill some common birds	3.56	1.59
The wind farm will slightly devalue properties that are close to the proposed site	3.89	1.36
The proposed wind farm will only provide a small amount of monetary compensation to the local community	3.78	1.09
The wind strength in this area will sometimes be insufficient for the wind turbines to operate	3.89	1.69

Finally, the average weights of the perceived effort of the behavioural intention measures were also calculated and are shown in Table 4.2 below. The Cronbach alpha coefficient of this scale was .81 and therefore the scale had good internal consistency.

Table 4.2 Weighted behavioural intention measures.

Behavioural intention items	***Perceived effort***	
	Mean/Weight	***SD***
Knock on the doors of locals and give them flyers arguing in favour/against the wind farm proposal	5.11	1.26
Write a letter or an email to a local newspaper in favour/against the proposal	5.00	0.86
Explain your opinion at an official legal inquiry about the wind farm proposal	4.89	0.92
Debate the wind farm proposal at a town hall meeting	4.67	0.7
Join a local wind farm support/opposition group	4.56	1.13
Try to convince people from your community who do not share your opinion about your position about the wind farm proposal	4.33	1.22
Write a letter or an email to a local politician in favour/against the wind farm proposal	4.22	1.3
Attend an information event about the wind farm proposal	4.00	1.8
State your opinion about the wind farm proposal to the wind farm developers	3.78	1.3
Seek further information (printed or online) about the impacts of wind farms	3.11	1.16
Talk to your close friends and family about the wind farm proposal	3.00	1.50
Read/listen to local news in favour/against the wind farm proposal	2.78	0.83
Sign a petition in favour/against the wind farm proposal	2.67	1.93

Therefore, each behavioural intention item had an associated weight score (i.e. their respective mean score on the effort scale). In the subsequent experiments, total behavioural intention scores were calculated by multiplying the individual item scores with their respective weight scores.

4.3.3 Pilot study 2

Pilot study 2 simply aimed to confirm whether the counter-attitudinal message was moderately persuasive for the target population as well, which consisted of participants who met both criteria detailed below.

Method

Participants and design: Participants were students (N = 22, 12 females and 10 males) with an average age of 23.07 years old (SD = 3.57) who were recruited from the participant pool called Prolific Academic. They received a link to Pilot Study 2 on the Qualtrics platform once they passed the pre-screening test which ensured that they fulfilled the following two criteria: 1) they were UK residents, and 2) they answered the question "To what extent would you be in favour of or opposed to the building of a new wind farm near where you live?" between 5 and 7 on a scale from 1 ('I would strongly oppose the local wind farm') to 7 ('I would strongly support the local wind farm'). They also received monetary compensation (£0.50) for their participation.

Procedure and stimuli: After participants read the instruction pages, they were asked to consider a situation in which a wind farm company proposes to build a wind farm near where they live. Then, they had to carefully read the counter-attitudinal message which listed the four statements shown in Table 4.1. above. Finally, participants had to rate how persuasive they found the message overall on a scale from 1 ('Not persuasive at all') to 7 ('Very persuasive').

Results

The analysis of the responses revealed that the arguments about the negative impacts of the hypothetical local wind farm proposal together as a message were perceived to be moderately persuasive (M = 4.36, SD = 1.36). Therefore, the set of these four

arguments was deemed suitable to be used as a counter-attitudinal message for the target population in the following two experiments.

4.4 Experiment 1

Experiment 1 aimed to test the hypothesis that imagined contact will increase participants' perception of numerical support for a local wind farm proposal within their own communities and increase their willingness to engage in wind farm related activities, including media-related activities, even when challenged by an anti-wind farm message. The instructions and the procedure used in Experiment 1 were the same as those in Experiment 2, and Experiment 2 is shown in Appendix 4. These experiments were approved by the Ethics Committee of the Department of Psychology of the University of Sheffield.

4.4.1 Method

Participants and design

One-hundred-and-thirty-four new participants, who were all UK residents and in favour of local wind farms, were recruited on Prolific Academic, and they received monetary compensation for their participation (£1). Of these, the responses of 22 participants were omitted because they met at least one of the following criteria 1) they did not follow the imagery instruction (see also Section 4.4.2), 2) they answered the attention check incorrectly, or 3) they spent less than 4 seconds reading the counter-attitudinal message (which consisted of 83 words), meaning that their general reading efficiency was rated as 'insufficient' based on their reading speed (see http://www.readingsoft.com). No one had to be excluded because they were suspicious of the hypothesis of the study. The final dataset consisted of the responses of 112 participants, of which 44 were male and 68 were female, with an average age of 31.78 years old (SD = 10.61) Of these participants, 59 were randomly assigned to the control condition and 53 were randomly assigned to the experimental condition. All participants read the same counter-attitudinal message and then completed the same dependent measures.

Procedure

Participants in the control condition had no imagery task but participants in the experimental condition received the following instruction: "*Imagine that you are sitting in a crowded town hall where most of the people are in favour of the wind farm that is proposed to be built near where you live. There are people in front of you, behind you, and to your sides. Although there are some children, the audience is mostly adults, and you are debating the wind farm proposal. The atmosphere is friendly, positive and calm and the majority of the people are expressing their support for the local wind farm proposal.*" After a minute, participants in the experimental condition were automatically forwarded to the next page where they were asked to write down what they imagined *"as vividly and in as much detail as possible"* in a free-text box (manipulation check). Participants were automatically prompted to answer this question if they initially missed it but there was no word or time limit imposed for this task.

The rest of the experiment design was the same for all participants. First, they were asked to consider a situation in which wind farm is proposed to be built near where they live and were told that the next three tasks would refer to this proposed wind farm. Then, they were asked to read the four arguments about the possible negative impacts of this proposed development, while the time they spent reading this page was also measured, and this was followed by the three measures below.

Stimuli

Firstly, perceived numerical support of the hypothetical local wind farm was measured with the following question: "*Please estimate the share of people living in your neighbourhood who would support the construction of a wind farm near where you live?*". Using a numerical drop-down field, participants were asked to estimate the share of local wind farm supporters on a scale from 0% to 100%.

The second dependent measure was behaviour intentions which was measured by participants' reported likelihood to engage in activities about the hypothetical wind farm proposal, ranging from 1 ('Extremely unlikely') to 7 ('Extremely likely'). The behaviour intention items shown in Table 4.2 above were presented in a random order, however this list also contained a so-called 'instructional manipulation check' (see

Oppenheimer, Meyvis, & Davidenko, 2009) i.e. "*It is important that you pay attention to this study. Please tick 'Extremely likely'*".

The third dependent measure was participants' willingness to talk to media, which was formulated based on the 'willingness to speak to the media' item in the study of Baldassare and Katz (1996). Firstly, they were asked whether they would be willing to talk about these questions to an NUS (National Union of Students) reporter ('Yes' or 'No'), and if they answered positively then they were also asked whether they would agree with their name appearing in the NUS newspaper ('Yes' or 'No').

4.4.2 Results and discussion

Manipulation check

The initial step of the analysis was to examine the answers to the manipulation check to see whether participants followed the instruction of the mental imagery task, and to exclude them if they were not. Namely, participant's scripts had to refer to being in a group setting where most people were in favour of the proposal and where the atmosphere was generally calm and positive. In Experiment 1, nobody had to be excluded because they did not follow instruction based on their scripts.

Perceived numerical support

The first part of the statistical analysis compared the perceived numerical project support estimates for a hypothetical onshore wind farm proposal in the experimental and control conditions. There was a significant difference in the estimates of perceived support within one's own community for a hypothetical wind farm proposal between participants in the imagery crowd (M = 47.03%, SD = 19.97) and control conditions (M = 37.91%, SD = 23.64), where average estimate in the imagery crowd condition was significantly higher than in the control condition, $t(110) = 2.21$, $p = 0.02$, $r = .41$ (see Figure 4.1.). However, it should be noted that while the effect of the imagery task was significant in that it lead participants to estimate greater levels of support for a wind farm proposal relative to the control condition, participants still estimated project support to be a minority position (i.e. an average of 47% in the experimental condition).

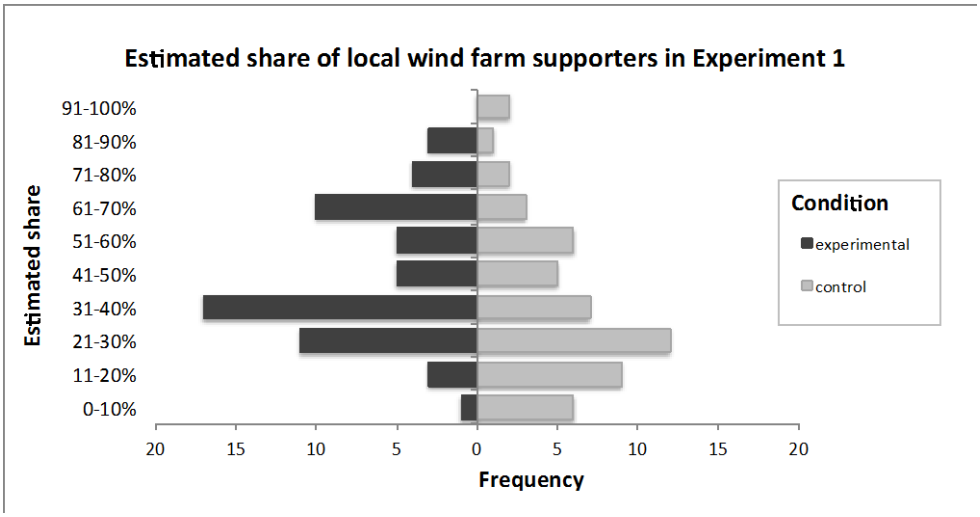

Figure 4.1 Estimates of numerical project support by condition in Experiment 1.

Behavioural intentions

Independent samples t-test revealed that there was no significant difference in the weighted average behaviour intention scores in the imagery condition (M = 207.32, SD = 52.87) compared to the control condition (M = 206.56, SD = 65.89), $t(110) = 0.67$, $p = 0.94$.

Willingness to talk to the media

Chi-square test of independence (2 by 2 table) was performed to explore the relation between condition and the media-related dependent variables (see Table 4.3). The proportion of participants in the experimental condition who would have discussed wind farm related issues with an NUS reporter was 31.3% while in the control condition the proportion of participants who indicated a willingness to talk to the media was 33%, and this difference was not significant (X^2 (1) = 0.92, $p = 0.32$). Then, chi-square test of independence (2 by 2 table) was also calculated to compare the willingness to be identifiable amongst those who responded positively to the previous question. The proportions of those participants who were willing to have their names appear in the NUS report was 36.1% both in the experimental and control conditions, therefore they were not significantly different from each other (X^2 (1) = 0.01, $p = 0.90$).

Table 4.3 Willingness to talk to media items by condition in Experiment 1

Willingness to talk to the media items		Condition		Total
		Experimental	Control	
Would you be willing to share your opinion with an NUS reporter?	Yes	31.3%	33%	64.3%
	No	21.4%	14.3%	35.7%
Total (*N* = 112)		52.7%	47.3%	**100%**
Would you be willing to have your name appear as well in the NUS newspaper?	Yes	36.1%	36.1%	72.2%
	No	12.5%	15.3%	27.8%
Total (*N* = 72)		48.6%	51.4%	**100%**

To conclude, Experiment 1 predicted that 1) participants' perception of wind farm supporters in their close community and 2) their willingness to express their views towards a hypothetical local wind farm proposal would be significantly increased by the mental simulation of positive wind farm debate where attitude congruent arguments (i.e. project support) was endorsed by a majority, even when challenged by anti-wind farm arguments. The results showed that there were significant condition differences in the perceived support estimates, which is consistent with the first hypothesis. However, there were no significant differences in either of the behavioural intention scores between participants who completed the imagery task and those who did not.

There were two main limitations of Experiment 1 that a second experiment aimed to overcome. Firstly, the control condition in the current experiment did not include any imagery task and therefore participants in the control condition had one less task to complete. This resulted in two potential problems: 1) participants in the no-imagery control condition finished the experiment quicker than those in the experimental condition, and 2) participants' mood might have been involuntarily manipulated by the imagined crowd task as positive mood and action have been previously linked to each other (see Albarracin & Hart, 2011). Therefore, being able to replicate the current results while using a positive and unrelated imagery task would show that the effect of the imagery crowd condition on the dependent variables can not be explained by the impacts of positive mood alone.

Secondly, the response options to the media-related questions were dichotomous (Yes/No) which might have lead to a reduction in statistical power, and this could have led to the H_0 being falsely rejected (see Norman, 2010). Furthermore, a psychometric

study of Lozano, García-Cueto and Muñiz (2008) also showed that with fewer than 4 response alternatives the validity and reliability of scales decreased, and from 7 alternatives upwards the validity and reliability of scales usually did not increase further. Therefore, the second experiment provided an opportunity to use a 7-point Likert-scale as response options to the media-related questions and to employ parametric statistics (i.e. independent samples t-test) instead of non-parametric statistics (i.e. chi-square test).

4.5 Experiment 2

Experiment 2 had two main aims. Firstly the no-imagery condition was replaced with an appropriate control condition (i.e. outdoor scene) to explore whether the effect of the positive mental simulation of the community hall debate is significantly greater than the effect of another positive imagery. Secondly, Experiment 2 also aimed to use different response options for the media questions than Experiment 1 to allow for greater variability between participants' responses.

