

This is an electronic version of the following article:

Claire Haggett, David Toke (2006), Crossing the Great Divide - Using Multi-method Analysis to Understand Opposition to Windfarms, *Public Administration* 84 (1), 103–120.

The definitive version is available at: <http://www.blackwell-synergy.com>

CROSSING THE GREAT DIVIDE - USING MULTI-METHOD ANALYSIS TO UNDERSTAND OPPOSITION TO WINDFARMS

CLAIRE HAGGETT AND DAVID TOKE

Claire Haggett is Lecturer in Sustainable Urban Development at the University of Newcastle upon Tyne. **David Toke is Senior Lecturer Environmental Policy at the University of Birmingham**

<©>Public Administration
Vol. 84, No. 1, 2006 (xx–xxx)
© Blackwell Publishing Ltd. 2006,
9600 Garsington Road, Oxford OX4 2DQ, UK
and 350 Main Street, Malden, MA 02148 USA

This paper demonstrates the possibilities for the complementary use of regression analysis and discourse analysis to further understand issues in public administration. To do so, an empirical study of opposition to wind energy planning applications is used. The application of logistical regression to analyse the factors which may influence windfarm planning applications is discussed, factors including the attitudes of local people. Discourse analytical techniques are then used to consider how anti-windfarm campaigners manage accusations of ‘Not In My Back Yard’ (NIMBYism). This is done partly by linking their cause with wider environmental objectives. Although

discourses and logistical regression models have very different ontologies, the paper demonstrates that there is no inevitable conflict between the epistemologies used in these two different methods, despite differences in the type of data being analysed.

INTRODUCTION: THE USE OF MULTI-METHODS

This paper demonstrates the possibilities for the complementary use of two methodologies – logistical regression analysis and discourse analysis – to tackle the same issue. The empirical example chosen to demonstrate this is opposition to windfarm planning applications in England and Wales. Logistical regression analysis is used to understand both the factors which influence the outcome of applications and the emergence of opposition. A particular variant of discourse analysis is used to understand how anti-windfarm campaigners justify their stance. These two techniques, one quantitative and one qualitative, are very different. However, we believe an epistemology can be deployed which allows their complementary use. As part of this process we therefore discuss what **truth** claims may be appropriate for such usage.

In deploying such an epistemology, we place this research within existing debates on both methods and theory in public administration. In terms of method, there are ongoing discussions about the suitability of certain methods and of combining different methods. Lan and Anders (2000), for example, discuss the extent to which public administration research is inherently multi-disciplinary. They note that:

<ext>the debate regarding the predominance of quantitative or qualitative methods in public administration research seems a moot point. Both methods are well represented in mainstream journals. This suggests that we should move beyond arguments as to which method is more legitimate, towards discussions as to whether the methods have been appropriately used. (2000, p. 15)

We wholeheartedly agree. We wish to present a means of moving beyond the qualitative:quantitative impasse (as described by Brower *et al.* 2000). We demonstrate how the combination of methods used here illuminates different but complimentary aspects of the issue of wind energy and are thus an appropriate means of research. Lan and Anders go on to argue that 'theoretical breakthroughs may come more readily when competitive approaches are allowed to co-exist' (2000, p. 162). This is precisely our point.

We therefore contribute to debates about 'multi-methods', the usefulness, clarity and sophistication of different methods (Bryson and Anderson 2000; Enticott 2004); and methodological rigour (as described by Brower *et al.* 2000). The use of multi-methods is a way of addressing the weakness and combining the strengths – as Celec *et al.* (2000), Bryson and Anderson (2000), and Callaghan (2001) note. Our research is also part of a growing trend of using more than one method to address different aspects of an issue (see, for example, Sheaff *et al.* 2002). Berry *et al.* (2004) describe how different research agendas can (and should) learn from each other. We are

particularly concerned to address the benefits of bringing together different methods in order to do so.

In terms of theory, Englehart (2001) has noted the complex relationship between theory and method in public administration research, and noted that theory may seem distant from the work of practitioners. We address this by showing the practical benefit and understanding that our approach allows. We follow Cunningham and Weschler's (2002, p. 107) commendations about the usefulness of postmodern theories for practitioners, because the view of truth as multiple and reality as subjectively constructed 'may match the practice of a policy maker', and take Bogason's (2001) point about embracing the challenges of postmodern research.

