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NIMBY or not? Exploring the relevance of location and the politics of voiced opinions in renewable energy siting controversies

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Available online 19 January 2007

Abstract

Local protests against renewable energy facilities have added fuel to the debate about the so-called NIMBY (not in my back yard) effect. This paper identifies six 'variables' that can hamper the comparison between different public perception studies, and offers two broad conclusions. *On aggregate*, proximity does have strong influence on public attitudes to *proposed* projects, but the nature, strength and spatial scale of this effect may vary according to local context and 'value' of the land. Residents of stigmatised places are more likely to welcome facilities that are relatively 'green', while people who derive a more positive sense of identity from particular rural landscapes are likely to resist such potential developments, especially if they also live there. Secondly, the fear of being branded a NIMBY, and the positive ethics associated with the notion of renewable are both likely to 'colour' the responses of many interviewees. These aspects need to be clarified and accounted for in analyses of elicited responses, both quantitative and qualitative, if we are to improve our understanding of the social construction of individual attitudes in siting conflicts.
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Keywords: Proximity; Public opinion; Renewables

1. Introduction

Much of the facilities siting literature is concerned with the phenomenon that certain services are *in principle* considered as beneficial by the majority of the population, but that proposed facilities to provide these services are *in practice* often strongly opposed by local residents. This phenomenon is popularly known as not in my back yard (NIMBY) behaviour. The term NIMBY is often used by proponents of the facility as "a succinct way of discrediting project opponents" (Burningham, 2000, p. 55). Although most researchers now seem to agree that this phenomenon is rather complex, and that the 'selfish' element is only one of many possible reasons why people may oppose a particular local development, the acronym is still widely used in academia.

In recent years, the literature on public opposition to facility siting has been expanded by research on local

public opposition to new renewable energy projects, especially wind energy. Much of the existing literature consists of siting case studies or public opinion surveys which have mainly helped to highlight the general scale of these siting conflicts, or identify problems related to the specific characteristics of renewable energy and the policies and schemes used to promote it.

More explanatory studies include Bell et al. (2005), who developed three possible explanations (including one explaining 'NIMBY') for the 'social gap' between the high level of public support for wind found in opinion surveys and the frequent occurrence of local opposition when a specific project is proposed, but they do not seek to quantify or rank these explanations. Wolsink (2000) identified four different types of objections to proposed wind farms (including 'NIMBY') and tried to quantify their relative importance, concluding in short (through the title of his paper) that NIMBY is a 'myth'. Warren et al. (2005) on the other hand measured public opinion before and after a wind farm is built and reported that "a NIMBY effect was widespread to begin with" (p. 864) but also that

public opinion measured at different distances from an existing wind farm indicate "the existence of an 'inverse NIMBY' syndrome" (p. 866). How can we make sense of these confusing and seemingly conflicting findings?

This paper aims to make more sense of the debate by examining more closely what it is that empirical studies have tried to measure so far, focusing on the time, place and way in which opinions are elicited or recorded.

The paper will draw on existing literature and on observations from biomass energy projects in the UK which have not been reported before.

When writing about this topic, the first problem lies in the choice of words as the term NIMBY is popular with proponents but strongly disliked and contested by many opponents to planned developments (Wolsink, 1994; Burningham, 2000; Upreti, 2004). Could academics use the word, as some do without apparent hesitation, without choosing side? Or is abandoning the term actually a form of siding with the opponents to the proposed development; an implied stance against the notion that some opponents may indeed in part be motivated by 'selfish' reasons? Burningham (2000) and Wolsink's (2006) calls for academics to abandon 'the language of NIMBY' have had limited success to date. Considering its continued popularity in the public domain, academics may alternatively opt to lend support to efforts to de-stigmatise it. Indeed there appears to be a small but growing trend of opponents who embrace the term in defiance of its negative connotation (e.g. a web search on 'NIMBY' and 'proud' in February 2006 yielded five relevant hits from the US, UK and New Zealand).