4.5.1 Method

Participants and design

One-hundred-and-forty-five new participants, who were pre-screened for being UK residents and in favour of local wind farm, were recruited on Prolific Academic and they received monetary compensation for their participation (£1). The responses of 39 participants were omitted from the final dataset because they did not fulfil one or two of the same three criteria as the ones employed in Experiment 1 (see Section 4.3.1). Of the remaining 106 participants, 42 were male and 64 were female and their average age was 32.01 years old (*SD* = 10.22). There were 51 participants randomly assigned to the experimental condition and 55 participants to the control condition.

Procedure and stimuli

There were two condition in Experiment 2: 1) participants in the experimental condition received the same community hall imagery instruction as in Experiment 1, and 2) control condition where participants received the following instruction:

"*Imagine that you are sitting on a bench in a busy park. There are many people near you, both adults and children, and they are engaged in various activities, (e.g. walking, jogging, eating, playing etc.). Try to imagine aspects of the scene that you can see from sitting on this bench.*" After a minute, all participants were automatically forwarded to the next page where they were asked to write down in a free-text box what they imagined as vividly and in as much detail as possible (i.e. manipulation check).

Then, all participants were asked to consider the same hypothetical local wind farm proposal, read the counter-attitudinal message, and were asked to estimate the share of wind farm supporters in their community and to answer the behaviour intention questions, which were the same as in Experiment 1. Finally, they answered the media-related questions which had two parts. Both questions were formulated the same way as in Experiment 1 but the response options were extended from Yes/No to a 7-point Likert-scale. Namely, participants were able to specify the extent to which they were willing to share their opinion with an NUS reporter on a scale from 1 ('I don't want to talk to the reporter') to 7 ('I would like to talk to a reporter'). Only if their answer ranged between 5 to 7 were they shown the second question asking about anonymity, and their answer options ranged from 1 ('I don't want to be identifiable') to 7 ('I agree to be identifiable').

4.5.2 Results and discussion

Manipulation check

The initial step of the analysis was to examine the answers to the manipulation check to see whether participants followed the instruction of the mental imagery task, and to exclude them if they were not. Namely, participants' scripts in the experimental condition had to refer to being in a group setting where most people were in favour of the proposal and where the atmosphere was generally calm and positive, while the scripts in the control condition had to refer to being in a park with others. In Experiment 2, two participants in the experimental condition had to be excluded based on the criteria above while one other participant, who was also assigned to the experimental condition, had to be excluded because the script did not contain enough information to make a judgement about the imagined scenario.

Perceived numerical support

The first analysis of Experiment 2 examined whether there were any differences between the two conditions regarding the estimated share of local supporters of a hypothetical local wind farm proposal, after reading the counter-attitudinal arguments. An independent samples t-test showed that participants in the experimental condition estimated the share of wind farm supporters in their community to be significantly higher (M = 43.76%, SD = 23.68) than participants in the control condition (M = 34.02%, SD = 24.41), $t(104) = 2.08$, $p = .04$, $r = .40$ (see Figure 4.2. below). However, participants still perceived the supportive attitude to be a minority's viewpoint (i.e. average of 44% in the experimental condition).

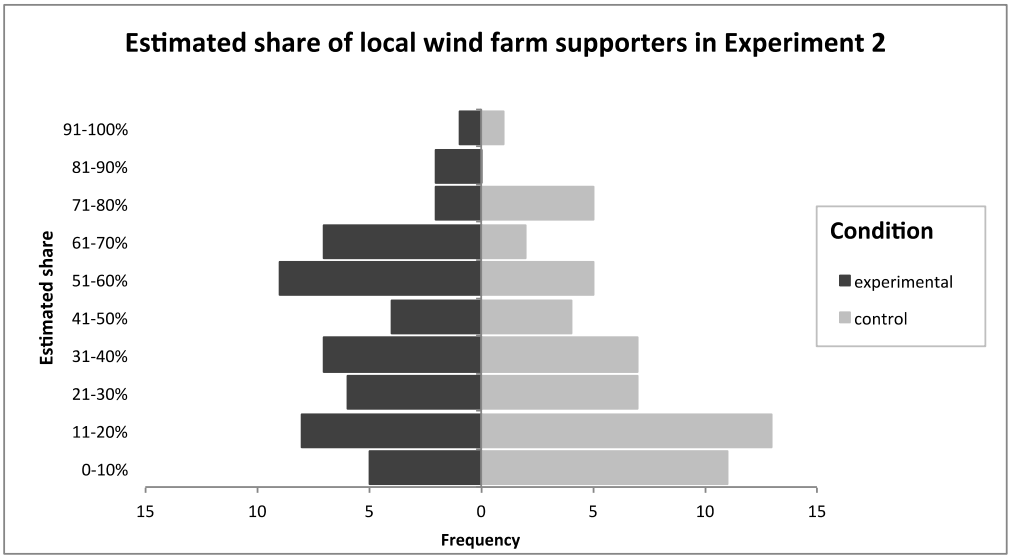

Figure 4.2 Estimates of numerical project support by condition in Experiment 2.

Behavioural intentions

The second part of the analysis compared the weighted behaviour intention scores between the experimental and the control conditions. Independent samples t-test revealed that participants in the experimental condition were not significantly more willing to engage in wind farm related activities (M = 209.67, SD = 53.29) than participants in the control condition (M = 212.39, SD = 62.73), $t(104) = -.23$, $p = .81$

Willingness to talk to the media

The final part of the analysis aimed to examine whether there was a significant difference in the mean media-related scores between the experimental and control conditions. An independent samples t-test revealed that participants in the experimental condition did not significantly differ in their willingness to talk to an NUS reporter about their opinion regarding the hypothetical wind farm proposal (M = 4.24, SD = 1.97) compared to participants in the control condition (M = 3.89, SD = 2.13), $t(103)$ = .86, p = .38. Furthermore, amongst those participants who answered the previous question positively, there was no significant difference in their willingness to provide their names in the hypothetical news report in the experimental condition (M = 3.91, SD = 1.98) compared to the responses in the control condition (M = 3.88, SD = 2.02), $t(51)$ = .99 p = .32.

To conclude, Experiment 2 was able to replicate the previous finding that the mental imagery of a crowded and positive wind farm debate where project supporters were a majority, can effectively improve people's perceptions of the share of project supporters in their actual communities, even when challenged by anti wind farm messages. Therefore, this result cannot be explained by the enhanced positive mood elicited in the instruction alone. However, it is also important to note that this effect did not translate into the perception that the project supporters in their own community represented the majority of residents. Furthermore, no significant differences were found between the two conditions regarding participants' willingness to engage in wind farm related activities and media-related behaviour intentions.

4.6 Discussion

This section aims to discuss the findings of Experiment 1 and Experiment 2. The first part of this section will explain how the experiments answered the three hypotheses of the study and will discuss the implications for the theoretical background of the current study. The second part will show how the results of the experiments can inform the proposed theoretical model, the theories underpinning the proposed democratic deficit model and the wider literature on the democratic deficit hypothesis.

4.6.1 General discussion

While the democratic deficit literature recognised that supporters' lack of engagement in the wind farm-related debates is a key reason why wind farm opponents could advocate their opinions more effectively during the planning process than supporters, the tools that could reverse this effect have not yet been identified. In line with the finding that the mental simulations of a positive intergroup contact can increase individuals' judgements of the likelihood of the same scenario actually occurring (Husnu & Crisp, 2010a; Meleady et al., 2013) and stimulate behaviour intentions to approach outgroup members (Turner & West, 2011; Turner et al., 2013; Vezzali et al., 2015), this research aimed to provide a proxy for a positive group discussion where project support was endorsed by the majority. It was anticipated that this mental simulation would result in higher scores on participants' 1) estimation about the share of project supporters within their own communities, 2) intentions to engage in wind farm-related activities, and 3) willingness to speak to the media about their opinions, even when challenged by moderately persuasive anti-wind farm arguments.

In line with the first hypothesis, the imagined group discussion improved participants' judgements of the share of project supporters in their own communities in both experiments. However, participants in the experimental condition still perceived themselves as a numerical minority within their own communities as their average estimates of project supporters were 47% in Experiment 1 and 44% in Experiment 2 (i.e. both slightly below 50%). Furthermore, contrary to expectations, the observed scores in participants' wind farm-related behaviour intentions, willingness to be interviewed by a journalist, and willingness to be identifiable in the journalist's report were not significantly different between the experimental and no imagery/control conditions.

The most obvious finding to emerge from this study is that the imagined intergroup contact simulation was an effective tool to increase project supporters' estimates of people with the same project attitudes around them. This result reflects those studies that found that the mental simulation of a group discussion where a consensus was reached (Meleady et al., 2013) and of a pleasant inter-ethnic encounter (Husnu & Crisp, 2010) served to heighten participants' judgements of the likelihood of the same positive outcome occurring again within their own peer group. As mentioned before, this effect can be explained by the heightened cognitive availability of the previously

imagined outcome, i.e. the increased availability in the memory of an already existing script (Tversky & Kahneman, 1973).

One unanticipated finding was that the mental imagery of the majority endorsement of the pro-attitudinal message (i.e. project support) did not translate into a perceived majority position after counter-persuasion. There could be three possible explanations for the lack of the expected perceived majority position. Firstly it could indicate that participants' attitudes did not resist the moderately persuasive counter-attitudinal message after majority endorsement of the pro-attitudinal message. This means that the initial message (i.e. project support) endorsed by a numerical majority under high message processing did not instigate systematic processing, which contradicts the result of Martin et al. (2008). Therefore, in line with Moscovici's (1980, 1985) theory, majority source status may have acted as a cue that elicited heuristic processing of its arguments that could not resist counter-persuasion, which is a well-established finding of the attitude resistance paradigm (e.g. Martin et al., 2003, 2007).

The second explanation to perceived minority position after counter-persuasion is linked to message quality. In the current study, only one set of moderately persuasive counter-attitudinal arguments were used in the experiments instead of a set of weak (non-persuasive) and another set of strong (persuasive) arguments. In fact, participants on average rated the overall persuasiveness of the counter-attitudinal message to be 4.36 on a 7-point Likert scale, which is closer to being persuasive than to being non-persuasive. A weak message could not be formulated in the current study because participants rated all selected anti-wind farm arguments relatively high on persuasiveness. There is plentiful evidence that strong messages trigger greater message-congruent elaboration than weak messages (Petty & Cacioppo, 1986) and this relatively high persuasiveness of the anti-wind farm arguments could have prevented participants from adhering to the initial message about majority project support because the elaboration triggered by the anti-wind farm message was too high.

Thirdly, perceived minority position could also be explained by simulation quality. Namely, while all participants included in the statistical analysis followed the imagery instructions, the availability heuristics paradigm (Tversky & Kahneman, 1973) argues that if participants found it difficult to imagine the scenario then the subjective likelihood of the event decreased. For example, Sherman et al. (1985) found that when a scenario was rated as difficult to imagine (i.e. difficult-to-imagine symptoms of a

disease that participants imagined contracting) it lowered the judgements of the likelihood of the disease to occur compared to a health scenario that was rated as easy-to-imagine. While the difficulty of the mental imagery was not measured in the current study, it can be assumed that most participants were unfamiliar with wind farm debates and that the imagery instruction was atypical in that commercial wind farm proposals can alienate affected residents with opposing attitudes from each other (e.g. Anderson, 2013, Cass & Walker, 2009; Haggett & Futák-Campbell, 2011). These could have made the scenario in the experimental condition more difficult to imagine. Therefore, even through the type of higher elaboration used in the current study was shown to enhance the contact effect (Husnu & Crisp, 2010a), it may have elicited a lower simulation quality than a familiar (e.g. Husnu & Crisp, 2010a) or structured scenario (e.g. Gregory et al., 1982; Meleady et al., 2010) would have done, and this could weakened the effect of the mental simulation.

Finally, the other unexpected finding was that the mental imagery did not increase participants' wind farm-related behaviour intentions and their willingness to be identifiable when expressing their opinions in a newspaper report. These results could be explained by the widely observed phenomenon that perceived minority position could lead to normative behaviour patterns (Deutsch & Gerard, 1955; see also Section 1.3.2). Therefore, these results reflect the studies in the pluralistic ignorance (Geiger & Swim, 2016; Taylor, 1982) and the spiral of silence literature (e.g. Glynn et al., 1997; Noelle-Neumann, 1974), which argued that people tend to practice self-silencing when they perceive that others disagree with them. In intergroup contact situations, this effect has been explained by the higher levels of intergroup anxiety of outgroup members (in this case, members of the minority attitude group) because of fear of negative psychological consequences for the self and fear of negative evaluations by members of the other group (Pettigrew & Hewstone, 2017; Stephan & Stephan, 1985). Therefore, perceived minority position after counter-persuasion could have mitigated the imagined contact effect.

4.6.2 Implications for the democratic deficit model

As discussed in the preceding section, after imagining a calm, friendly and relaxed wind farm debate where support for a hypothetical proposal was a majority viewpoint,

participants' judgments about the share of people with attitudes similar to their own (i.e. project supporters) increased, even after reading a counter-attitudinal message (i.e. arguments about potential risks of the hypothetical wind farm proposal). However, participants on average still estimated that they represented a minority (i.e. slightly less than 50%) of the people within their peer group, and their behaviour intentions and willingness to be identifiable when publicly expressing their own views in a news reports did not increase.