USING WIND ENERGY AS AN EXAMPLE

The example of opposition to windfarm planning applications is important to public policy and administration for two reasons. First, the issue has media prominence, with attention focused on local authority planning decisions. Second, wind power is crucial to the UK government's energy policy. The Energy White Paper (2003) set a goal of 10 per cent of energy from renewable sources by 2010, and aims for 20 per cent by 2020. The government's renewable energy programme contributes to the UK targets for carbon dioxide emissions, and to a reduced dependency on imports of natural gas for electricity production.

The majority of the renewable energy deployed will be wind power. If all the windfarms that were granted planning consent by the autumn of 2004 are built, then about 4 per cent of UK electricity will be from renewable energy.

Although windfarm planning approval rates are relatively high in Scotland, our examples are drawn from England and Wales where the local authority approval rate has been lower. We begin by discussing the use of logistical regression analysis of factors which influence windfarm applications. We then discuss the theory of discourse analysis and its application to windfarm opposition.

REGRESSION ANALYSIS

Logical regression analysis is used to analyse binary dependent variables. We use this method rather than others for dealing with dichotomous dependent variables because it is the widely preferred tool among analysts. It is also, arguably, easier to understand and interpret than techniques such as discriminant analysis. Logical regression analysis can be used to highlight patterns in data. A model can be built that attempts to predict outcomes (albeit based on *post hoc* analysis of existing results), and the percentage of outcomes which can be predicted by the model can be calculated. In addition, we can derive the likelihood that a pattern, at least as extensive as that we have observed, will occur randomly. This likelihood is expressed as 'significance'. It is conventionally assumed that only significances of less than

5 per cent represent the possibility of patterns occurring through mechanisms other than random fluctuations. Significances larger than 5 per cent are conventionally assumed to falsify a hypothesis which predicts a pattern.

In our analysis we use the term 'association' for a pattern involving two or more variables. We do not use the term 'causation'. Causation implies that a variable drives the outcome. This is philosophically unsupportable, illustrated by the frequently cited tale of ice cream sales and sunstroke. Ice cream sales and cases of sunstroke increase at the same time, but nobody claims that one 'causes' or significantly influences the other. The notion of causation is therefore an interpretative act, but we can use regression analysis to point towards associations. These may be useful for understanding how outcomes have occurred as well as in guiding towards further qualitative research.

WIND POWER PLANNING OUTCOMES AND REGRESSION ANALYSIS

Before applying logistical regression analysis to the issue of wind energy, a brief description of the planning process is required. Wind power developers apply for planning consent to the local planning authority which (depending on the area) will be a county, district, or unitary council. Developers must prepare an environmental impact assessment and consult a range of interested parties, many according to statutory requirements of the planning consultation. These include the relevant parish councils and a range of interested professional and recreational groups; in addition, members of the

public can submit written comments. After a period of consultation, the council's planning officer recommends approval or refusal of the proposal, and the decision is made by councillors on the development and control (planning) committee. If the proposal is refused, the developer can appeal, and a verdict will be given by a government appeal inspector (the inspector coming from the Office of Deputy Prime Minister).

In this study, we used an SPSS programme for logistical regression analysis which computes relationships between outcomes, known as 'dependent variables' and 'covariates'. A total of 51 planning applications for wind power schemes were considered, most of which were completed between 2000 and 2003. The data were from reports made by local authority planning officers, supplemented by data from the Department of Trade and Industry, the British Wind Energy Association and other sources, including interviews with planning officers, anti-windfarm campaigners and developers. The data are shown in Table 1, with some notes on the type of data given at the foot of the table.

The dependent variable in the study was the local authority planning decision on whether to grant or refuse permission for a given windfarm ('Planauth' in table 1). We devised a series of 7 hypotheses to explore whether the results of this model falsified them or not. Each of these hypotheses was tested within the model using a particular covariate.

We focus on these hypotheses (rather than other hypotheses) because they involve data that feature as standard, legally required items in planning

officers' recommendations to councillors. These items were used because if something is of statutory significance in planning deliberations, then it might reasonably be supposed to have a material influence. The hypotheses are tested with data available to this research, and they are measured in a form useable in logistical regression analysis. The hypotheses and covariates are shown in table 2.

However, only three of the covariates passed the confidence interval of 5 per cent, that is, registered less than 5 per cent significance. These 3 variables were: the recommendations of the local authority planning officer about whether to approve or refuse the scheme ('Planoff'); the parish council's recommendation ('Localpc'); and the recommendations of the local branch of a landscape protection group (Campaign to Protect Rural England, CPRE, or Wales, CPRW) ('Landscape'). Hence we can say that hypotheses 3, 5 and 6 (as given in table 2) were not falsified.

