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Applying environmental-behaviour concepts to renewable energy siting controversy: Reflections on a longitudinal bioenergy case study

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ABSTRACT

To date, studies of energy siting controversy and of environmental psychology have barely informed one another, despite the environmental-behaviour literature potentially having considerable relevance to understanding public opposition to energy projects. This paper points towards this relevance, using the example of a longitudinal study of public objections to a 21.5 MWe bioenergy gasifier proposed for Winkleigh in Devon, England. Local opinion surveys in 2004 and 2007 showed that public opposition to the proposed gasifier remained strong but also revealed some statistically significant change and correlations of wider interest. In the context of the environmental psychology literature, the dominant model of contextualised values, intention and behaviour, as well as other psychological approaches, are found to be helpful, both for making sense of the results and for informing a psychological research agenda on public objection to new energy infrastructure.

1. Introduction

For several decades, social scientists have investigated the motivations of individuals engaging (and not engaging) in pro-environmental behaviour (Clark et al., 2003). One would expect to find this literature of considerable use in understanding siting controversies, including objections to renewable energy infrastructure, yet the literature appears to be under-used for this purpose. This paper illustrates the relevance of the dominant environmental-behaviour model that synthesises many of environmental psychology's insights (e.g. Barr, 2007), together with some additional psychological theories, through reference to a longitudinal study of a bioenergy siting controversy.

To date, the strand of work on renewable energy siting controversy and attitudes that has perhaps had most policy purchase has been government-commissioned studies focussed on attitudes, largely without explicit theoretical premises. This literature encompasses different types of renewable energy, but examples making substantial reference to bioenergy (our exemplar focus here) include: AEAT (2001), Barker and Riddington (2003a,b), TNS Plc (2003), MORI Social Research Institute (2003), and GfK NOP Social Research (2006). Other bioenergy-related studies of siting controversies that are somewhat more reflective, in the sense of considering and in some cases critiquing the policy context of bioenergy, but still without explicit theoretical premises, include: Kahn (2001), Sinclair and Löfstedt (2001), Upreti (2004), Upreti and van der Horst (2004), Upham and Shackley (2006a, b).

Evidence on public understanding and perceptions of bioenergy is limited, but that available indicates a tendency to question the 'environmental friendliness' of bioenergy, particularly in relation to emissions from feedstock transport and combustion. People also have a tendency to draw little distinction between bioenergy and incineration, the latter having negative connotations for them (AEAT, 2001; Barker and Riddington, 2003a,b; TNS Plc, 2003; Barker and Riddington, 2003a; Upreti, 2004; Upreti and van der Horst, 2004; GfK NOP Social Research, 2006; Upham and Shackley, 2006a,b and 2007). Annual repeat surveys on renewable energy opinion commissioned by the UK government (Berr, 2008) show a notable rise in prompted awareness levels of biomass or bioenergy over the course of several years' tracking, up from 45% of respondents in 2006 to 59% in 2008 (ibid). Separately, it is worth noting that despite the controversies surrounding biofuels for transport, there is very little academic work on public opinion of biofuels at the time of writing.

Cognisant that much of the survey and case-study work on bioenergy is descriptively useful but theoretically under-informed, Devine-Wright (2005) called for a deeper level of social science research on energy siting controversy that draws on concepts and theory from the theoretical literature. Indeed, there is another strand of work in this field that intends explanation, insight and understanding via what might be termed an interpretivist epistemology, in the sense of an approach to knowledge that focuses not on falsifiable propositions, but on

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the ways in which people construct meaning in a situation, and from which some degree of generalisation claim is typically made (Williams, 2000). This approach contrasts strongly with the relatively empiricist approach of environmental psychology, which tends to be more concerned with theory-testing, using relatively large samples and analytical statistical techniques. By contrast, the investigative methods of the interpretivist strand of the siting controversy literature tend to be case-based and inductive, concerned more with conceptual development and application than with theory-testing.

Of course, these distinctions are tendencies rather than absolutes: not only are there exceptions, but within the relatively interpretivist siting controversy literature, different researchers have taken different starting points and differing priorities. Thus we have, selecting a few examples simply to illustrate the breadth of thinking in this area, contributions on: the meaning of community involvement in renewables (Devine-Wright, 2005); a case for policy engagement with the public as energy citizens (Devine-Wright, 2006); critiques of the NIMBY concept (Wolsink, 1994, 2000, 2006); international comparisons (Jobert et al., 2007). Among examples of empiricist psychology using large-scale samples would be e.g. Schultz and Zelezny (1999).