An underlying reason why the term has become so contentious, is because it is poorly defined (e.g. Luloff et al., 1998; Wolsink, 2006; Hubbard, 2006). This is further demonstrated in subsequent sections of this paper, but one aspect is worth clarifying at this stage, namely the distinction between individual and group attitudes. It is unlikely that the NIMBY term would have been popularised if local protests had not so often been successful in frustrating the building of new facilities, but although it owes its origins to (successful) local activist groups, it is also often used to describe the attitudes or expressed opinions of individuals without any necessary reference to the willingness of these individuals to actively protest or their ability to protest effectively. Dear (1992, p. 88) provides a good example of this potential confusion when he states that "NIMBY is the motivation of residents who want to protect their turf. More formally, NIMBY refers to the protectionist attitudes of and oppositional tactics adopted by community groups facing an unwelcome development in their neighbourhood". It should be clear that individual motivation, group attitudes and group tactics are three different concepts. Although organised opposition will not take place without individual motivation, the existence of negative attitudes amongst individuals will not by definition result in active opposition by community groups. Activists can and do help to spread and strengthen negative attitudes in the community, but again the initial opposition rises within (certain) individuals. Secondly, the 'tactics' of a community group may reflect local politics or be copied from protests in different places on completely different issues. These tactics can be an interesting topic of research but they may not necessarily be able to shed much light on the problem of localised opposition to a specific type of facility. This paper will be consistent with much of the recent literature and focus mainly on individuals.

Some empirical studies (e.g. Ek, 2005; Warren et al., 2005) set out to measure 'NIMBY effects' regardless of the stage of development of the project, although it is already clear that opposition is strongest at the planning phase, and weaker before a local project is proposed (i.e. when people are asked about the need for such facilities in general) or after the facility has become operational (Wolsink, 1994). Bell et al. (2005) recognise that the apparent 'gap' in attitude between 'before' and 'during' the planning of a local project is a key problem, which may have a number of possible explanations, including perhaps a 'selfish' response of people seeking to defend their back yard with little apparent regard to wider society. Both Wolsink (2000) and Bell et al. (2005) use the word NIMBY (albeit sparingly) as a label for this particular (i.e. selfish) explanation, presumably because they see it as being consistent with the (negative) meaning of NIMBY as it is used by some proponents of new facilities. For the sake of greater clarity this could be referred to as 'selfish NIMBY', as opposed to local opposition to facility siting that is motivated by other concerns such as (see Wolsink, 2000) the technology in general (anti-wind), the nature of the planning process (anti-process) or other specific aspects of the project (anti-project). Although even the word 'selfish' ought to be defined in context, at least it is consistent with terminology ('concern for the self' or 'egoistic') used by psychologists who try to measure different attitudes (e.g. Schultz, 2001).

Thus, the people who are concerned about proposed (or planned) facilities in a relatively nearby location, may or may not protest against the development (this protest may be successful or not) and they may be motivated by a whole range of different concerns, including perhaps 'selfish' behaviour. The following sections will draw attention to important variables which empirical studies must take into account when seeking to provide (partial) answers to the question when and why do people become concerned about proposed facilities and how do they express their concern in arguments and actions.

2. Measuring the relevance of proximity and location

2.1. Individual and aggregate opinions

The notion of backyard is colloquially used beyond the confines of 'NIMBY' but in the context of the latter it implies some sort of geographical catchment area for selfish behaviour. Opposition to a proposed project is

usually dominated by local people. It may be tempting to explain this in terms of problems that people face in obtaining information about far away projects, or their relative handicap when it comes to exerting influence through some of the usual channels of local networking, voting or lobbying the local councillors. But is this handicap of administrative geography really the only reason? And in most cases there are at least some non-local protesters involved, so how come their concerns seem to extend well beyond the local administrative boundaries? Academics must be careful not to make deterministic assumptions about the possible geographic extent of the concerns raised by *individual* residents of a specific locality. In order to assess the nature and strength of concerns about proposed facilities in one's 'backyard', it is essential to be able to identify what surveyed individuals consider to be locations that are of great importance to them.

Devine-Wright (2005) provides a brief overview of some empirical studies on the 'proximity hypothesis' that the closer people live to a windfarm, the more negative their perceptions would be. Although a comparison between these studies is hampered by a number of incompatibilities, he found that the proximity principle was not proven. He concludes that "explanations of wind farm perceptions must go beyond purely physical parameter, such as proximate distance, turbine size and colour, to encompass 'social' distance measures affecting the personal salience of a wind farm and are likely to prove important in explaining negative wind farm perceptions"(ibid, p. 130). Indeed the individual differences in what people relate to as locations of interest must ultimately be based on social processes that take place under some forms of physical restrictions of what we can see, hear, visit or learn about through various modes of communication. But do the outcomes of existing empirical studies mean that physical proximity plays no role in public opinion on proposed or existing wind farms?