The implications of these results were expected to validate two phases of the proposed theoretical model (see Section 1.3.5), namely Phase 2 (i.e. project supporters' lack of willingness to express their own opinions) and Phase 3 (i.e. project supporters' perceived minority position which is amplified by biased media reporting). However, the current study cannot contribute to the proposed democratic deficit model to the extent it was expected because participants on average still perceived themselves as a minority in both conditions. However, this perceived minority position could have contributed to their relatively low behaviour intention scores (i.e. in line with the prediction of Phase 2). Furthermore, the lack of significant improvements in participants' willingness to talk to a journalist and to be identifiable in the journalist's report could indicate that project supporters who perceive themselves as a minority are less likely to promote their views in public (i.e. in line with the prediction of Phase 3).

Yet, the imagined positive wind farm debate where opponents were a majority did increase participants' estimates about the share of project supporters within their own communities which supports Phase 3 of the model. It also indicated that making participants aware of their majority position and potentially mitigating their fear of normative pressure could protect them from the democratic deficit effect, even when challenged by anti-wind farm arguments. For the democratic deficit hypothesis, this implies that public participation tools that make project supporters aware of their majority position and allow them to express their opinions without the fear of negative psychological consequences could reverse or prevent the emergence of a democratic deficit in onshore wind farm siting. These results provide empirical evidence to support the policy recommendation of those studies that call for more inclusive and deliberative public engagement methods to be implemented in the planning process (e.g. Anderson, 2013; Barnett et al., 2012; Ellis & Ferraro, 2017; Loring, 2007; McKay, 2015; see also Section 5.2.1)

Finally, the current study produced results that agree with the findings of the theory pluralistic ignorance (Prentice & Miller, 1993; Schroeder & Prentice, 1998) and the spiral of silence theory (Noelle-Neumann, 1974; Price & Allen, 1990) in that perceived minority position was followed by lack of willingness to take action to express views, both in terms of general activities and media-related activities; albeit a causal link has not been established between the two variables. Furthermore, the current study has been unable to demonstrate the previous observation that the pluralistic ignorance effect can be entirely reversed by educating people about their majority position (e.g. Geiger & Swim, 2016; Schroeder & Prentice, 1998; Tankard & Paluck, 2016), even though the lack of result could be attributed to the difference in the specific study design (i.e. using a scenario that participants may not have been familiar with as well as counter-persuasion).

4.6.3 Limitations and future research

The first limitation of the current study relates to a problem with the design of the counter-attitudinal message where the original aim to comply a set of weak and another set of strong counter-attitudinal arguments could not be realised. Therefore, it was not possible to test whether attitudes formed during systematic processing of an attitude-congruent position advocated by a majority could serve as a preventive measure specifically against weak counter-attitudinal arguments, as expected. This hypothesis could have been explored by changing the target issue to another type of renewable energy technology with potentially less negative impacts on the individual. For example, local wave- and tidal energy developments, which might also be subject to the democratic deficit (see Section 1.2.1) but may be overall less controversial than onshore wind farms (e.g. Devine-Wright, 2011), could be a more suitable topic for future research aiming to use weak counter-arguments about renewable energy siting.

Secondly, the inability of the current study to demonstrate the imagined contact effect on behaviour intentions could be explained by the effect of counter-persuasion being stronger than the imagined contact effect. Therefore, the current study would have benefited from an initial experiment that solely tested the imagined intergroup contact effect (i.e. imagining a positive wind farm debate without any reference to majority/minority position and without reading the counter-arguments) on behaviour

intentions. After this, the next experiment could have followed the design of Experiment 1, and if there was a difference in the observed results between the suggested experiment and Experiment 1, then the effect could have been attributed to the counter-persuasion with greater confidence.

Finally, it can be assumed that the majority of participants did not have real-life experiences with means of opinion expression about local wind farm proposals. This lack of familiarity with specific wind farm-related actions could have made it difficult for them to report what actions they would be likely to take in a hypothetical situation. Therefore, another improvement could be achieved by using a simpler behaviour measure that is not related to specific wind farm-related actions but to general avoidance/approach behaviour, For example, participants could be asked to place a chair for a wind farm opponent in the room while the researcher leaves to call in this person. Based on the study of Turner et al. (2013), participants in the imagery condition would place the chairs closer to themselves, which could demonstate the imagined contact effect through stronger tendencies to approach a wind farm opponent.

Conclusion

The current experiments stemmed from the imagined contact paradigm which has previously been shown to lower outgroup prejudice and increase the likelihood of acting in conflict situations. In order to be as similar to real-life wind farm public inquiries as possible, the wording of the imagery scenario in the experimental condition included the crowd element from the implicit bystander effect study. However it was also different from the observed real-life wind farm meetings in that wind farm supporters represented a majority and that the atmosphere was positive and relaxed. The aim of these online experiments was to test whether imagining being a majority at a positive wind farm debate (consistent with the positive attitudes of the study participants) could change people's opinion about the share of wind farm supporters in their community and their willingness to carry out in wind farm related action (even in the face of counter-arguments).

The results of the two experimental studies showed that the wind farm related imagery task significantly altered the perception of wind farm supporters about the attitudes of others around them in relation to the hypothetical wind farm proposal. Participants who took part in the mental imagery of a busy but positive wind farm debate at a community hall estimated the share of people with similar views (i.e. project supporters) to be significantly higher than those in the control conditions. This effect did not however translate into project supporters perceiving themselves as a majority as the average estimates of local project supporters were still below 50% in both studies. Furthermore, the effect also did not translate into greater intentions to engage in supportive wind farm related action, including speaking to the media.

The current experiments attempted to inform both Phase 2 and Phase 3 the proposed democratic deficit model. Based on the results above, project supporters' willingness to express their own opinions (which is an important factor in Phase 2 of the model) could not be increased by the mental simulation of a positive wind farm debate where they also represented a majority, at least when participants were also challenged by moderately persuasive anti wind farm arguments. However, this imagery task did increase participants' opinion about the share of potential project supporters in their actual community (which is an important factor in Phase 3 of the proposed model). It could be argued that if this effect on perception was more effective to the extent that wind farm supporters perceived themselves to be more of a majority then wind farm related action might have also significantly increased, as predicted by the spiral of silence theory and the theory of pluralistic ignorance. Therefore, further research is needed to explore additional tools that could result in wind farm supporters perceiving themselves as a majority and also to assess whether this would significantly increase their wind farm-related behaviours.

Chapter 5

Expanding on the democratic deficit explanation of the social gap in wind farm siting

This PhD project explored the democratic deficit hypothesis, a phenomenon initially proposed by Bell et al. (2005, 2013) as one of the explanations of the social gap in wind farm siting. The social gap paradox refers to the gap between the reported majority support for wind energy (around 80% nation-wide based on Bell et al., 2013) in the face of relatively low levels of onshore wind farm planning success rates. This problem is particularly apparent in England where this dissertation highlighted that only 31% of the submitted onshore wind farm projects were consented in 2014 and in general, there is a trend of decreasing project capacity in this country (see Section 1.1.2).

It has been suggested in the wider democratic deficit literature that this low planning success rate could be, at least partially, explained by supporters' apathy in the face of oppositional activism. This dissertation aimed to understand the mechanisms behind the emergence of a democratic deficit in wind farm siting. Firstly, it proposed a theoretically informed model (Chapter 1) that explained supporters' apathy with social influence processes (i.e. by employing the spiral of silence theory and the theory of pluralistic ignorance) and also explained media representation of wind farm-related risks with attenuation and amplification processes (i.e. by employing the SARF and the spiral of silence theory). Secondly, this dissertation also tested this proposed model by examining the journalistic discourse about wind farm proposals (Chapter 2) and the attitudes and community mobilisation around proposed wind farms (Chapter 3), and by seeking to develop a theoretically informed intervention to encourage project supporters to engage in the local wind farm planning process (Chapter 4). The results and the implications of the findings of these studies will be the main interests of this chapter.

The first section of this chapter will synthesise the results of the three studies of this dissertation to reflect on how these can shape our understanding about the proposed democratic deficit model, the theories underpinning this model and about the social

gap paradox. The second section of this chapter will provide suggestions about ways to improve the public engagement processes in order to promote greater involvement of the relevant stakeholders in the planning process, and will also highlight some broader links between this study and the wider field concerned with large-scale renewable energy siting. The third part of this chapter will outline the main contributions of this dissertation to the wider wind farm literature, and will suggest some potentially fruitful areas for future research about community mobilisation around onshore wind farm siting.

5.1 Synthesis and implications of key findings

The studies provided various insights that helped to further our understanding about the three phases of the democratic deficit model. The implications that these results may have on the validity of the proposed model are provided below and these will also be linked to the wider wind farm literature, the theoretical background of the model and to the social gap phenomenon in this section.

5.1.1 Re-visiting the proposed democratic deficit model

The proposed democratic deficit model consists of three phases. Phase 1 focused on the distribution of actual attitudes of affected residents towards onshore wind farm proposals, and predicted that project opponents are a numerical minority while project supporters are a numerical majority within the host communities. Phase 2 of the model focused on wind farm-related behaviour and it predicted that project opponents are more active than project supporters, which will also manifest in journalistic discourse (based on the spiral of silence theory, the theory of pluralistic ignorance and the SARF). Phase 3 of the model focused on perceived attitudes and predicted that project supporters will (falsely) perceive themselves as a minority while project opponents will (falsely) perceive themselves as a majority (based on the spiral of silence theory and the theory of pluralistic ignorance). The validity of these predictions, in the light of the findings of the studies in this dissertation, will be explained below.

Phase 1

The results of the studies do not support the argument of Phase 1 of the proposed model that the project opponents represent a numerical minority while project supporters represent a numerical majority of the communities facing local wind farm proposals. The result of the surveys conducted with residents living near proposed wind farm sites indicated that the share of project opponents was marginally below 50% of the respondents while project supporters represented a smaller numerical minority (i.e. around 31-35%) of the residents. While it is possible that opponents were to some extent overrepresented in the samples as a result of their greater general activism around the issue of the proposal, the results do not fully support previous argument in the wind farm literature that project opponents represented a minority group of affected residents (e.g. Anderson et al., 2013; Bell et al., 2005, 2013; Hindmarsh & Matthews, 2008; Jones et al., 2014). Yet, it is probably the case that active opponents, i.e. those who would speak out even in a perceived minority position, are indeed a small numerical minority group. These people may be the 'opinion leaders' who are most actively engaged in opinion expression (e.g. through protesting, organising petitions against the proposals or giving interviews to journalists). Crucially, these active opponents' are just the 'tip of the iceberg' and there seems to be a relatively large share of opponents who are less active (or inactive) and therefore less visible for decision-makers.

Therefore, Phase 1 of the initial model should be adjusted to reflect that a large share of inactive opponents could have been falsely labelled as members of the silent majority of supporters. Therefore, a more accurate categorisation, in the light of the findings, is that there is: 1) a numerical minority of active opponents, and 2) a numerical majority of inactive opponents (i.e. a minority of inactive opponents) and supporters (i.e. a minority of inactive supporters). Furthermore, the smallest minority group could consist of those advocates of the proposals who can resist self-silencing, yet the analysis of journalistic discourse did not evidence that these individuals volunteered to express their views publicly in the local news reports.

Phase 2

The main argument of Phase 2 of the proposed model, namely that project opponents were more active in voicing their opinion than project supporters, was confirmed both

in the media study and in the survey studies. Firstly, in line with the hypothesis of Phase 2 and the findings of previous media studies about onshore wind farms (e.g. Stephens et al., 2009; Wheeler, 2017; Woods, 2003) oppositional actors and their arguments dominated the local news reports. These arguments mainly related to local impacts and were voiced by high-power actors (i.e. influential and supposedly objective actors), while supportive actors were less powerful and their arguments tended to relate to global impacts. Secondly, the survey studies found that project opponents engaged in more wind farm-related activities, in the case of a controversial wind farm proposal, whereas project supporters were significantly less engaged in the planning process. This difference in the activity levels could be, at least partially, explained by supporters abstract arguments which may have been less motivating to act upon (Jones et al., 2010) or less convincing for others (Demski, 2011). Yet, project opponents may have objected the onshore wind implementation process in general as well, which is facilitated by national energy policies, and this was evidenced in both the survey studies and in the media study.

The studies in this dissertation could however not adequately explore the complex relationship that may exist between emotions and local activism around onshore wind farm proposals. Namely, while the survey studies found that negative emotions about the wind farm proposals characterised project opponents (see also Cass & Walker, 2009; Wolsink, 2012) but not project supporters, the experiments did not find that an imagined positive wind farm debate, that was supposed to counteract opponents' negative emotions that may have threatened project supporters, could increase supporters' willingness to engage in wind farm-related activities. Yet, this result must be interpreted with caution because the experimental design included counter-persuasion before the activity levels were measured, which may have mitigated the effect of the imagined positive intergroup contact. Furthermore, the oppositional rhetoric, i.e. 'war metaphor' (see also Haggett & Futák-Campbell, 2011), in the journalistic discourse also evidenced that negative emotions were linked to active project opposition, perhaps through place-protector attitudes. Therefore, the effect of affect on wind farm-related action might be mediated by other factors, such as place attachment (see Devine-Wright & Howes, 2010).