The variables that did not pass the significance test were the number of written objections ('Objections'), the size of the scheme ('Size') the opinions of nature protection groups, English Nature or the Royal Society for the Protection of Birds (RSPB) in Wales ('Nature') and the opinions of the ramblers' organizations ('Ramblers'). In Wales, the RSPB was used for nature protection since the Countryside Council for Wales also takes landscape into consideration. So we can say that the hypotheses 1, 2, 4 and 7, as set out in table 2, were falsified.

The model's 'predictive' capability is shown in table 3. Any 'predictive' power is entirely internal to the model itself and only refers to the pattern of associations within the data set used. As seen in table 3, 3 (independent) variables – the opinion of the parish council, the planning officer's recommendation, and the opinion of the countryside protection group – are strongly associated with the decision of the local planning authority (the dependent variable). Together, these variables can 'predict' around 86 per cent of the outcomes in our study. This is a high figure; however, other diagnostic checks to assess the robustness of the model were impractical because the sample size (51) was too small to divide the cases into smaller sub-groups to conduct meaningful robustness tests.

Tables 4 and 5 show the confidence intervals when including these 3 variables in this 'predictive' model. All have significances well under 5 per cent. Table 4 shows the apparent limited 'predictive' power of the other 4 variables.

As stated earlier, the model's 'predictive' power relates solely to the data entered, not to any data outside it. The model cannot be said to represent any external reality itself. What it can do, if done well, is help us understand social processes, and offer pointers to further qualitative research, such as exploring explanations for the statistical associations, and considering how practices may be altered to achieve desired policy ends.

Logistical regression analysis can therefore be a useful tool, but when done badly can produce misleading results. For example, in another run of the

statistics, a simpler model involving only the number of written objections as a covariate was used. In this case, around 71 per cent of the outcomes could be predicted using a model involving this one variable. This result has a significance that is easily less than 5 per cent. This is shown in tables 6 and 7.

However, after the results obtained in the earlier 'central' model of 7 covariates, we cannot assume that the number of objectors 'caused' or was even a significant influence on the outcome. To what extent is this the case for the 3 significant variables in the central model ('Planoff', 'Localpc' and 'Landscape')? We cannot say that they have absolute truth value external to the model that we use, particularly since other variables could be included and produce clearer patterns of association with the outcome, reducing the significance of these 3. For example, while one of these was the attitude of the landscape protection group, interviews with actors suggests it is unlikely that councillors base their decision on a letter from the local CPRE official. Indeed, further research suggests that the views of these officials depend on the pre-ordained landscape status of the general area, and their perception of local people's attitudes. Any apparent 'causation' on the part of CPRE may merely reflect other factors, namely the degree of local anti-windfarm activism as well as common perceptions about local landscape value.

It may be equally possible to question a 'causative' role for the other 2 variables found to be significant. The second variable was the attitude of the local parish council. In 80 per cent of the cases, this tallied with the outcome of the local authority's decision. However, parish council attitudes may reflect some local phenomenon rather than being an instrumental influence. The

third variable was the planning officer's recommendation, something that matched planning authority decisions in three-quarters of the cases studied. However, the attitudes of the planning officer may also reflect other factors, such as influences from government policy (and the perceived likely outcome of appeals against planning refusal), perceptions of the attitudes of local people as well as perceptions of established council policy regarding landscape value. As we unpeel this 'onion' it becomes increasingly difficult to collect manageable quantitative data.

In practice, empirical studies have only finite resources, and even with greater resources, particular ways of framing variables have to be chosen. The search for truth in these matters becomes very elusive indeed (see Bogason 2001 for a discussion of this). It can be seen that there is justification for those who argue that truth is in context. In this case the context consists of the variables that we select to enter as data in our statistical models.

However, such doubts should not discount empirical work in social science. Quantitative data are merely different forms of data to textual material and can be subjected to the same epistemological approach. Olson (1986, p. 161) cites Quine (1972) in arguing that 'what count as data depend on the total theory proclaimed to be data, and not, as the positivists thought, on the incorrigibility of directly sensed experience'.