The most recent and probably the most extensive study to date has been reported by Warren et al. (2005), who measured public perceptions at different distances to wind farm locations, for windfarms that were proposed and windfarms that were completed. Consistent with existing literature they found that local people were far more negative about a proposed wind farm (Black Hill (BH)) than about an existing one (Dun Law (DL)). With regards to distance effects, they found that people living 5–10 km away from the proposed wind farm were six times less opposed to the windfarm than people living within 5 km of the proposed site. With regards to existing windfarms, the research showed that both in the Scottish case study and the (aggregation of the) two Irish case studies, support for the windfarm was higher in areas closer to the windfarm than in areas further out. The results must be interpreted with some caution because the distance bands at which this was measured appear to be arbitrary, i.e. it is not clear if the results would be consistent if different distance bands were used. However, the results clearly show a reverse spatial effect for existing and proposed wind farms. This is
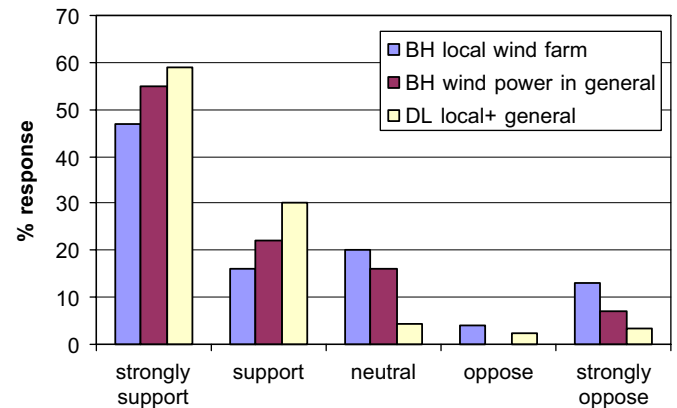

Fig. 1. Public opinion near Black Hill (BH), of a locally *proposed* windfarm and of wind power in general, compared to public opinion near Dun Law (DL) where a local windfarm was already operational. At Dun Law opinion of the local windfarm and of wind power in general were so similar that they have been combined into a single benchmark figure (data from Warren et al., 2005; Table 4, p. 826).

not at all surprising if we consider the effect of the planning and building of wind farms on local public opinion. Fig. 1 shows the difference between the two stages. The graph also displays the relationship between views of the local windfarm and of wind power in general. A comparison with the 'benchmark' opinion of a community that has an existing windfarm (assuming that DL an BH are fairly similar communities) shows that the opinion about wind power in general falls between the benchmark and the opinion of the locally proposed windfarm. This may suggest that the strong local opposition to the proposed windfarm reduces people's willingness to express support for wind power in general. Similarly the very strong similarity between public opinion at DL of the operational windfarm and of wind energy in general, suggests that the perception of the local project and the view on wind power in general are somehow related. The relatively lower support for the locally proposed windfarm and wind energy in general found at BH is likely to disappear once the windfarm is operational: of the interviewees in the area around the existing wind farm at DL, 24% admitted that their view had changed since the windfarm was built because they had found out that certain feared impacts had failed to materialise. Consistent with the literature on risk communication, this shows that risk perception of the new and unfamiliar is an important factor in peoples' dislike of proposed windfarms and that with the actual local experience of the existing windfarm, this reason for opposition disappears. This may help to explain why people living further away from an *existing* windfarm are more opposed to it; they lack the local experience to alter their perception of some of the impacts. People living close to the site of a *proposed* windfarm are of particularly opposed to it because the level of risk perception is related to the distance to the site.

Surveying residents at a distance from existing wind-farms is in some respects a different research from the three

discussed earlier, i.e. the surveys studying people's perceptions before a local windfarm is proposed, during the planning and/or building stage and after completion. People living at some distance from existing windfarms are likely to relate the question 'what do you think of wind power' to the wind farms in their area but they cannot relate to the question with the same level of experience that people living close to an existing windfarm can.

The study by Warren et al. (2005) thus shows that (at least at the distance intervals reported) there is a strong positive effect of distance on the expressed dislike for a proposed windfarm and a much weaker negative effect of distance on the expressed dislike of existing windfarms. Devine-Wright (2005) literature review on the 'proximity hypothesis' did not distinguish between existing and proposed wind farms and did not specify the spatial extent of these studies. Although the opinions of individuals can cover a very wide spectrum and individual siting case studies may yield varying results, there is evidence that *on aggregate* distance (measurable at *some* spatial scales) does tend to influence public perception.

2.2. A typology of values from environmental economics

Devine-Wright (2005) calls for more interdisciplinary research. Indeed the public perception literature on renewables has so far taken little notice of empirical research in public preference carried out by environmental economists. The typology of 'values' used by environmental economists can be a useful framework for appreciating the different roles or functions which specific locations may have for specific individuals. In the following paragraphs, this typology will be mapped onto the notion of 'backyard' as an area of personal interest.