Furthermore, project supporters found wind farm developers more trustworthy, which was consistent with the prediction of Phase 2 and with the findings of the wind farm

literature (e.g. Devine-Wright & Howes, 2010; Jobert et al., 2007; Jones & Eiser, 2009; Loring, 2007; Peterson et al., 2015; Wolsink, 2012). However, contrary to the prediction of Phase 2 of the proposed model, lack of trust in the wind farm developer did not increase community mobilisation, when the effect of project attitude was controlled for. Yet, the media study further nuanced our understanding about factors that could have contributed to opponents' lack of trust in the developers. Namely, the technical and repetitive language, which characterised the language of wind farm developers, could have contributed to the lack of trust in these actors with regards to keeping the locals' interests in mind, instead of their commercial interest (which interests were supported by national energy policies). On the other hand, project supporters, who agreed with the arguments of national energy policies, may have trusted the project developers' more (regardless of the language employed) because the developers' interests and arguments aligned with their own views about the need to implement solutions, even locally, to mitigate climate change and increase national energy security. Therefore, trust remains an important factor for Phase 2 of the model, but understanding the effect of trust on wind farm-related action needs further explorations, perhaps by examining the role of endorsing different types of oppositional and supportive project arguments as mediators of trust in the developers.

Phase 3

Results about perceived attitudes (i.e. opinion climates) provided conflicting results about perceived minority/majority position could influence people's willingness to engage in wind farm-related activities. Participants in the experimental studies, who had favourable attitudes to local wind farm proposals, has higher estimates of project support within their own communities after the mental imagery of a positive wind farm debate scenario where they represented a majority. Yet their perceived minority position prevailed and this could have contributed to their lack of increased willingness to take part in wind farm-related actions (which supports the prediction of Phase 3 of the model).

Furthermore, project opposition was portrayed in local news reports as the dominant viewpoint within the host communities while supportive actors and their arguments were underrepresented. This finding confirms previous findings in the wider democratic deficit literature which argued that "the press, it seems, gives

disproportionate emphasis to the vocal minority that opposes wind power while ignoring the silent, contented (and less newsworthy) majority" (Warren et al., 2005, p. 872; see also Wheeler, 2017). Therefore, in line with the prediction of Phase 3 of the model, this observed media bias was anticipated to create the impression that that project opposition was normative within the host communities.

Indeed, project opponents perceived themselves as a majority and project supporters perceived themselves as a minority opinion group, which further supports the validity of Phase 3 of the model. However, what has not been adequately evidenced in the survey studies was the prediction of the model that supporters' perceived minority position made them less likely to take part in wind farm-related action. On the contrary, there appeared to be a group of affected residents (i.e. supporters and opponents) whose willingness to speak out in a perceived minority position was positively linked to wind farm-related action (see also Phase 1). Therefore, while the prediction of Phase 3 that project supporters perceived themselves as numerical minority, which was also reinforced by biased media reporting, was supported by the findings of the studies, further research is needed to identify the differences about the ways in which various minority opinion groups that exist within the host communities respond to the perceived opinion climate.

5.1.2 Evaluating the theoretical framework of the proposed model

The SARF literature provided a useful observation for the proposed democratic deficit model about role of trust in risk communication (e.g. Kasperson, Golding, & Tuler, 1992). Namely, the SARF helped to interpret that project opponents' lack of trust in the wind farm developers could have been linked to the technical and repetitive language used by the developers' about the wind farm proposals' role in mitigating climate change and increasing national energy security (Frewer, 2003; Frewer et al., 1996, Poortinga & Pidgeon, 2003). Moreover, the examined news reports provided further evidence to illustrate that oppositional agents' could have employed more effective communication stategies by talking about their personal experiences and emotions (see Hunter & Fewtrell, 2001; Mase et al., 2015; Slovic et al., 2007) and by amplifying potential localised risks to mobilise other residents to take part in protests and sign petitions against the proposals (see Elliot et al., 2010; Horlick-Jones, Sime, &

Pidgeon, 2003; Slovic, 2002; Taylor-Gooby, 2006). These findings highlight that the SARF was able to contextualise, even though it was unable to predict, opponents' wind farm-related activism.

On the other hand, the results did not fully support that social influence processes could account for the emergence of a democratic deficit in wind farm siting. In line with the prediction of the spiral of silence theory, journalistic discourse reinforced the (false) perception that project opposition was a dominant viewpoint within the host communities. This was then reflected in project opponents' perceived majority position (which was incorrect, in line with the prediction of social influence theories employed) and in project supporters' perceived minority position (which was also in line with the prediction of social influence theories employed in the model). Yet, making supporters aware of their majority position and at the same time removing normative pressure as part of an imagery task did not reverse self-censorship as suggested in the pluralistic ignorance literature (e.g. Schroeder & Prentice, 1998; Tankard & Paluck, 2016). On the other hand, some spiral of silence studies did not find evidence for the effect of normative pressure evident in the news reports on self-silencing (e.g. Neuwirth et al., 2007; Shoemaker et al., 2000; Willnat et al., 2002), and the findings of the current study support this critical tone in the spiral of silence literature. Yet, the spiral of silence literature helped to interpret the finding about certain project supporters' and opponents' tendencies to engage in opinion expression when in a perceived minority position. Namely, these individuals could have belonged to the group of 'hardcores', i.e. people with high attitude certainty, who could have resisted normative pressure (Matthes et al., 2010; Noelle-Neumann, 1974).

Furthermore, the surveys studies questioned whether affected residents used local news sources to gauge the climate of opinion, which relates the spiral of silence theory's prediction that people use mass media as an information source to gauge the climate of opinion. Namely, a large share of affected residents have not read or heard news about the proposals from local media sources. Therefore, people's perceptions about the opinion climate which they derived from direct interactions with others, as predicted by the theory of pluralistic ignorance, may have had a greater influence on people's judgements about the opinion of others than the information provided in the local news reports. This argument in line with more recent evaluations of the spiral of silence theory (e.g. Noelle-Neumann, 1993; Scheufele, 2008) which argue that media

messages are not a single source of stimulus about the opinion climate and that people also rely on their immediate social environments to gauge opinions. For the potential emergence of a democratic deficit in wind farm siting, the relative importance of direct interactions with others appears to be greater than the importance of the local media.

5.1.3 Implications for the explanations of the social gap phenomenon

Bell et al. (2005, 2013) identified four explanations that could be simultaneously employed to describe the mechanism behind the social gap in wind farm siting: the qualified support explanation, the NIMBY explanation, the place protector explanation and the democratic deficit explanation (see Section 1.2.2). The results of the current studies have implications on the ways in which these explanations could be used to complement the democratic deficit explanation.

Firstly, it can be argued that the relatively large share of project opposition found in the survey studies in the face of the generally positive attitudes towards wind energy measured by public opinion polls can be partly explained by the qualified support explanation (see Batel et al., 2015; Demski, 2011) had local-level arguments against the wind farms but these were not place-specific (i.e. qualified opponents applied these arguments to all wind energy developments). Therefore, public opinion polls would be able to provide a more accurate picture of peoples attitudes to wind farms if they would also offer the opportunity to express the limits and controls that people may wish to place on wind energy developments.

Secondly, the studies in this dissertation provided support for the existence of NIMBY attitudes that stem from perceived injustice rather than from self-interest (Aitken, 2010a, Burningham, 2000; Jones & Eiser, 2010; Wolsink, 2000, 2007b). Similarly, the collective action framework (see Tyler & Smith, 1998, van Zomeren et al., 2008) has already been linked to the NIMBY explanation by arguing the perceived injustice may motivate project opposition (e.g. Botetzagias et al., 2007; Wolsink, 2007) but the results about supporters' apathy could also be interpreted in the light of the collective action framework. Namely, project supporters may not perceive a salient injustice if the wind farm was sited elsewhere whereas project opponents feel that the selection of the wind farm site is unfair. This may lead to NIMBY-type of opposition, e.g. community mobilisation through protests and other efforts to influence the planning

decisions. Furthermore, project supporters may not find it important to show their support for the wind farm proposals simply because the national policies on renewable energy siting already encourages the deployment of wind energy, which is again something that project opponents may perceive as a salient injustice.

Finally, the findings of the analysis of journalistic discourse indicated that some vocal opponents, who were frequently quoted or referenced to in the news reports, may have been place-protectors. These place-protectors employed a 'war metaphor' to describe their oppositional efforts to prevent the siting of wind farms near their dwelling places. Therefore, in the region of East Riding, which is an affluent area where people value the recreational use of the place, wind turbines could not have been perceived as a good fit with the proposed sites (see Devine-Wright, 2011; Devine-Wright & Howes, 2010) which could have explained some of the opposition.

Therefore, it can be argued that project opposition, which was more widespread than predicted by the proposed democratic deficit model, could have been likely represented by firstly, by a vocal minority group who were motivated by a perceived injustice (NIMBYs) and by their perception that the turbines were incompatible with their dwelling places (place-protectors). Yet, as highlighted by Bell et al. (2013) these two types of explanations overlap, and therefore they may both used similar oppositional arguments about their dissatisfaction with national wind energy policies. Secondly, the largest share of opponents, who may have been less actively voicing their opinions than the previous two groups because their opposition was not specific to a local wind farm proposal (i.e. they applied the same limits to all wind energy developments), may have likely consisted of qualified supporters who were concerned with the turbines' potential adverse local impacts on humans, wildlife and the nature.

On the other hand, project support, which was less widespread than predicted by the proposed democratic deficit model, almost entirely consisted of inactive supporters who could have relied on the effectiveness of the wind farm developers to facilitate the planning decisions to reflect the guidelines of national energy policies. Furthermore, the smallest minority group amongst all could consist of active project supporters who had strong feelings about the need to take action to mitigate climate change and increase energy security, and felt certain that local wind farms would contribute to these aims.

5.2 Wider implications for policy and research

The ethos that public engagement is vital in addressing the disputes surrounding the siting of new renewable energy infrastructure is vastly acknowledged both in the national planning policies (e.g. DCLG, 2013; DECC, 2013) and in the onshore wind farm literature (e.g. Barnett et al., 2012; Bidwell, 2016; Ellis et al, 2009; Gross, 2007; Haggett, 2011a; Krohn & Damborg, 1999; Loring, 2007; Wolsink, 2007a). However, the ways in which public participation could be encouraged more broadly remains a much-debated question (see Peters, Fudge, & Hoffman, 2013). This dissertation aims to contribute to this policy debate by providing recommendations based on the results of the three studies. Furthermore, while the policy recommendations below will focus on the onshore wind farm siting process, the results of this dissertation about the democratic deficit hypothesis have implications for the siting of other types of renewable energy infrastructure as well where the social gap could be present, and these will also be discussed in this section.

5.2.1 Policy recommendations for more inclusive public engagement methods

The literature on public acceptance of commercial onshore wind farms has long argued for the need to foster a more collaborative local decision-making process in order to decrease local conflicts and to increase the likelihood of planning outcomes that are beneficial both for the host communities and the developers (see Haggett, 2011a; Wolsink, 2012). For example, in a recent analysis of siting controversies around Belgian wind farm proposals, Rossignol et al. (2017) were highly critical about the initial information meetings that wind farm developers organised for residents living near the proposed sites. The results of this Belgian study (Rossignol et al., 2017, p. 1260) showed that such events, which are mandatory for onshore wind farm proposals in the UK, may actually increase the distrust in the developers who can be perceived as a "salesman imposing his project to the local and regional politico-administrative authorities, regardless of the public opinion". Furthermore, in a UK-based study by Barnett et al. (2012, p. 44), public engagement through exhibitions and information events was also shown to "set an agenda based on being against [the proposal] (…) and invite negative (and thus biased) views". Yet, it may also be possible to change this controversial dynamic and hostile context through more deliberative stakeholder

engagement practices, such as workshops and focus-group discussions, even though much more practical research is need to identify the best ways to adopt these methods (Ellis & Ferraro, 2017).

The experimental study in this dissertation showed that the perceived minority position of project supporters was mitigated by eliminating the normative pressure exerted by perceived majority groups (i.e. project opponents). Indirect evidences of normative pressure and projects supporters' lack of engagement in public opinion expression was also observed in the analysis of journalistic discourse, which evidenced that supportive arguments about onshore wind farm proposals tended to be highly abstract (e.g. relating the climate change and energy security). Furthermore, the survey studies found evidence of project supporters' lack of expressive actions to voice their own (abstract) project arguments. Therefore, the results acquired during the course of this PhD project have some potentially useful implications for new ways to implement more collaborative approaches during public siting debates. These results and observations may also add further suggestions for researchers and policy makers when considering the development of new public engagement practices.

The most recent developments regarding public engagement methods highlighted the effectiveness of art-based methods to involve citizens in the regional transitions and land use changes concerning their living environments. For example, Stuiver, Jagt, van Erven and Hoving (2012) used narratives, which were created by artists during close collaboration with local residents, to help planners to carry out more community-based public engagement processes. Stuiver et al. (2012) argued that involving artists in planning activities can help to make residents' emotions, values and identities more explicit, which may in turn help to enhance the quality of the discussions about the proposed developments. Therefore, involving artists to help project supporters to formulate their narratives that largely include abstract and global pro-wind farm arguments may help them to speak out about their own opinions in a more engaging and expressive way. Furthermore, using artists' narratives may also be beneficial for project opponents because these could help to increase planners' and developers' understanding about the values, emotions and other motives behind oppositional arguments. For example, place attachment, which could characterise a relatively large share of project opponents based on the results of the media analysis and the survey studies, also entail relatively abstract arguments about the emotional bonds that people

have developed to a place, and art-based methods could help to formulate and share these.