Statistically based empirical analysis can be vital for improving social practice (see Sheaff *et al.* 2002). In our research, such analysis could inform practices to reduce windfarm planning controversies. For example, our research highlights a need for developers to focus factors influencing the attitudes of

planning officers and parish councils. We may not find absolute truth through empirical social science research, but it may be possible to illuminate how public policy goals may be better achieved. Regression analysis can therefore identify practices that may be significant and useful in improving the prospects of implementing certain types of policy objective. We now investigate the contribution analysis can make to understanding windfarm planning controversies.

DISCOURSE ANALYSIS

The analysis presented here draws on previous work developed by Haggett and Smith (2004). In this research, we are using discourse analysis (DA) from social psychology to consider how protest manifests. We examine the claims and arguments presented by the key players in wind energy developments to further explore some of the issues raised so far. This focus on discourse and rhetoric follows a trend in public administration research: for example, Naff and Crum (2000); Hay and Richardson (2000); Driscoll and Morris (2001); Farmer (2002); De Vries (2004). However, we take a more systematic approach to the analysis of discourse – what rhetoric is and how it is used, and how issues are framed – than some of these allow. In doing so, we follow Burningham when she argues that how those involved in a conflict present their position as more credible, robust and convincing than that of others . . . may have practical implications for the outcomes of the dispute' (2000, p. 55). DA is being used to study the language of the claims made about windfarms

not because they are a way of gaining access to the conflict; they are the site of the conflict.

In its broadest sense, social psychology DA is the study of talk and texts (Wetherell 2001 p. i) and the search for patterns in language use within them (Taylor 2001 p. 10). It views language not merely as a means of information transmission, but as actively achieving certain effects and actions (Heritage 1984; Edwards and Potter 1992). DA also considers language to be contingent and variable on the context of its production (Edwards and Potter 1992); language use will vary according to the context (however defined) in which it is being used. The focus that DA takes on the constructive power of language, its action-oriented use, and the meaning that it has for participants, make it of 'enormous value to social scientists whose concerns include the circumstances and experiences of people's everyday lives' (Lawes 1999, p. 17).

The approach we take here follows research on factual accounts (Wooffitt 1992; Billig 1996; Potter 1997). We do not consider that the accounts produced are simply a factual description of a situation (in this case, the disputes over wind energy) or simply a representation of people's views; instead, the language used has a function and presents the issue in a particular way. In this way, the accounts that are produced in a conflict constitute the form of that conflict. It is important to note that we do not consider it possible to distinguish 'factual' accounts from those 'inaccurate' or 'constructed'. For example, we do not judge whether the landscape impacts of

windfarms are 'true' or whether windfarms are really essential for wider social purposes. There is no such privilege or methodological criteria to be able to do so. Instead, DA focuses on how accounts are put together to present particular versions of a truth. Rather than aiming for a general understanding of the issue, this approach acknowledges the variability in accounts; where two texts appear to be in contradiction, examining the context in which they are being used may give an insight into the function of the language used.

It is also important to note that there are a number of different approaches known as 'discourse analysis'. The particular type of DA being applied here was developed within social psychology (see, for example, Potter and Wetherell 1987; Edwards and Potter 1992; Edwards 1996). This DA is notably different from other approaches, particularly Foucauldian or critical discourse analysis (such as that taken by Outshoorn 2002). These approaches examine patterns in discourse to understand social relations in society. They focus on the social situation, and understanding it through discourse. In social psychology DA, there is no presumption about the nature of social relations, and the focus remains on the form, structure and function of language use in each instance.

The methodological approach here therefore follows the 10 stages outlined by Potter and Wetherell (1987, pp. 160–74). They recommend searching for patterns in the data, and addressing the function and consequence of language use. We validated our analysis by assessing the coherence of our claims and considering seemingly contradictory cases as well as by focusing

on the language used by people: on 'what participants, not us as analysts, see as consistent and different' (Potter and Wetherell 1987, p. 170).

Presenting the data and analysis here is also an important part of the validation process, and represents an invitation to assess the interpretations that have been made.

ACCUSATIONS OF NIMBYISM

This paper has used regression analysis to highlight that local opposition is a key issue in windfarm conflicts. Furthermore, the picture that emerges from this analysis is that well-organized local anti-windfarm groups reflect a high intensity of concern and are able to effectively lobby councillors at both a parish and a planning authority level. Such protests have been characterized as examples of an attitude of 'Not In My Back Yard' or 'NIMBYism'.