Most of the negative impacts of renewable energy are mainly local in nature, such as noise or visibility from the location of residence. It would therefore be logical to expect some sort of 'distance decay' trend between the general level of public concern with these local impacts and the distance of the location where a plant is proposed. For example undesirable land uses have been found to increasingly suppress property values when the distance from these undesirable land uses decreases (Farber, 1998). Below are more relevant empirical studies carried out by environmental (and/or ecological) economists which lend further support to the theory of Geographical or Spatial Discounting (Hannon, 1994).

2.2.1. Areas that are of 'use value' to the individual

Environmental economists speak of the total economic value (TEV) of an organism, habitat or landscape (or any mix of these found in a certain location) as the sum of all market and non-market values, the latter being further subdivided into use and non-use values. The location dependency of market values requires little explanation, and is often clearly reflected in the price of land as a function of distance to population centres. Similarly, (non-market) use values depend on measures of accessibility. Direct use always implies some form of physical access, which could for example include walking the dog or picking mushrooms or even illegal activities such as fly tipping in situ or activities which require sensory rather than (in situ) physical access such as enjoying the view from a distance. The potential recreation values of sites can generally be estimated as a function of inverse distance to (weighted) population centres and the availability of substitute sites. The usefulness of such gravity models (as geographers call them) has now been recognised by environmental economists (e.g. Bateman et al., 1996).

2.2.2. Areas that are of 'non-use value' to the individual

However, the distance decay effect has also been found in a number of studies on non-use values (Sutherland and Walsh, 1985; Pate and Loomis, 1997; Bateman and Langford, 1997). These findings are not entirely surprising for some types of non-use values. Environmental economists distinguish between option values, bequest values and existence values. The first two relate to potential future direct use by the individual or their offspring, respectively, and are therefore still likely to show some (inverse) relationship with measures of physical distance between the public and the resource.

Existence value is derived from knowledge or awareness about the mere existence of a place. If the existence value of a location is seen as dependent on people's knowledge of this location (e.g. Price, 2000), then it is logical to expect that existence values can also be subject to some form of distance decay (step-wise if not gradual), as most sources of individual/social and externally organised (education or media) information provision are spatially limited in focus and reach. News coverage by the media is typically more focused on 'close to home' issues and the target audience is mostly defined within certain administrative boundaries (local, regional, national). For those who have easy access to long distance transportation and communication technologies, perceptions of distance are heavily influenced by social, economic, cultural, religious and linguistic linkages between communities. Many of these linkages have been shaped over time under some (geographical and/or political) travel constraints so that in many cases some measures of geography (distance and/or location) may still remain relevant proxy measures for the expected aggregate level of knowledge and appreciation of the particular site.

2.2.3. What this could mean for siting controversies

The differences between the existence value and the (potential) use value of a location, when it comes to public opposition to a proposed development on that site, is a topic that would merit further research. However, it is tempting to hypothesise that values associated with identity, ideology or religion (non-use values) may be less negotiable, while a conflict over an area that has use value(s) may offer more opportunities for seeking technical and locational compromises. A geographical community

on the other hand is likely to have more opportunities to organise a strong opposition and block planning consent for a locally proposed project.

For some individuals some locations may have both use and non-use values. Such an overlap is more likely to occur in areas of higher landscape value. One possible example of this are people who have moved into the countryside as a lifestyle choice and are less dependent on the traditional rural economy (e.g. retired 'townies', commuters, second home owners, etc). Woods (2003, p. 312) sees this as a wider trend of rural change: "In the new rural economy the commodification of rural landscape, culture and lifestyle is more important than the physical exploitation of rural land. This relates not just to the expansion of tourism, but also to investment in rural areas through counter-urbanisation and gentrification, often in pursuit of the 'rural idyll'. In-migrants will subsequently act to protect their financial and emotional investment by opposing developments and activities that threaten the perceived 'rurality of their new home'. In this way identity and material interest are collapsed together as a motivating force for political action."

The people described here (Woods calls their discourse 'aspirational ruralism') clearly derive use-values from the landscape and it also plays a (non-use) role in the sense of place-identity. It is only recently that the importance of place-identity has been recognised in siting controversies (e.g. Wester-Herber, 2004).

In densely populated England the rural population is on average wealthier than the urban population but there are of course also exceptions to this. Rural areas that are outside of commuting distance to economically thriving cities and/or have low landscape value, for example due to an industrial heritage, can be expected to attract fewer incomers motivated by 'aspirational ruralism'.