Furthermore, in the wider sustainability literature, several other creative facilitation practices have been identified that could be used in workshop-type settings as part of the public engagement practices about onshore wind farm siting. These creative facilitation practices differ from more conventional wind farm planning practices (e.g. public exhibitions and hearings, see also Section 1.1.2) by creating time and space for reflection and connection with one's own emotions and values. A list of creative facilitation practices has been recently compiled by Pearson, Backman, Grenni, Moriggi, Pister, & de Vrieze (2018) to form a toolkit for sustainability practitioners and researchers. For example, the method called 'Hand Stencil Mandala', which is a welcoming exercise where each participant is asked to draw an outline of their hands on a large piece of paper while introducing themselves, is used to declare the presence of everyone in the room through a tactile act of drawing. During wind farm engagement events, the Hand Stencil Mandala exercise could be used to remind both project opponents and project supporters that they are equally invited to make a constructive contribution to the proposals.

Additionally, another useful method for wind farm public engagement workshops from the toolkit of Pearson et al. (2018) would be the so called 'Timeline of Transformation' exercise where participants can jointly populate an initially blank timeline of events that changed the history of the area, either positively or negatively, which can also set the stage for thinking about what transformations would be possible in the future. This exercise could help for participants to express the part of their identities that relate to the affected areas and provide an opportunity to re-consider their relations to the same place after it is transformed for renewable energy generation. Trying to tap into people's attitudes about existing wind farms may be able to mitigate resistance to local wind farm proposals because we know from previous wind farm case studies that people's project-related attitudes tend to improve over time, i.e. the support for existing wind farms is higher than the support was for the proposals before they were accepted (e.g. Eltham et al., 2008; Wheeler, 2017; Wolsink, 2007b). Secondly, this mapping exercise could also address an issue observed in journalistic discourse which relates to the association between wind farm landscapes and the loss of the status and value of the place, especially in affluent areas. On the other hand, in economically

struggling areas this exercise could help to use local knowledge about what kind of renewable energy developments could help the areas. In summary, the process of overcoming supporters' apathy and creating inclusive public engagement practices should be based on the concentrated efforts of consultants, politicians, interested local residents. Furthermore, stakeholders should be given enough time and opportunities to explain their arguments, including their values and emotions behind them, without any pressure from others.

5.2.2 Implications for the siting of other renewable energy developments

The development of the wind farm industry in the UK slowed down since 2016 when the governmental subsidies for new onshore wind farms were withdrawn (Ellis & Ferraro, 2017). Therefore, it is increasingly important to apply the lessons learnt in onshore wind farm studies to help to the address societal challenges faced by other renewable energy technologies that have more potential to grow in the UK. As explained in Section 1.2.1, the social gap phenomenon (i.e. local resistance in the face of general majority support) has been reported around wave and tidal renewable energy siting as well, yet the amount of research carried out in this field is very limited compared to the literature on wind farms. Furthermore, because the technology is currently not widespread, a large share of potentially affected residents may still be uninformed about the technology (Bailey, West, & Whitehead, 2011). Moreover, a tidal energy case study of Devine-Wright (2011) showed that in certain cases, tidal energy developments could enhance rather than disrupt people's place attachment. Therefore, early engagement with communities around wave and tidal energy could emphasise the congruency with place attachment as a means of reducing the social gap.

The studies in this dissertation have practical implication for consultants and developers working on wave and tidal energy siting. Based on the results of the survey studies of this dissertation, project opponents trust project developers significantly less than project supporters. Furthermore, the findings of the media study can draw attention to the importance of developers' use of language in building trust with the host communities. Namely, project developers should aim to use non-technical terms and varied language in their communication about wave and tidal energy proposals,

and they should also try to persuade those affected local residents and business owners who are in favour of the project to speak out about their own opinions. In particular, those supporters who are opinion-leaders, i.e. the 'hardcores' in the spiral of silence literature (Noelle-Neumann, 1974), may be resistant to normative pressure from oppositional groups and more therefore more willing to express their own opinions. However, it is also important to highlight that the more varied the background of the project supporters who speak out about their own opinions (i.e. from low- to high-power actors) the more appealing the message could be, which may in turn increase trust in the developers. Furthermore, it is also important to adopt local-level arguments, especially in economically deprived areas where there are higher chances that these projects may be seen to foster community spirit (see Rygg, 2012). Furthermore, discursive public engagement practices, i.e. the tools mentioned in the preceding section, should also be implemented, where possible, to provide all residents an opportunity to articulate their own opinions and reflect on how their own values and emotions related to land use change.

5.3 Strength, limitations and future directions

This dissertation represents the first comprehensive attempt to understand whether and how a democratic deficit may emerge in wind farm siting. As such, it has been an explorative effort to establish a theoretically informed model about the emergence of a democratic deficit, to test this model using three different research methods, and to provide some recommendations for policy and research. However, there were several limitations to these studies and some alternative research methods may add important information to the proposed model.

5.3.1 Main research contributions

There are three main ways in which this thesis contributed to the research about community mobilisation around onshore wind farm proposals. The first main contribution was theoretical: the development of a theoretically informed model about the emergence of a democratic deficit in wind farm siting. While the initial articles supporting the democratic deficit hypothesis (i.e. Bell et al., 2005, 2013; Hindmarsh &

Matthews, 2008; Jones et al., 2010; van der Horst & Toke, 2010) introduced this hypothesis more widely in the wind farm literature, these did not establish a coherent, in-depth and theory-driven model about how a democratic deficit may emerge during the wind farm siting process. The interdisciplinary model developed in this dissertation stemmed from three different theoretical and epistemological roots, namely from the theory of pluralistic ignorance from social psychology (Miller & McFarland, 1987; Prentice & Miller, 1996), the social amplification of risk framework from risk analysis studies (Kasperson, Renn, Slovic, Brown, & Ratick, 1988) and from the spiral of silence theory from media studies (Noelle-Neumann, 1974). As noted in the preceding section, the findings indicate that these two social influence theories and the SARF can partially explain the democratic deficit hypothesis. Namely, instead of a minority/majority approach employed in the theories explaining social influence processes, the social gap explanation would benefit from exploring group dynamics between multiple minority groups with different level of willingness and avoidance of opinion expression. Furthermore, the democratic deficit hypothesis can be effectively informed by the SARF which framework was suitable to support the findings of the current studies about the role of trust in the wind farm developer as an information source about wind farm-related impacts, and helped to understand the efficiencies and deficiencies of the risk communication of oppositional and supportive actors.

The second main contribution of this dissertation was methodological: an interdisciplinary methodological approach was employed to understand the multi-faceted and complex issues around onshore wind farm controversies. It has been increasingly recognised that research about the psychology of renewable energy implementation requires the application of problem-oriented and interdisciplinary approaches through which models of behaviour concerning the environment can be tested (Jones et al., 2014; Spence, Pidgeon & Uzzell, 2009; Swim et al., 2011). Despite the importance of the methodological plurality in the field concerned with the siting controversies around proposed renewable energy developments, the research efforts in this thesis represent the first comprehensive effort to triangulate the data informing the democratic deficit hypothesis. Firstly, the media study employed the CDA method, which informed the literature about the ways in which oppositional actors and their viewpoints were actively legitimised while supporters and their viewpoints were actively delegitimised in journalistic discourse. Secondly, the survey approach was

shown to be an appropriate method for quantifying actual and perceived attitudes as well as behavioural responses to onshore wind farm proposals, and thereby exploring the core assumptions of the democratic deficit hypothesis in a context where the actual presence of the phenomenon could potentially be observed. Finally, the experimental approach proved to be a useful method to simulate public debates about local wind farm proposals and to test whether counter-acting social influence processes can enhance supporters' perceived minority position. Therefore, this dissertation demonstrated how methods adopted from natural sciences (e.g. surveys and experiments) as well as other methods that do not stem from the empirical tradition (e.g. CDA) can be used simultaneously to develop a more holistic understanding of complex, applied issues in environmental psychology.

The third main contribution of this dissertation has significance for planning policy: the results can inform policy about some of the barriers that could hinder greater community involvement in the planning process. The experiments in Chapter 4 tested an intervention method, that was based on the imagined contact hypothesis (Crisp & Turner, 2009; Miles & Crisp, 2014). These showed that project supporters' perceived minority position can be effectively mitigated by the mental simulation of a positive wind farm debate where project supporters represented a numerical majority. Furthermore, the policy recommendations in this chapter suggested additional public engagement methods that could enhance the involvement of a wider range of actors, including project supporters who were the mostly disengaged with the local onshore wind farm planning process. It is recommended that public engagement practitioners work in close collaboration with local residents to develop a positive vision about place change and foster an inclusive atmosphere that welcomes residents from a wide variety of opinion groups during the planning process about onshore wind farms or other renewable energy developments that are likely to evoke local opposition.

5.3.2 Limitations and future research

The limitations and future research opportunities of the specific studies of this dissertation have been discussed in the relevant chapters. However, the studies within this PhD project also faced a broader limitation which will be addressed in this section. Namely, the media study (Chapter 2) and the survey studies (Chapter 3) focused on

project supporters and project opponents, and the experiments (Chapter 4) included project supporters only, which meant that people with ambivalent or undecided views were not investigated in this dissertation. Yet, not understanding those affected residents who were unsure about the local wind farm proposals left a potentially large share of people out of the research interest (see also Wheeler, 2017), i.e. around 17% of people in the survey studies had ambivalent views while people in this opinion group received no mention in the news reports. Yet, the survey studies in the PhD project indicated that there are multiple minority opinion groups amongst affected residents, and people with ambivalent or undecided views are one of these minority groups.

To pre-empt this limitation, it would have been possible to use a combination of qualitative methods (e.g. open-ended questions, free-text fields) and quantitative data collection methods, which could have given a more comprehensive picture about how a democratic deficit may emerge in onshore wind farm siting. However, qualitative methods were not included in the surveys firstly, because it was expected that the response rates for these particular questions would have been lower than for quantitative questions, simply because providing qualitative data takes more effort. Secondly, it was anticipated that opponents would have answered the qualitative questions more readily and extensively, in line with the studies' hypothesis that project opponents will be more willing to express their views about the wind farm proposals, which in turn might have led to biased qualitative data. Finally, the permission and contact details of those survey respondents who wished to take part in further studies were acquired in the surveys so that they could be asked to take part in the planned follow-up studies, which would have provided a separate opportunity to interview residents who were at the time affected by nearby wind farm proposals.

Furthermore, it is possible that group discussions, instead of one-on-one interviews, could have drawn out even more latent issues behind project-related attitudes and behaviours (or lack of behaviours) because a group setting with potentially familiar people who faced the same issue (i.e. a local wind farm proposal) may have elicited greater levels of responses from participants. Focus group research is a type of group interview where data is generated through conversations between two or three groups of participants about certain topics (Stewart & Shamdasani, 2014). From a methodological viewpoint, focus group research would enhance the conducted studies

along the following main points: 1) it would elicit a large range of responses as opposed to pre-defined Likert-scales and 2) it would allow to learn more about the meaning behind responses about wind farm-related emotions, contradiction and tensions which are difficult to capture in survey studies or experiments (see Gruden-Schuck, Allen & Larson, 2004). It is important however to group people with similar viewpoints together for focus group research (e.g. supportive, ambivalent/neutral and oppositional groups) in order to get reliable data. Namely, conversations between parties with different views may lead to less in-depth discussion of the target issues because conflicting parties may want to avoid opinion expression and therefore may conceal their honest views (Stewart & Shamdasani, 2014).

Focus group research could help to learn more about the drivers and impediments of opinion expression amongst people with varying types of views about local wind farm proposals, which is important for both Phase 2 of the proposed model as well as for the wider democratic deficit literature (e.g. Anderson, 2013; Hindmarsch & Matthews, 2008; Toke, 2005; Wheeler, 2017). Therefore, it would be useful for future research efforts to first conduct survey studies with residents living near proposed wind farm sites that already generated wind farm-related community mobilisation (such as the proposed Bagletts wind farm in Study 2) and then use the result of these surveys to identify participants who 1) cared about the proposal (so that the selected participants were interested in the target topic) and 2) belonged to one of the three main opinion groups. Of those people who matched these two criteria, and who volunteered for future studies, a total of 6 subgroups of participants would be invited for 3 separate focus group discussions:

- Group 1: Project supporters who indicated that they cared about the wind farm proposal. Subgroups: residents with different scores (low vs moderate/high) on the past wind farm-related activity scale.
- Group 2: Residents with ambivalent views who indicated that they cared about the wind farm proposal. Subgroups: participants with ambivalent views who had different scores (moderate/high vs low) on the past wind farm-related activity scale.
- Group 3: Project supporters who indicated that they cared about the wind farm proposal. Subgroups: opponents with different scores (moderate/high vs low) on the past wind farm-related activity scale.

Conclusion

While the wider wind farm literature provided compelling evidence for the existence of the democratic deficit in wind farm siting, our understanding about the mechanisms behind the emergence of a democratic deficit was hindered by both the lack of a theoretically informed model and a systematic investigation on which policy recommendations could also be based. This dissertation presented the first overarching attempt to address these gaps in the field.