Protagonists, who may be vulnerable to claims that they are 'NIMBies', may therefore attempt to universalize their cases. Rootes (2002, p. 46), in a discussion of planning disputes over siting of waste incinerators, cites Walsh *et al.* (1993) to argue that NIMBY protests may be more successful if they appeal to widely held social values. Our analysis now illustrates examples of how anti-windfarm campaigners endeavour to refute or deflect such accusations.

AGAINST ACCUSATIONS OF NIMBYISM

It is crucial for opponents of windfarms to avoid accusations of NIMBYism. If claims can be categorized in this way, then they can easily be dismissed (Wolsink 1994). One way to manage this is to stress the importance and innate value of the proposed windfarm site, and that this is the basis for protest – not just because it happens to be nearby. The following example is the opening statement on a campaign group website, opposing a windfarm in Whinash, Cumbria (extract from ‘Say No To The Whinash Windfarm’ campaign website [<http://www.nowhinashwindfarm.co.uk/> downloaded 24/06/03] [line numbers added]):

1. An unspoilt stretch of Cumbrian countryside, itself worthy of National Park status;
2. Would be sacrificed for a politically correct fad;
3. Experience has shown that it gives small return for an immense cost;
4. The landscape has been acknowledged by central government organizations and committees as being of national significance.

The group make their intentions clear; they are opposing the scheme because of the value of the landscape. That the landscape *is* valuable is emphasized. It is ‘worthy of National Park status’ (line 1), a high honour indeed, and it is ‘unspoilt’, which of course implies that the siting of wind turbines would ‘spoil’ it. Indeed, it is stated that they would do more than this, and the area would be ‘sacrificed’ by a windfarm; this implies the loss that would be incurred and what would have to be given up and destroyed. The group distance themselves from their description of the value as merely their opinion and instead point to both ‘central government organizations *and* committees’ (line

4; emphasis added) who have determined this. The use of the word 'acknowledged' implies that the committees realized what was already known; it is not even just their opinion that the landscape is valuable; it objectively and unarguably is. It is also not just the opinions of the group and their local concerns that the turbines would be unsuitable; they point to 'experience' that has proved this. The landscape is not just valuable because it is of 'national significance'; this is not a debate about local or selfish interests but about preserving the assets of the nation.

BALANCING ENVIRONMENTAL AIMS

Opponents of windfarms have to present their arguments against apparent prevailing opinion about the benefits of clean, green, renewable energy. While developers can present themselves as caring about the environment and protecting it by promoting renewable energy, protesters have a difficult task in managing an 'anti-environmental' stance. There seem to be two tactics employed. The first is to balance the competing environmental aims of clean energy and unspoilt landscapes. The second is to redefine what may be seen as 'common sense' about the global environmental crisis, the need for renewable energy, and the expediency of windfarms as the answer.

Firstly, then, campaigners justify their ostensibly 'anti-environmental' stance by reasserting their fundamental concern for the environment; and furthermore, they do this by arguing that turbines will harm, rather than protect, the environment. For example, the Rimside Moor Wind Farm Protest

group make an appeal to 'help us stop this unnecessary environmental intrusion into this beautiful North Eastern corner of England' (<http://www.wind-farms.co.uk/index.htm> – downloaded 27/07/03). In doing so, the group present themselves as being very much concerned about the environment, and that it is this that motivates their opposition to windfarms. Turbines represent an 'intrusion' into the environment. The group cannot therefore be dismissed as not wanting to protect the environment by not advocating renewable energy, and instead confirm their environmental credentials.

Secondly, opponents of windfarms may seek to redefine what is 'known' or commonly accepted about turbines, wind energy, or, indeed, any environmental crisis. Data from the national campaign group 'Country Guardian' highlights this. They define themselves as a 'UK conservation group concerned about the environmental and social damage caused by commercial windfarms' (see box 1).

In each paragraph of their response to the propositions, the group affirm their knowledge about environmental concerns, and concur with them enough so that their claims will not be dismissed as ridiculous; and yet at the same time they subtly undermine them. For example, they agree that fossil fuels are 'certainly' finite (line 8). They then change the emphasis of this issue so that it is not about *if* they will run out, a fact that they can afford to agree with, but *when*. They cite a seemingly reputable report, one that could be expected to be afforded credibility, and highlight how wrong its predictions were. The implication is of course that any evidence produced today that stresses that

fossil fuels will run out soon enough 'to cause concern' (line 9) may be similarly flawed.