2.3. Characteristics of areas of low public resistance

The area around the ARBRE wood gasification plant (see Upreti, 2004) provides perhaps a typical example of an area of low landscape value and industrial heritage. A manager at the ARBRE plant described their success in gaining planning permission as the expected outcome of a specific strategy. While careful management of community relations was clearly part of their approach, he also pointed out that their site selection strategy included social suitability criteria. He stated that (ex-)mining or (ex-)industrial communities understand that electricity does not come 'out of the light switch' but has to be produced in a plant somewhere and that the fuel has to be produced, stored and transported to that plant. The selected site in Eggborough was very suitable in that respect as it was in a (ex-)mining area and the proposed location was only a few km west of the existing Drax power station, a coal-firing plant of 4000 MWe (compared to ARBRE's 8 MWe). Toke (2005) reports that a large windfarm near Goole, which happens to lie a few km east of Drax, received planning

permission with remarkable ease. This suggests that the communities in the local area have certain characteristics that make them relatively amenable to such developments, or at least less likely to protest.

Similarly, Toke (2005) reports that a large windfarm proposed next to the Corus steelworks was welcomed by local residents in Teeside. Also this is not a one-off observation. The industrial legacy of Teeside clearly impacts on local people's perception of environmental risk from proposed new facilities. As a chemical industry representative in Teeside put it (Banks 2000, p. 36–37; quoted in Phillimore and Moffatt, 2004): "People in Teeside are more understanding, more comfortable with the notion that it is a chemical manufacturing area and perhaps they are a little less demanding or concerned than people who come from elsewhere who […] have nothing to benchmark it against, nothing to give them the confidence that there are no risks there."

There are also examples of identical projects and risk communication strategies in different locations leading to completely different public responses. Ambient Energy proposed identical bioenergy gasifying plants in Eye and Cricklade (see Upreti, 2004; Upreti and van der Horst, 2004). But while the Cricklade plant was proposed in the rural buffer zone, the proposed site of the Eye plant was in an industrial zone, right next to a much larger existing chicken litter combustion plant. While planning permission was heavily contested and rejected (also on appeal) in Cricklade, in Eye public opposition was negligible and planning permission was gained very smoothly (all councillors voted in favour).

In short, the existence of heavy industry and large(r) stacks in the area appears to make residents less likely to oppose the development of new plants (especially small wood-fired plants) and more likely to support windfarms as an improvement of the image of the area. This is consistent with the literature on polluted and stigmatised places where efficacy is low (e.g. Burningham and Thrush, 2004; Phillimore and Moffatt, 2004) and this raises questions of environmental equity. It should be noted, however, that the lack of organised or vocal opposition to the ARBRE plant did not mean that people were actually in favour of it. Despite the absence of what Dear (1992) would have called 'NIMBY protest', we found very few local people who expressed support for the project. Quite a few were sceptical of the politics behind the plant and clearly concerned about the proposed developments in their area, expressing for example concerns about the volume of heavy goods vehicles required to transport of wood to the plant along local roads and through built up areas.

3. Measuring responses by the public

3.1. Who is interviewed and when

The previous section highlights how characteristics of the area and the spatial extent of the survey can influence

the effort to measure a 'NIMBY effect'. However, there are also questions about who is actually being interviewed, the distinction between active and passive support or opposition, the time when the interviews take place, and the nature of the rhetoric used by opponents, both protest leaders and the wider group of sceptical local residents. These are discussed in turn below.

3.1.1. Who is actually being interviewed?

As Toke (2005) points out, opponents of the plant do not require a majority in order to fight a successful campaign against a proposed wind farm. In practice, the UK planning system does not really provide a local democratic forum where supporters and opponents cast their vote. Bell et al. (2005) add that this 'democratic deficit' explanation to the failure to win planning permission, does not merely depend on the level of local opposition, but also on the opponents' "educational and socio-economic profile that enables them to operate more effectively in the political arena" (p. 463). Indeed Bell et al. (2005) suggest that local opposition may not necessarily require any inconsistent behaviour at the individual level; since about 20–25% of the population express their general opposition to wind farms in opinion surveys, it would in theory be possible that every single individual involved in local protests was indeed already opposed to wind farms before any project was proposed in the local area. On aggregate, local public opinion tends to display a shift from pro wind power to anti-local windfarm, but that does not mean that the people who matter most in the dispute, i.e. the active opposition, have necessarily changed their original opinion.

3.1.2. Active or passive support or opposition

It is not always clear if the people who are interviewed are active or passive supporters or opponents of a project. This can be important as it is mainly the active opponents (i.e. those who lobby and protest against the project) who have given rise to the NIMBY debate, so that studies of passive opponents may not capture the sort and strength of feelings that result in the type of active protests associated with the notion of NIMBY. Some people who are interviewed may be keen to express their sense of frustration with the technical characteristics of the project or with the lack of accountability or transparency in the planning process, but their strong favour of wind power or renewable energy in principle may stop them from actively making efforts to have the planning permission of the project rejected by the local authorities. Some of the existing studies are not sufficiently clear about how such people are classified or how their opinion is interpreted.