The results of the survey studies indicate, that project supporters did not represent a numerical majority of the affected residents but project opponents were not a minority group either, at least to the extent it was suggested in the literature (against the prediction of Phase 1 of the model). Yet project supporters were less active in voicing their opinions than project opponents (in line with the prediction of Phase 2 of the model), which was evident both in the survey studies and in the media study. Project supporters perceived themselves as a minority opinion group (in line with the prediction of Phase 3 of the model), which was evident in both the survey studies and in the experiments, yet project supporters' minority perception was correct (against the prediction of the model). The studies did not find clear evidence for the presence of social influence processes in local onshore wind farm siting as predicted by the theory of pluralistic ignorance, yet journalistic discourse actively delegitimised project supporters and their views, as predicted by the spiral of silence theory. Further explorations about trust in the wind farm developer and endorsement of global arguments for local wind farms (which are linked to the SARF) are required to better understand supporters' apathy.

The results indicate that the host communities' overall makeup of opinion could be best explained by the presence of multiple minority groups: active opponents (NIMBYs and place-protectors; i.e. vocal minority group), less active/inactive opponents (qualified opponents), inactive supporters (who represent the vast majority of supporters), active supporters (i.e. the 'hardcores', the smallest group of all), and people with ambivalent views. Public engagement events using more deliberative (e.g. arts-based) methods could increase the quality of the discussions, which could in turn increase the likelihood that residents from these minority opinion groups will engage in the planning process of onshore wind farms and other large-scale renewable energy developments that are likely to evoke local opposition.

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Appendix 1: Cottam Airfield Questionnaire

A study of public opinions
about the proposed Cottam Airfield wind farm

Dear Participant,

We invite you to take part in our survey and to enter a prize draw to win one of two £40 Amazon vouchers. The questionnaire should take no more than 15 minutes to complete. You can either complete and return this paper version of the survey or alternatively, you can complete this survey online at the following web-address: http://goo.gl/NxQhxB

Please take a moment to read the following information about this research.

This study is being conducted by Agnes Kovacs, a PhD student at the University of Sheffield. It aims to investigate local public opinions about the proposed Cottam Airfield wind farm. Even if you have not heard about the proposed Cottam Airfield wind farm we are still interested in your opinion, so please read on!

Each participant must be at least 16 years old. The paper surveys can be completed by up to two people per household. Please provide *your individual opinion* in this survey and NOT the sum of the opinions of the people in your household. Please return the completed survey(s) in the free-post envelope provided.

In this survey some questions will relate to the proposed Cottam Airfield wind farm, and other questions will relate to you as a person. There are no 'right' and 'wrong' answers. We simply would like to know your opinion.

You are not obliged to participate in this research. If you agree to participate, all responses will be treated confidentially. The returned surveys will be stored for a maximum of five years after the study. Once the data are analysed, a report of the findings may be submitted for publication. Your individual responses will not be identifiable in these published findings.

This study is conducted by independent researchers from the University of Sheffield. While we may discuss the general findings with RWE NPower (i.e. the developer of the proposed Cottam Airfield wind farm), we are NOT working for them – so please feel free to respond honestly to the questions.

If it any time you have a question regarding the study, please feel free to ask the researcher (see contact details below) who will provide more information.

Thank you very much for your cooperation.

Agnes Kovacs (Researcher): akovacs2@sheffield.ac.uk
Dr. Christopher Jones (Supervisor): c.r.jones@sheffield.ac.uk

BACKGROUND INFORMATION

RWE NPower is a company that plans, builds and operates power stations, including wind farms. On the 30th November 2013 RWE NPower organised a 'drop-in day' event at Cass Hall in Driffield. This is because they are currently investigating the potential for a new wind farm on the site of the old Cottam Airfield. It is anticipated that, if constructed, the wind farm would comprise up to 10 wind turbines, each up to a maximum 116 metres in height. If you require further information about the proposal and the site please visit the website of RWE NPower: http://goo.gl/Aysz21

A copy of this questionnaire has been distributed to every household in YO25 3__ postcode area. We are interested in everyone's opinions within this area; so whether you have a strong opinion of the proposed wind farm or have not given it a second thought, please do respond to this survey. It will really help our research if we get as many responses back as possible.

Thank you.

SECTION 1: INFORMATION ABOUT YOUR ADDRESS

1. What is the approximate distance between your address and the former Cottam Airfield?

_____ miles

2. What is the postcode of your address?

YO23 3 __ __

3. How long have you been living in your local community?

_____ years

SECTION 2: ATTENDANCE OF THE 'DROP IN DAY' EVENT

4. Were you aware of the wind farm proposal before you received this survey?

☐ *Yes* ☐ *No* ☐ *Don't know*

4a. Were you aware of the 'drop in day' event held about the wind farm at Cass Hall on the 30th November 2013?

☐ *Yes* ☐ *No* ☐ *Don't know*

4b. Did you attend the 'drop in day' event at Cass Hall on 30th November 2013?

☐ *Yes* ☐ *No* ☐ *Don't know*

4c. If you were aware of the 'drop in day' event, please explain your main motivation(s) for attending or not attending the event?

SECTION 3: OPINIONS ABOUT WIND FARM DEVELOPMENT

5. To what extent do you agree or disagree with the following statements?

	Strongly disagree	*Disagree*	*Neither agree nor disagree*	*Agree*	*Strongly agree*	*Don't know*
a. I feel well informed about the proposed wind farm.	☐	☐	☐	☐	☐	☐
b. I generally trust the developers of the proposed wind farm (i.e. RWE NPower).	☐	☐	☐	☐	☐	☐
c. I could openly express my views about the proposed wind farm if I wanted to.	☐	☐	☐	☐	☐	☐
d. I can influence the decisions being made about the proposed wind farm if I wanted to.	☐	☐	☐	☐	☐	☐
e. I feel well informed about the energy policies of the UK Government.	☐	☐	☐	☐	☐	☐
f. I am satisfied with the energy policies of the UK Government.	☐	☐	☐	☐	☐	☐
g. I care about the decisions being made about the proposed wind farm.	☐	☐	☐	☐	☐	☐
h. I support the construction of the proposed wind farm.	☐	☐	☐	☐	☐	☐
i. I generally support the construction of onshore wind farms in the UK.	☐	☐	☐	☐	☐	☐
j. I think that most people in my local community share my opinion about the proposed wind farm.	☐	☐	☐	☐	☐	☐
k. I am concerned about the UK's energy security.	☐	☐	☐	☐	☐	☐
l. I think that the proposed wind farm will help to tackle climate change.	☐	☐	☐	☐	☐	☐
m. I think that the proposed wind farm would help to improve the UK's energy security.	☐	☐	☐	☐	☐	☐

6. Which of the following statements best describes your opinion about the proposed Cottam Airfield wind farm? Please choose ONE option only.

a. I LIKE wind farms in general AND don't have any real objection to the proposed wind farm being built locally.	☐
b. I LIKE wind farms in general BUT don't want the proposed wind farm to be built because it will personally affect me and my family.	☐
c. I LIKE wind farms in general BUT don't want the proposed wind farm to be built because I think it will affect the local landscape, heritage, wildlife and/or other people.	☐
d. I LIKE wind farms in general AND wouldn't mind if the proposed wind farm were built, but I am concerned that others do not share my opinion.	☐
e. I DON'T LIKE wind farms in general and so I DON'T want the proposed wind farm to be built locally.	☐
f. I have NO opinion about the proposed wind farm.	☐
g. Other, please specify:	☐

7. Imagine that you are at some kind of social gathering where you don't know anyone. You're talking to a group of people when someone brings up the proposed Cottam Airfield wind farm. From the discussion you can tell that most people in the group DO NOT hold your point of view. In this kind of situation, some people would express their opinions, while others who would not.

How likely would you be to express your opinion in a situation like this?

Extremely unlikely	*Unlikely*	*Not sure*	*Likely*	*Extremely likely*
☐	☐	☐	☐	☐

8. Independent of how you personally feel about the proposed Cottam Airfield wind farm, what percentage of the following groups do you think would support or oppose to its construction? Please fill in the table.

	% Supportive	*% Opposed*	*% Undecided*	Total
a. Your close friends and family				100%
b. People living in your local community				100%
c. Other UK citizens				100%

9. Please indicate how well the following emotions describe your feelings about the proposed Cottam Airfield wind farm?

	Does not describe me	*Somewhat describes me*	*Describes me well*	*Not sure*
a. Happy	☐	☐	☐	☐
b. Angry	☐	☐	☐	☐
c. Calm	☐	☐	☐	☐
d. Frustrated	☐	☐	☐	☐

10. With the proposed Cottam Airfield wind farm in mind, please indicate which of the following actions, if any, you have done in the past or you are planning to do in the future. Please tick ALL that apply to you.

	Did it in the past	*Will do in the future*
a. Seek further information from online or printed sources about the proposed wind farm.	☐	☐
b. Attend an information event about the proposed wind farm.	☐	☐
c. Participate in the consultation about the proposed wind farm.	☐	☐
d. Attend an information event where you know most people would be in favour of the proposed wind farm.	☐	☐
e. Attend an information event where you know most people would be against the proposed wind farm.	☐	☐
f. Write/comment to news (online or printed) in favour of the proposed wind farm.	☐	☐
g. Write/comment to news (online or printed) against the proposed wind farm.	☐	☐
h. Write a letter to a local politician in favour of the proposed wind farm.	☐	☐
i. Write a letter to a local politician against the proposed wind farm.	☐	☐
j. Sign a petition in favour of the proposed wind farm.	☐	☐
k. Sign a petition against the proposed wind farm.	☐	☐
l. Join a support group (i.e. a group in favour of the proposed wind farm).	☐	☐
m. Join an opposition group (i.e. a group against the proposed wind farm).	☐	☐
n. I do not intend to do anything about the proposed wind farm.	☐	☐
o. Other, please specify:	☐	☐

SECTION 4: CIVIC ENGAGEMENT AND MEDIA REPORTING

11. Please answer the following questions.

	Yes	*No*	*Prefer not to say*
a. Do you regularly attend public meetings about community issues?	☐	☐	☐
b. Are you interested in local politics?	☐	☐	☐
c. Did you vote at the last local political election?	☐	☐	☐
d. Do you intend to vote at the next local political election?	☐	☐	☐

12. Have you heard anything about the proposed Cottam Airfield wind farm in the local news?

☐ *No* ☐ *Yes, but not much* ☐ *Yes, a lot* ☐ *I don't listen to/read the media*

13. If you answered 'yes' to question 12, what is in your opinion about the nature of the local news reports about the proposed Cottam Airfield wind farm? Please choose ONE option only.

In terms of presenting the viewpoints of supporters and opponents, the news reports tend to…

☐ *Favour supporters' view points* ☐ *Favour opponents' view points*

☐ *Present balanced view points* ☐ *Don't know*

SECTION 5: QUESTIONS ABOUT YOU AS A PERSON

14. To what extent do you agree or disagree with the following statements?

	Strongly disagree	*Disagree*	*Neither agree nor disagree*	*Agree*	Strongly agree
a. I generally consider changes to be a negative thing.	☐	☐	☐	☐	☐
b. I'll take a routine day over a day full of unexpected events any time.	☐	☐	☐	☐	☐
c. Changing plans seems like a real hassle for me.	☐	☐	☐	☐	☐
d. When I am informed of a change of plans, I tense up a bit.	☐	☐	☐	☐	☐
e. Often I feel a bit uncomfortable even about changes that may potentially improve my life.	☐	☐	☐	☐	☐
f. When things don't go according to plans, it stresses me out.	☐	☐	☐	☐	☐
g. I like to do the same old things rather than try new different ones.	☐	☐	☐	☐	☐
h. I often change my mind.	☐	☐	☐	☐	☐
i. Whenever my life forms a stable routine, I look for ways to change it.	☐	☐	☐	☐	☐
j. When someone pressures me to change something, I tend to resist even if I think the change may ultimately benefit me.	☐	☐	☐	☐	☐
k. I'd rather be bored than surprised.	☐	☐	☐	☐	☐
l. I don't change my mind easily.	☐	☐	☐	☐	☐
m. Once I've come to a conclusion, I'm not likely to change my mind.	☐	☐	☐	☐	☐
n. I sometimes find myself avoiding changes that I know will be good for me.	☐	☐	☐	☐	☐
o. My views are consistent over time.	☐	☐	☐	☐	☐

15. To what extent do you agree or disagree with the following statements?

	Strongly disagree	*Disagree*	*Neither agree nor disagree*	*Agree*	*Strongly agree*
a. I'd rather live in the community where I live now then anywhere else.	☐	☐	☐	☐	☐
b. If I had to move away from my local community I would be very sorry to leave.	☐	☐	☐	☐	☐
c. The place where I live means a lot to me.	☐	☐	☐	☐	☐
d. I identify strongly with the place where I live.	☐	☐	☐	☐	☐

16. Which of the following statements best describes your opinion about climate change? Please choose ONE option only.

a. YES, the climate is changing AND human activity is FULLY responsible for it.	☐
b. YES, the climate is changing AND natural processes are FULLY responsible for it.	☐
c. YES, the climate is changing AND human activity is MAINLY responsible for it.	☐
d. YES, the climate is changing AND natural processes are MAINLY responsible for it.	☐
e. YES, the climate is changing AND human activity and natural processes are EQUALLY responsible for it.	☐
f. NO, the climate is not changing.	☐
g. I don't know	☐

SECTION 6: DEMOGRAPHIC DATA

17. Are you:

☐ Male ☐ Female ☐ Other ☐ Prefer not to say

18. How old are you?

_____ years

19. What is your highest level of education?

☐ No qualification gained
☐ O-level(s)/GCSE(s)
☐ A-level(s)
☐ Professional qualification(s)
☐ University degree(s)

20. Which of the following categories best describe your occupation?

☐ Employed full time
☐ Employed part time
☐ Self-employed
☐ Seeking work
☐ Looking after home/children
☐ Student
☐ Retired
☐ Other, please specify: _____

21. Do you rent or own this house?

☐ Rent ☐ Own/Paying mortgage on ☐ Other

22. If you would like to enter the prize draw to win one of the two £40 high street vouchers please provide your email address or phone number so I can get in touch with you in case you win.