Yet, there may also be an explanatory role for theory that has been tested and validated in related fields, and the contention here is that the broad field of environmental-behaviour theory does indeed have much to offer. In making use of this work, there is no intention of artificially counter-posing the interpretive and empiricist approaches. Rather, the purpose here is to reflect on the relevance of the environmental psychology literature for understanding energy siting controversy, through the illustration of a specific energy siting controversy: that of a government-supported, 21.5 MWe bioenergy gasifier proposed for Winkleigh in Devon, England.

2. Psychological accounts of environmental behaviour

Within the field of psychology, studies examining environmentally related behaviour have predominantly focussed on norms, beliefs and values. Broadly, these have found that stated environmental values and worldviews tend to show a weak relationship with environmental behaviour per se (e.g. Nordlund and Garvill, 2003 and Poortinga et al., 2004 in Steg et al., 2005). In other words, in an environmental context there is often a gap between what people say they believe in and support, and their actual behaviour, be this in the form of supporting or objecting to a development proposal, or in the form of more directly pro-environmental behaviour, such as reducing transport emissions.

This has a clear analogy in renewable energy siting controversy. In particular, the way in which support for renewable energy in the abstract can evaporate for development proposals on the ground. National opinion surveys relating to renewable energy generally show a high level of support for renewable energy in principle, though with differences between technologies (e.g. Anne Marie Simon Planning and Research, 1996; BWEA, 2003; MORI Scotland, 2003; BERR, 2008 and previous). Thus, the BERR survey of awareness and attitudes towards renewable energy, published in May 2008, found that the public's expressed support for renewables remains high: 84% of the general public said that they support the use of renewable energy, 80% that they are in favour of the use of wind power and 64% that they would be happy to live within 5 km of a wind power development. Solar, wind and hydro-electric were the most recognised sources of renewable energy (86%, 79% and 78%, respectively). This said, the same survey showed significant concern about the cost of this energy source, and showed support among older people as lower than that by younger people (BERR, 2008).

Returning to the psychology literature, studies using the value–belief–norm theory of environmentalism account for attitude–behaviour gaps by showing that there are intermediate factors between values, beliefs, norms and behaviour, and that, among these factors, awareness of environmental consequences and ascription of responsibility can be particularly important. In this respect, several studies have built on a model of normative influences on altruism developed by Schwartz (1977): e.g. Stern (2000) and Steg et al. (2005). Reviewing the range of factors

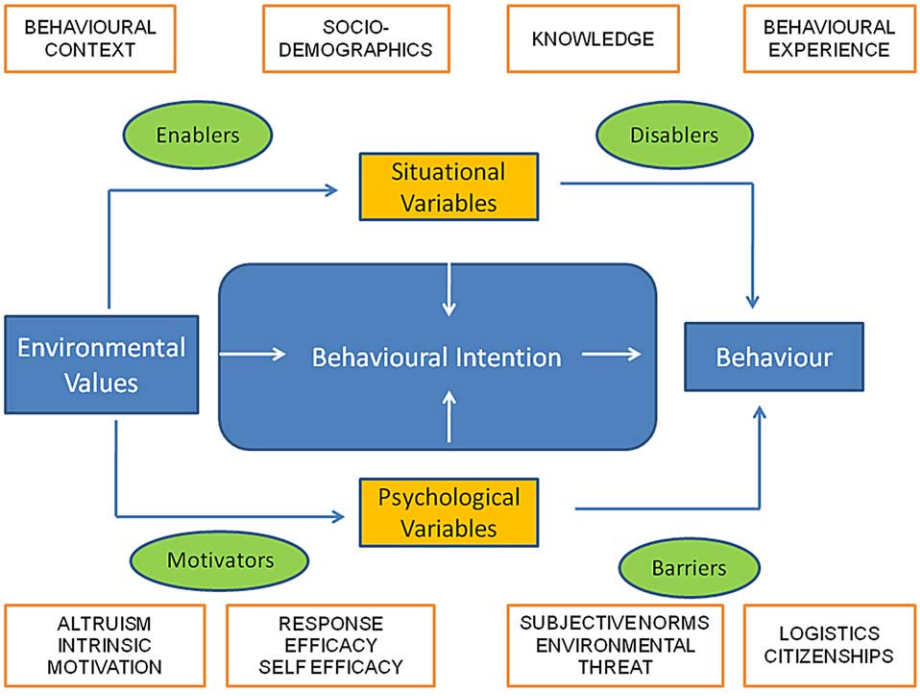

Fig. 1. Conceptual framework of environmental behaviour (after Barr, 2007, p. 444).