3.1.3. Before, during or after the planning and building of a local facility

As mentioned earlier, there has been a lack of consistency in whether the term should be used before, during and after local projects have been proposed,

rejected or built. The facts that the strongest opposition occurs during the planning phase and that it is the frequent difficulties of gaining local planning permission which have brought the NIMBY debate to the fore, clearly speak in favour of abandoning academic reference to the so-called NIMBY phenomenon in the 'after' stage (or in the 'before' stage when it is just hypothetical).

3.2. Should expressed opinions be accepted at face value?

Although raised in the literature from time to time (see references in Bell et al., 2005, p. 464), this important question has not received the attention it deserves in the design and analysis of public opinion research projects. At least two different aspects could be considered here, related to timing and meaning. Dear (1992, p. 290, 1976) observed that opponents move from an initial stage whereby "NIMBY sentiments are usually expressed in the rawest bluntest terms [..]", to a more mature stage where "the rhetoric of opposition becomes more rational and objective". Burningham (2000) has since dismissed Dear's 'language of NIMBY' which implies that the opponents respond in an irrational manner, but that does not diminish the value of the observation that the rhetoric of opposition changes during the course of the dispute. These changes imply that public opinion research carried out with different individuals at different stages of the conflict may not yield comparable data. The second aspect is to do with meaning. In the above example the rhetoric has changed but that does not actually tell us if people's opinions have shifted. Environmental psychologists see a limited set of underlying values as the basis of environmental attitudes (Schultz and Zelezny, 1999). Expressed opinion thus could be seen to represent a third layer that reflects not only underlying values and attitudes but also the 'proxy politics' (Hubbard, 2006) of the siting process.

The problem about the meaning of expressed opinion may obviously differ from person to person. The group of active opponents can be subdivided into protest leaders or organisors and the generally much larger group of concerned residents who are (individually or due to sensitisation by protest leaders) prepared to voice their concern, e.g. by signing petitions, showing up at public meetings, joining a protest march or voting specifically for local councillors who have promised to oppose the project. There is reason to suspect that many people in both groups are sufficiently politically astute to adjust their voiced opinions on the basis of who they are talking to. As they learn about the politics of the planning process and the technological issues of the proposed project, they are likely to make further strategic changes to their voiced opinion.

3.2.1. The voiced opinions of protest leaders

With technologies that are not fully familiar to most people (e.g. biomass energy), an important learning process about the proposed technology and project tends to take place during the planning debate, especially amongst the

leaders of the local protest groups. For example in the case of proposed biomass energy plants (see Upreti, 2004), a long list of possible effects were initially cited as reasons for concern but towards the end of the planning process, the protest leaders tended to very much narrow down their list of concerns raised in the formal planning debate. It is difficult to assess to what extent this narrowing down was driven by their growing acceptance that certain perceived impacts were indeed exaggerated or extremely unlikely, or driven by a utilitarian focus on those arguments which they thought carried most weight with the local councillors or with the planning inspector. There can be little doubt that the latter is of major importance. For example in the Cricklade case (see Upreti and van der Horst, 2004), the leaders of the local protest at some stage were willing to admit to the representative of Ambient Energy that the technology was fairly benign and the plant was a good thing in principle, but they did so at a time when they already knew that their trump card was in the proposed location: the original developer had proposed to build the plant in an area designated as a Rural Buffer Zone (between the towns of Swindon and Cricklade) and this site was then fixed in the contract with the government, so that Ambient Energy (the developer who inherited the contract) were unable to seek a more suitable location. And indeed, Ambient Energy's appeal was lost in the same way as their initial planning application; the unsuitability of the proposed location due to its existing designation as a Rural Buffer Zone.

The adversarial style of public enquiries is widely criticised in some countries (e.g. Owens, 2004; Bell et al., 2005). The cases of biomass energy siting in the UK show how the leaders of local protests can be drawn into political gaming situations whereby there can be important discrepancies between the arguments used during the formal planning enquiries, the arguments used to gain support from the wider public to sign petitions etc and the private exchanges between individual opponents when the microphones are switched off. The leaders of the local protest group spent a significant amount of efforts to galvanise local opposition, using rhetoric which pro-development stakeholders might call 'scaremongering' (it should be pointed out that we noted comparable 'scaremongering' tactics coming from a developer; Borders Biofuel first tried to 'sell' their fast pyrolysis plant in Wales on the basis of new employment, but when public opposition became stronger, they began to argue that jobs in the existing sawmill were likely to disappear if the proposal was not accepted). It would be hard to prove that the initiators of the local protest do not fully believe their own rhetoric when they start off, but as they learn about the novel technology, these protest leaders must review this list of potential impacts and decide which ones are more 'scientifically robust' and/or more consistent with planning regulations, thus providing more powerful arguments in the formal planning debate. However, these arguments may not be as powerful in the continued harnessing of