Your email address / phone number: _____

23. Would you like to take part in our future studies related to the proposed Cottam Airfield wind farm?

☐ No ☐ Yes, please provide your email address / phone number: _____

Thank you! Please return this survey in the free post envelope.

Appendix 2: Bagletts Questionnaire

Participant number:

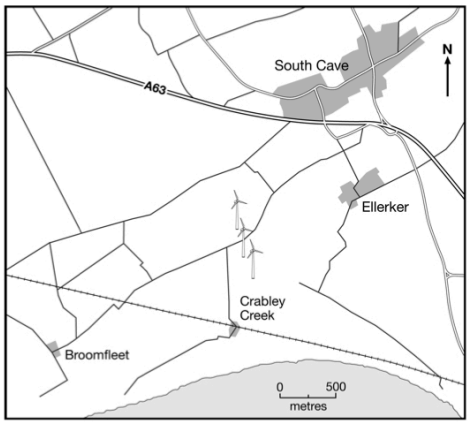
Bagletts Wind Farm Proposal:
Tell Us What You Think

We will return to collect this questionnaire on:

Please read the following information before beginning the questionnaire.

In response to the threat posed on us by climate change and by an increased reliance on energy imports, the UK Government aims to produce more of our electricity from renewable energy sources (e.g. wind energy). WED Renewables is a company that plans, builds, and operates power stations, including wind farms. They are currently investigating the potential for a new wind farm comprised of three wind turbines to a maximum of 125m high at a site between South Cave, Ellerker, and Broomfleet. Please see a map of the area and the proposed turbines below.

At least one of these turbines lies within approximately 1 mile (1.5 km) of your home.



We, at the University of Sheffield, are interested in collecting information about your opinions regarding the potential development of these three wind turbines on the site shown above. As such, we ask if you could spare a few minutes to answer the following questions for us.

We request that you answer all questions as honestly and accurately as you can and that you answer according to your **OWN** feelings rather then how you think 'most people' would answer. There are no 'right' or 'wrong' answers. We simply would like to know your opinion.

Your responses will be kept confidential. Please also note that we are working independently of WED Renewables and East Riding Council.

We will return to collect your completed questionnaire in person at the date written on the front of this questionnaire.

Tell us your own views, feelings, and actions regarding the development of the proposed Bagletts Wind Farm and about energy policies in the UK.

1. To what extent do you agree or disagree with the following statements? Please tick only ONE box per statement.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know
a. I feel well informed about the proposed wind farm.	☐	☐	☐	☐	☐	☐
b. I generally trust the developers of the proposed wind farm (i.e. WED Renewables).	☐	☐	☐	☐	☐	☐
c. I think I could openly express my views about the proposed wind farm if I wanted to.	☐	☐	☐	☐	☐	☐
d. I think I could influence the decisions being made about the proposed wind farm if I wanted to.	☐	☐	☐	☐	☐	☐
e. I feel well informed about the energy policies of the UK Government.	☐	☐	☐	☐	☐	☐
f. I am satisfied with the energy policies of the UK Government.	☐	☐	☐	☐	☐	☐
g. I care about the decisions being made about the proposed wind farm.	☐	☐	☐	☐	☐	☐
h. I support the construction of the proposed wind farm.	☐	☐	☐	☐	☐	☐
i. I generally support the construction of onshore wind farms in the UK.	☐	☐	☐	☐	☐	☐
j. I think that most people in my community share my opinion about the proposed wind farm.	☐	☐	☐	☐	☐	☐
k. I am concerned about the UK's energy security.	☐	☐	☐	☐	☐	☐
l. I think that the proposed wind farm will help to tackle climate change.	☐	☐	☐	☐	☐	☐
m. I think that the proposed wind farm would help to improve the UK's energy security.	☐	☐	☐	☐	☐	☐
n. My views about the proposed wind farm have been consistent over time.	☐	☐	☐	☐	☐	☐

2. Imagine that you are at some kind of social gathering where you don't know anyone. You're talking to a group of people when someone brings up the proposed Bagletts Wind Farm. From the discussion you can tell that most people in the group DO NOT hold your point of view. In this kind of situation, some people would express their opinions, while others would not.

How likely would you be to express your opinion in a situation like this?

Extremely unlikely	*Unlikely*	*Not sure*	*Likely*	*Extremely likely*
☐	☐	☐	☐	☐

3. Please indicate how well the following emotions describe your feelings about the proposed Bagletts Wind Farm?

	Does not describe me	*Somewhat describes me*	*Describes me well*	*Not sure*
a. Happy	☐	☐	☐	☐
b. Angry	☐	☐	☐	☐
c. Calm	☐	☐	☐	☐
d. Frustrated	☐	☐	☐	☐

4. With the proposed Bagletts Wind Farm in mind, please indicate which of the following actions, if any, you have done in the past or you are planning to do in the future. Please tick ALL options that apply to you.

	Did in the past	*Will do in the future*
a. Seek further information from online or printed sources about the proposed wind farm.	☐	☐
b. Attend an information event about the proposed wind farm.	☐	☐
c. Participate in the consultation about the proposed wind farm.	☐	☐
d. Attend an information event where you know most people would be in favour of the proposed wind farm.	☐	☐
e. Attend an information event where you know most people would be against the proposed wind farm.	☐	☐
f. Write/comment to news (online or printed) in favour of the proposed wind farm.	☐	☐
g. Write/comment to news (online or printed) against the proposed wind farm.	☐	☐
h. Write a letter to a local politician in favour of the proposed wind farm.	☐	☐
i. Write a letter to a local politician against the proposed wind farm.	☐	☐

	Did in the past	*Will do in the future*
j. Sign a petition in favour of the proposed wind farm.	☐	☐
k. Sign a petition against the proposed wind farm.	☐	☐
l. Join a support group (i.e. a group in favour of the proposed wind farm).	☐	☐
m. Join an opposition group (i.e. a group against the proposed wind farm).	☐	☐
n. Other, please specify:	☐	☐

5. The plans for the development of the proposed Bagletts Wind Farm are in very early stages and, as such, there has been little public consultation on the proposal to this point.

However, thinking about the future, do you trust WED Renewables to…

	Definitely no	*No*	*Not sure*	*Yes*	*Definitely yes*
a. Keep local residents informed of the plans as they develop?	☐	☐	☐	☐	☐
b. Seek local residents' views about the proposal?	☐	☐	☐	☐	☐
c. Take local residents' views into account?	☐	☐	☐	☐	☐
d. Tell the truth about any risks that might be involved?	☐	☐	☐	☐	☐
e. Keep local residents' interests at heart?	☐	☐	☐	☐	☐
f. Act fairly when choosing where wind turbines should be sited?	☐	☐	☐	☐	☐

6. How interested would you be to hear more from the following groups regarding the wind farm proposal?

	Definitely not interested	*Not interested*	*Not sure*	*Interested*	*Definitely interested*
a. East Riding Council	☐	☐	☐	☐	☐
b. WED Renewables	☐	☐	☐	☐	☐
c. Supporters of the proposal	☐	☐	☐	☐	☐
d. Opponents of the proposal	☐	☐	☐	☐	☐
e. Independent scientists	☐	☐	☐	☐	☐
f. Local media sources	☐	☐	☐	☐	☐

Tell us about your civic engagement and about your own views regarding local media reporting about the proposed Bagletts Wind Farm.

7. Please answer the following questions.

	Yes	*No*	*Prefer not to say*
a. Do you ever attend public meetings about community issues?	☐	☐	☐
b. Are you interested in local politics?	☐	☐	☐
c. Did you vote at the last local political election?	☐	☐	☐

8. To what extent do you agree or disagree with the following statements?

	Strongly disagree	*Disagree*	*Neither agree nor disagree*	*Agree*	*Strongly agree*
a. I would rather live in the community where I live now than anywhere else.	☐	☐	☐	☐	☐
b. If I had to move away from my community I would be very sorry to leave.	☐	☐	☐	☐	☐

9. Do you ever comment on or engage in a discussion with *your close friends and relatives* about the proposed Bagletts Wind Farm?

☐ *Yes, sometimes* ☐ *Yes, often* ☐ *No* ☐ *Don't know*

10. Do you ever comment on or engage in a discussion with *someone from your community* (other than your close family and fiends) about the proposed Bagletts Wind Farm?

☐ *Yes, sometimes* ☐ *Yes, often* ☐ *No* ☐ *Don't know*

11. Have you heard or read anything about the proposed Bagletts Wind Farm in the local news (e.g. printed or online media, radio, TV)?

☐ *Yes, but not much* ☐ *Yes, a lot* ☐ *No* ☐ *I don't listen to/read the local news*

12. If answered 'Yes' to the previous question (Question 11), what is in your opinion about the nature of the local news reports about the proposed Bagletts Wind Farm?

In terms of presenting the viewpoints of supporters and opponents, the news reports tend to…

☐ *Favour supporters' viewpoints* ☐ *Present balanced viewpoints*

☐ *Favour opponents' viewpoints* ☐ *Don't know*

To finish off, we will need a little information about you. Please remember that any information you provide will be kept strictly confidential.

13. What is your gender?

☐ Male ☐ Female ☐ Other ☐ Prefer not to say

14. How old are you?

_____ years old

15. What is your highest level of education?

☐ No qualification gained
☐ O-level(s)/GCSE(s)
☐ A-level(s)
☐ Professional qualification(s)
☐ University degree(s)

16. Which of the following categories best describe your occupation?

☐ Employed full time
☐ Employed part time
☐ Self-employed
☐ Seeking work
☐ Looking after home/children
☐ Student
☐ Retired
☐ Other, please specify:

17. Do you rent or own this house?

☐ Rent ☐ Own/Paying mortgage on ☐ Other

18. Approximately how long have you lived in this area?

_____ years

19. Would you like to take part in our future studies related to the proposed Bagletts Wind Farm?

☐ No ☐ Yes, please provide your email address or phone number below:

You've finished!

Please do not forget that a researcher will endeavour to come to your house to pick up your questionnaire on the day stated on the front page. If you think that you will be out when they return then please leave your questionnaire in a plastic bag on your doorstep.

Thank you!

20. Finally, you are also invited to enter a PRIZE DRAW to win one of the three £40 Amazon vouchers. Winners will be informed in July. If you would like to enter this prize draw then please provide your email address or phone number below:

Thank you very much for taking the time to complete this questionnaire.

If you have any queries about this survey please contact

Agnes Bray
Department of Psychology
University of Sheffield
Western Bank
Sheffield
S10 2TN

Tel: +44 (0) 114 222 6641
Email: akovacs2@sheffield.ac.uk

Appendix 3: Pilot Study 1

Welcome

WELCOME

Please read the following before starting this survey:

It is crucial for us that you complete this survey *in one go,* that is, without interruptions to your thinking.

Please only participate in this survey, if you have 10 spare minutes that you can dedicate to it.

Thank you

Attention

Before you start, please:

– maximise your browser window;
– switch off phone/e-mail/music and anything else distracting.

Thank you

Consent Form

CONSENT FORM

I consent to participate in this session, which will involve a test of materials for a number of possible future studies in our laboratory.

I understand that I will be asked questions related to a hypothetical wind farm proposal and to provide demographic information about myself.

I understand that all data will be kept confidential by the researcher. My personal information will not be stored with the data. I am free to withdraw at any time without giving a reason.

I consent to the publication of study results as long as the information is anonymous so that no identification of participants can be made.

The study has received approval from the Psychology Research Ethics Committee of the University of Sheffield.

○ I have read and understand the explanations and I voluntarily consent to participate in this study.

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Importance

The tasks in this pilot study relate to attitudes to and behaviour intentions about local, commercial, onshore wind farms.

Therefore, we would like you to consider a situation in which a wind farm company proposed to build a wind farm *near where you live*.

In case a wind farm was proposed to be built near where you live, to what extent would these factors listed below be relevant for you?

	Not relevant at all 1	2	3	4	5	6	Very relevant 7
Financial feasibility (i.e. whether or not the project requires governmental subsidies in order to operate)	○	○	○	○	○	○	○
Bird and bat mortality (i.e. whether or not the wind farm will be harmful to birds and bats)	○	○	○	○	○	○	○
Visual impact (i.e. whether or not the wind farm changes the landscape)	○	○	○	○	○	○	○
Radio and TV reception interference (i.e. whether or not the wind turbines can disrupt TV or radio signals)	○	○	○	○	○	○	○
Construction disruption (i.e. whether or not the construction work while putting up the turbines will disturb the local traffic)	○	○	○	○	○	○	○
Wind turbine noise (i.e. whether or not low-frequency noise emitted by wind turbines can cause adverse health effects)	○	○	○	○	○	○	○
Type of compensation (i.e. whether or not the affected communities have the opportunity to negotiate the type of community benefit they receive, e.g. one-off payment, regular payments, co-ownership of the turbines, new community facilities etc.)	○	○	○	○	○	○	○
Public participation (i.e. whether or not the local community is able take part in the decision-making process about the wind farm)	○	○	○	○	○	○	○
Intermittency of electricity generation (i.e. that the wind turbines only operate when the wind blows)	○	○	○	○	○	○	○
Property prices (i.e. whether or not the wind farm will have an impact on the prices of nearby properties)	○	○	○	○	○	○	○
Ground radar interference (i.e. whether or not the wind turbines can interfere with ground radar systems used for military, weather and air traffic control)	○	○	○	○	○	○	○
Amount of community fund (i.e. the amount of monetary compensation provided by the wind farm company to the affected communities)	○	○	○	○	○	○	○

Arguments

PLEASE RATE THE FOLLOWING STATEMENTS

In this task, we are asking you to rate the statements below that highlight some of the negative impacts wind farms might have.