public support to put pressure on elected local councillors. These leaders may thus end up in a situation where they are singing from two different hymn sheets. In the case of Cricklade, the level of distrust among the leaders of (the local protest group) BLOT was slowly ebbing away as the representatives of Ambient Energy, a small regional renewable energy company, made extensive and continued efforts to reach out and communicate their case. But would this reduced level of personal animosity alone have been enough to allow the BLOT leaders to reach a high level of agreement with Ambient Energy representatives? BLOT knew that their planning argument of the Rural Buffer Zone was a strong card and they could therefore afford to abandon other arguments without really reducing their chance of winning.

Other examples of this type of political gaming can be found in the literature. Wolsink (2000, p. 56) provides another example of this dichotomy between wider public concerns and the formal arguments used by protest leaders to win their case: "…an active local group is opposed to the wind farm. Here public attitudes were mainly shaped by visual assessments as well. Nevertheless, noise was the formal argument on which the political and juridical discussion concentrated." Upreti (2004) mentions other examples where protest leaders use emotive language (health threats to children) or symbolic comparisons (stacks taller than the church spire) to rally support from local residents.

3.2.2. The voiced opinion of local residents

Wolsink's (2000) survey distinguishes between four types of opposition, here summarised as being anti-wind, anti-process, anti-project and 'classical' (i.e. selfish) NIMBY. However, the widely known pejorative NIMBY label can raise methodological issues about *expressed* opinions captured in a formal survey (as opposed to for example informal comments caught 'off mike' or in private; see Bell et al., 2005, p. 464). The best way to protest against a project but avoid being seen as self-interested, is obviously to stress other, seemingly more legitimate, reasons for opposition. This does not necessarily imply that these people are deliberately lying or being deceptive. They do something that many of us do in our daily lives; seeking an acceptable post-justification for going along with our initial 'gut feeling'. It is not a coincidence that many people continue to view the NIMBY response as 'rational' (e.g. Edelstein, 2004).

However, it is not only people's expressed reasons for opposing local projects that may be questioned, but also their expressed support *in principle* for renewables technologies would merit some closer examination. Renewables are perhaps different to some other types of facilities as 'green' is seen by most people as a good thing in principle, i.e. as a moral issue. Most people would find it politically incorrect or socially unacceptable to express opinions that are the opposite of green, as it would imply that they do not care about future generations or that they are happy to

contribute to pollution and environmental degradation. As a result, most people could be expected to express a 'pro green' attitude in principle, and this does not mean that they are actually going out of their way to *act* like a green citizen (This is sometimes known as the 'value-action gap'; e.g. Barr, 2004).

The relevance of this is that many people are inclined to express a pro-renewables attitude in principle, but this does not indicate really how strongly they feel about the issue. They can be expected to be the majority of the 75–80% of the population in western countries who are pro-wind (Devine-Wright, 2005), as more pro-active green citizens are still a minority. In fact it is only people who feel (very) strongly against wind energy who would say so. Many if not most of these people express this view because they already hold strong beliefs and personal arguments against wind, for example because they do not believe that we can do anything about climate change, or that the financial resources spent on wind should go into supporting nuclear power.

Fig. 2 displays hypothetical relationships between the major categories of opinion before and after a local renewables project is proposed. It can be expected that people who were in principle against the technology will remain so. People who were in principle in favour of the technology, are likely to support the project. They may well criticise the project on the basis of specific technical criteria and/or the undemocratic planning process, but they are perhaps less likely to reject it on the basis of just the latter (they may, however, reject it on technical grounds, e.g. because a proposed biomass energy plant is not utilising the heat, or is importing biomass from afar—thus reducing its environmental performance). People who are only weakly pro-renewables (i.e. because it seems politically correct) may be more likely to change their mind when they

are confronted by a local project. A few may become more pro-renewables as a result of learning about the technology, but many may follow their instinct, the negative local press or the local protest group in developing a dislike for the proposal. And in trying to avoid the negative NIMBY label, they will naturally seek suitable arguments to justify their dislike. This type of post-justification has been observed more widely (e.g. Redding and Reppucci, 1999).