Please rate how persuasive you think these statements would be for the average person who is faced with a local wind farm proposal? (i.e. regardless of whether or not you agree with these statements)

	Not persuasive at all 1	2	3	4	5	6	Very persuasive 7
The local community will not be able to share ownership of the turbines which would have significantly decreased their own electricity bills	○	○	○	○	○	○	○
Due to the significant noise emitted by wind turbines a few local residents are likely to experience disturbance to their sleep	○	○	○	○	○	○	○
The wind farm will significantly devalue properties in the area	○	○	○	○	○	○	○
Due to the slight noise emitted by wind turbines a few local residents will experience disturbance to their sleep	○	○	○	○	○	○	○
The construction of the wind farm will cause major disruptions to the traffic flow in the area	○	○	○	○	○	○	○
The wind strength in this area will occasionally be insufficient for the turbines to operate	○	○	○	○	○	○	○
The local community will have virtually no say in the decisions being made about the proposal	○	○	○	○	○	○	○
If the wind farm is constructed at this location it will kill large numbers of rare birds	○	○	○	○	○	○	○
The proposed wind farm will provide very minimal amount of monetary compensation to the local community	○	○	○	○	○	○	○
The wind farm will significantly devalue properties that are close the proposed site	○	○	○	○	○	○	○
If the wind farm is constructed at this location it will kill some common birds	○	○	○	○	○	○	○
The local community will have little say in the decisions being made about the proposal	○	○	○	○	○	○	○
The wind turbines will occasionally disrupt TV and radio signals in a few local homes	○	○	○	○	○	○	○
The wind farm will slightly devalue properties that are close to the	○	○	○	○	○	○	○

proposed site							
The wind farm will have a strong negative impact on the look of the area	○	○	○	○	○	○	○
The wind farm will have a slightly negative impact on the look of the area	○	○	○	○	○	○	○
Due to the significant noise emitted by wind turbines many local residents are likely to experience disturbance to their sleep	○	○	○	○	○	○	○
The local wind farm will require considerable government subsidies if it is to be financially viable	○	○	○	○	○	○	○
If the wind farm is constructed at this location it will kill some birds	○	○	○	○	○	○	○
The wind turbines will often disrupt TV and radio signals in many local homes	○	○	○	○	○	○	○
The construction of the wind farm will only cause minor disruptions to the traffic flow in the area	○	○	○	○	○	○	○
The local community will not be able to share ownership of the turbines which would have slightly decreased their own electricity bills	○	○	○	○	○	○	○
The proposed wind farm will only provide a small amount of monetary compensation to the local community	○	○	○	○	○	○	○
The wind turbines will occasionally interfere with ground radar systems used for military, weather and air traffic control	○	○	○	○	○	○	○
The local wind farm will require some government subsidies to ensure it is financially viable	○	○	○	○	○	○	○
The wind strength in this area is mostly insufficient for the turbines to operate	○	○	○	○	○	○	○
The wind turbines will often disrupt TV and radio signals in a few local homes	○	○	○	○	○	○	○
The wind turbines will frequently interfere with ground radar systems used for military, weather and air traffic control	○	○	○	○	○	○	○
If the wind farm is constructed at this location it will kill large numbers of birds	○	○	○	○	○	○	○

Behavioural intentions

PLEASE RATE THE FOLLOWING STATEMENTS

We are also testing some behavioural intention measures which describe actions that people might take when a wind farm is proposed to be built near where they live.

Please rate each statement below according to how much effort you think they would take to perform for the average person who is faced with a local wind farm proposal? (i.e. regardless of whether or not you yourself would be likely to engage in such activities)

	Does not take much effort 1	2	3	4	5	6	Takes a lot of effort 7
Sign a petition in favour/against the wind farm proposal	○	○	○	○	○	○	○
Attend an information event about the wind farm proposal	○	○	○	○	○	○	○
State your opinion about the wind farm proposal to the wind farm developers	○	○	○	○	○	○	○
Seek further information (printed or online) about the impacts of wind farms	○	○	○	○	○	○	○
Write a letter or an email to a local newspaper in favour/against the proposal	○	○	○	○	○	○	○
Explain your opinion at an official legal inquiry about the wind farm proposal	○	○	○	○	○	○	○
Debate the wind farm proposal at a town hall meeting	○	○	○	○	○	○	○
Read/listen to local news in favour/against the wind farm proposal	○	○	○	○	○	○	○
Try to convince people from your community who do not share your opinion about your position about the wind farm proposal	○	○	○	○	○	○	○
Join a local wind farm support/opposition group	○	○	○	○	○	○	○
Write a letter or an email to a local politician in favour/against the wind farm proposal	○	○	○	○	○	○	○

Talk to your close friends and family about the wind farm proposal	○	○	○	○	○	○	○
Knock on the doors of locals and give them flyers arguing in favour/against the wind farm proposal	○	○	○	○	○	○	○

Demographics

These are the last questions

What is your age?

What is your gender?

- ○ Male
- ○ Female
- ○ Prefer not to say

Is English your native language?

- ○ Yes
- ○ No

Please provide you email address so you can receive your credit in SONA:

Block 12

DEBRIEFING

This study aimed to test some of the dependent variables that will be used to investigate the root causes of opposition and support towards wind farms. First, we wanted to know how important certain risks associated with wind farms are for students (in relation to a hypothetical, local wind farm proposal). Then, we tested students' perceptions about 'how 'strong' or 'weak' certain arguments are about the risks associated with local wind farms. Finally, we asked students to rate how much effort certain wind farm related behaviours would take, and finished the study with demographic questions. The results will help to design experiments that would test the 'democratic deficit hypothesis' and could have an impact on advising policy as well.

It is important to stress, that the 'local wind farm proposal' that was used in this study is purely hypothetical.

Further information:
Bell, D., Gray, T. & Haggett, C. (2005). The 'social gap' in wind farm siting decisions: explanations and

policy responses. *Environmental politics*, *14*(4), 460-477.
Jones, C. R & Eiser, J. R. (2010) Understanding local opposition to wind farm developments in the UK: How big is a backyard, *Energy Policy*

Thank you very much for participating in this study.

If you would like to withdraw your data at any point, please contact me at akovacs2@sheffield.ac.uk. You do not have to give a reason for your withdrawal.

Lastly, please **click on the forward button** in the bottom right hand corner so that your responses can be recorded and you can be credited.

A. Bray
PhD Candidate
The University of Sheffield, UK

Appendix 4: Experiment 2

Welcome

WELCOME

Please read the following before starting this survey

It is crucial for us that you complete this survey *in one go,* that is, without interruptions to your thinking.

Please only participate in this survey, if you have 10 spare minutes that you can dedicate to it.

Thank you

ProlificID

Before you start, please:

– maximise your browser window;
– switch off phone/e-mail/music and anything else distracting;
– and please enter your Prolific ID:

Consent Form

CONSENT FORM

I consent to participate in this session, which will involve a test of materials for a number of possible future studies in our laboratory.

I understand that I will be asked questions related to being in various environments, to envisage certain environmental scenarios and to describe this imagined scenario, to provide information about my previous experiences and my current attitudes towards renewable energy developments, and to provide demographic information about myself.

I understand that all data will be kept confidential by the researcher. My personal information will not be stored with the data. I am free to withdraw at any time without giving a reason.

I consent to the publication of study results as long as the information is anonymous so that no identification of participants can be made.

The study has received approval from the Psychology Research Ethics Committee of the University of Sheffield.

○ I have read and understand the explanations and I voluntarily consent to participate in this study.

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Crowd

Please take a minute to imagine the following scenario as vividly and in as much detail as possible

Please start now:
Imagine that you are sitting in a crowded community hall where most of the people are in favour of the wind farm that is proposed to be built near where you live. There are people in front of you, behind you, and to your sides. Although there are some children, the audience is mostly adults, and you are debating the wind farm proposal. The atmosphere is friendly, positive and calm and the majority of the people are expressing their support for the local wind farm proposal.

Control

Please take a minute to imagine the following scenario as vividly and in as much detail as possible

Please start now:
Imagine that you are sitting on a bench in a busy park. There are many people near you, both adults and children, and they are engaged in various activities, (e.g. walking, jogging, eating, playing etc.). Try to imagine aspects of the scene that you can see from sitting on this bench.

Manipulation reinforcement

Please describe what you have just imagined as vividly and in as much detail as possible

Instruction

We would like you to consider a situation in which a wind farm company proposed to build a wind farm *near where you live*. The next questions will refer to this proposed local wind farm.

Counter-attitudinal arguments

Please read each statement very carefully

Below are four statements about the possible *negative impacts* of the proposed local wind farm

- If the wind farm is constructed at this location it will kill some common birds
- The wind farm will slightly devalue the properties that are close to the proposed site
- The proposed wind farm will provide a small amount of monetary compensation to the local community
- The wind strength in this area will sometimes be insufficient for the wind turbines to operate

DV estimation

Please estimate the share of people living in your neighbourhood who would support the construction of a wind farm near where you live?

% of people

DV Behavioural measures

To what extent would you be likely to engage in the activities listed below if a wind farm was proposed to be built near where you live?

	Extremely unlikely 1	2	3	4	5	6	Extremely likely 7
Read/listen to local news in favour/against the wind farm proposal	○	○	○	○	○	○	○
State your opinion about the wind farm proposal to the wind farm developers	○	○	○	○	○	○	○
Try to convince people from your community who do not share your opinion about your position about the wind farm proposal	○	○	○	○	○	○	○
Seek further information (printed or online) about the impacts of wind farms	○	○	○	○	○	○	○
Write a letter or an email to a local politician in favour/against the wind farm proposal	○	○	○	○	○	○	○
Explain your opinion at an official legal inquiry about the wind farm proposal	○	○	○	○	○	○	○
Join a local wind farm support/opposition group	○	○	○	○	○	○	○
It is important that you pay attention to this study. Please tick 'Extremely likely'	○	○	○	○	○	○	○
Sign a petition in favour/against the wind farm proposal	○	○	○	○	○	○	○
Debate the wind farm proposal at a town hall meeting	○	○	○	○	○	○	○
Attend an information event about the wind farm proposal	○	○	○	○	○	○	○
Write a letter or an email to a local newspaper in favour/against the proposal	○	○	○	○	○	○	○
Talk to your close friends and family about the wind farm proposal	○	○	○	○	○	○	○
Knock on the doors of locals and give them flyers arguing in favour/against the wind farm proposal	○	○	○	○	○	○	○

DV Contact journalist

An NUS (National Union of Students) reporter is interested in students' opinions about local wind farms. Would you be willing to share your opinion with the reporter?

I don't want to talk to the reporter ○ ○ ○ ○ ○ ○ ○ I would like to talk to the reporter

Would you agree your name to appear as well in the NUS newspaper?

I don't want to be identifiable ○ ○ ○ ○ ○ ○ ○ I agree to be idenifiable

Feedback

What do you think this experiment was investigating?

Demographics

These are the last questions

What is your age?

What is your gender?

- ○ Male
- ○ Female
- ○ Prefer not to say

Final

After reading the debriefing please click on the >> button to show that you have finished the study!

DEBRIEFING

There were two conditions in this study: Control condition (where you had to imagine being in a busy park) and Imagery condition (where you had to imagine being in a crowded community hall where most people supported a local wind farm proposal). This study aimed to test whether imagining being in a crowd that is supportive of a local wind farm proposal would increase the likelihood that wind farm supporters would speak out about their opinion even when presented with anti wind farm arguments. The results will help to test the 'democratic deficit hypothesis' and could have an impact on advising policy as well.

It is important to stress that the 'local wind farm proposal' and the 'US reporter' that were used in this study were purely hypothetical.

Further information:

Bell, D., Gray, T. & Haggett, C. (2005). The 'social gap' in wind farm siting decisions: explanations and policy responses. *Environmental Politics*, *14*(4), 460-477.
Jones, C. R & Eiser, J. R. (2010) Understanding local opposition to wind farm developments in the

UK: How big is a backyard?, *Energy Policy*, *38*(6), 3106-3117.
Miles, E., & Crisp, R. J. (2014). A meta-analytic test of the imagined contact hypothesis. *Group Processes & Intergroup Relations*, *17*(1), 3-26.

THIS IS THE END OF THE STUDY

Thank you very much for taking part in this survey.

If you would like to withdraw your data at any point, please contact me at akovacs2@sheffield.ac.uk. You do not have to give a reason for your withdrawal.

Please **click on the forward button** in the bottom right hand corner so that your responses can be recorded and you can be credited.

A. Bray
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