4. Conclusions

This paper shows that measuring the so-called NIMBY effect is problematic because the meaning of the word is contested so that operational definitions may vary with respect to:

1. The spatial distance over which this phenomenon should be measured.
2. The temporal extent of the study with regards to a local facility (before people know of the plan, during the planning process or after the plant has become operational).
3. The inclusion of more passive or more active protesters in the study (the former being critical in an interview with the researcher but remaining passive in the planning debate).
4. The extent to which the study is focused on protest leaders or 'followers'.
5. The strength and nature of the expressed opinions of those who are in favour of wind power in principle (measured before a local facility is proposed).
6. The extent to which interviewees may deliberately seek to avoid being labelled as a NIMBY by citing more 'legitimate' reasons for objecting a locally planned facility.
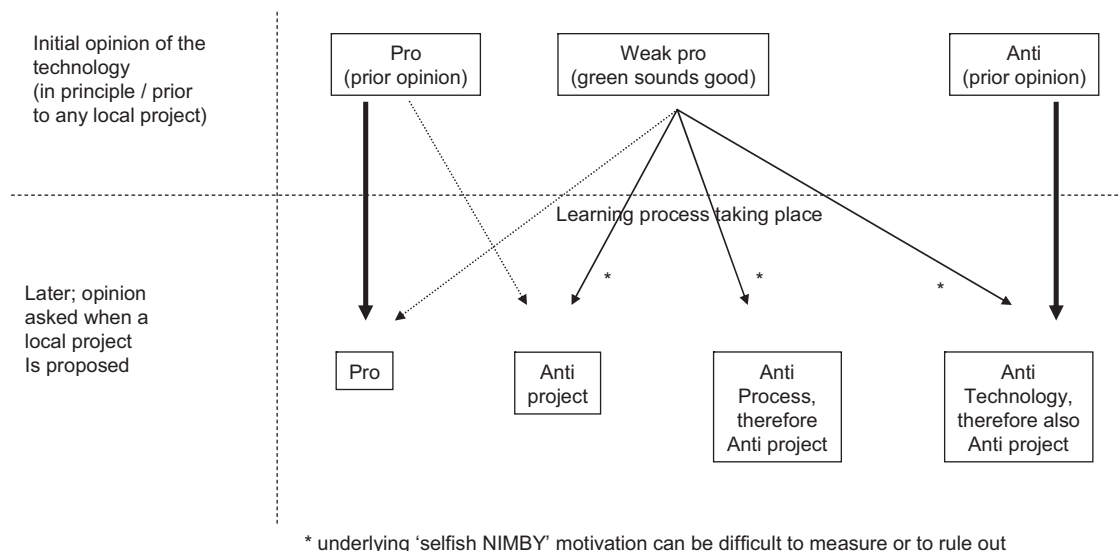

Fig. 2. A hypothetical model of the likely relationship between individuals' (earlier) expressed opinion of a renewables technology and their (later) expressed opinion of a locally proposed renewables project. The thicker the arrow, the more likely the relationship. Absence of arrows indicates the lowest levels of likelihood.

What the above variables have in common is that they reflect variations in the level of local knowledge, exposure or access to information and experiential learning. These variations will influence the opinion expressed by interviewees, thus making it more difficult to measure their personal values and attitudes or the impacts of certain characteristics of the technology, project or proposed location.

Part of the ongoing NIMBY debate relates to the conflicting claims of the importance selfish behaviour by local inhabitants. Wolsink's work is important in that he has sought to quantify the occurrence of this behaviour. His case studies show that selfish NIMBY motivation is statistically significant but of relatively minor importance. Similar quantitative research on the strength of different types of motivation is needed in other local and national contexts and for different types of renewables and related facilities. Such studies should aim to be sensitive to and explicit about how they deal with the variables listed above. There is a real challenge for such studies to be sufficiently subtle to distinguish between the key reasons for opposing a development in the first place and any post hoc 'political' replies that may be formulated by the interviewee to gain a higher level of legitimacy for his or her opposition to the proposed plant.

In addition to such quantitative approaches, there is also clearly a need for more in-depth qualitative research to increase our understanding of the social construction of individual attitudes and to explore the tensions between positive social or environmental attitudes in principle and actual social or environmental behaviour in practice. For example Cowan (2003, p. 383) found that local residents opposing a proposed mental health facility were complaining about a lack of consultation (i.e. anti-process), but "when asked questions about what consultation should entail, objectors used argumentative strategies which enabled them to avoid producing a direct response. In particular they introduced a topic shift [...]". The failure of the planning system in countries like the UK to provide a democratic forum to explore positive strategies, allows people to oppose proposed projects without the inconvenience of having to think or decide where or how else the underlying societal objectives (which they claim to accept) could be better achieved.

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