In the second paragraph the group state that fossil fuels are a 'major source' of carbon dioxide emissions, that these have risen 'dramatically' and that 'many' scientists have agreed about this (lines 10–11). Yet CO₂ has only been 'linked' (line 11) to global warming, not 'proved' or definitely stated to be a causal factor. Indeed, agreement about this is downgraded to mere 'estimates' in the next sentence (line 12), educated guesses only rather than proven knowledge. This uncertainty is not only about what will happen, but also what effects it will have, and additionally about the causes of it; the state of the knowledge is extremely undeveloped. This issue about causes is crucial. Rather than stressing human responsibility for damaging the planet and having to take action, this all may be down to 'natural' environmental effects (line 13). The group then cite 'broad agreement' (line 14) that temperatures will increase, but again proceed to detract from the seriousness of this by stating that this is 1.5 degrees, and that this change will take a hundred years. **This should read: 'This does not present the case as an urgent or pressing problem'**. Again, the protestors seem to concur with the initial propositions when they state that they 'welcome' government action on this; who could not? And yet by saying that governments are only 'beginning' (line 15) to look at the issue and that the dangers are only 'potential' (line 18) further detracts from their seriousness. This is emphasized by the motives that are ascribed to the policies of the UK government; they are not an attempt to address concerns about global warming. At the same time,

suspicion is cast on the actions of the government, and the 'threat' (not reality) (line 18) of global warming is once again detracted from.

What the group have done in this text is attempt to redefine what is known about the state of the global environment and fossil fuels. In doing so, they have created a different background of accepted knowledge in which the windfarm debate is played out. If the group can present global warming as not imminent, fossil fuels as not about to run out, and government policy as suspect, then in this light attempts to site turbines become at best unnecessary and at worst the cause of 'social and environmental damage' themselves.

DOWN ON 'THE FARM'

There is an additional element to the 'redefinition of accepted knowledge' that campaigners engage in. To describe a group of turbines as a 'windfarm' seems uncontroversial enough, but is a key part of the debate.

The British Wind Energy Association, the trade body for the UK wind industry, uses the terms 'windfarm', 'wind power', 'wind energy' (<http://www.bwea.com/index.html>; and <http://www.bwea.com/ref/whywind.html>, accessed 17/10/04). These are interesting terms. Both 'power' and 'energy' are positive terms, and present the issue in terms of the benefit it brings. A 'farm' is an obvious and fitting part of the countryside. The term has connotations of working with nature, and of

productivity. 'Farms' will be a part of the rural landscape, not an alien imposition upon it.

Opposition groups describe the issue differently. *Country Guardian* put inverted commas round the word farm – wind 'farm' (<http://www.countryguardian.net/index.htm>, accessed 17/10/04). This problematizes the term. Describing turbines as 'wind "farms"', they draw attention to the assumptions about countryside acceptability, and suggest that while the word is used, these added assumptions are not applicable to wind energy.

Other groups are even more explicit about this, and groups of turbines are given extremely negative terms. While some campaign groups described the turbines as a 'wind energy power station' (Meikle Carewe Windfarm Action Group web site [<http://mcwag.members.beeb.net> downloaded 19/07/03]), others do not even include the word 'wind'. The headline of a story by a campaign group in Mid-Wales states: 'Massive Power Station Planned for Cefn Croes' (extract from Cefn Croes Campaign web site, <http://www.users.globalnet.co.uk/~hills/cc/> downloaded 17/10/04).

Using the phrase 'power station' conveys a very different idea to 'wind power'. A power station conjures up images of large factories with chimneys belching forth smoke and pollution. It is an effective contrast with the usually rural locations where turbines are planned and opposed. The negative associations of 'power stations' are used by groups to construct the issue of wind turbines

in a very particular way – as a real imposition, not something that fits with or will blend into their location; as a major development; and one that may even damage the environment.

CONCLUSION

This paper has aimed to demonstrate the complementary use of logistical regression analysis and discourse analysis. We have achieved this by outlining a coherent and useful analysis of the key empirical questions.

The logistical regression analysis of factors that influence windfarm planning outcomes suggests that the main driving force behind opposition is extremely local in nature, associated with the parish where the windfarm is planned.

Planning decisions are also associated with the attitudes of landscape protection groups and with the recommendations of local authority planning officers.

The discourse analysis explored this further by demonstrating how campaigners manage their opposition, attempting to dispel accusations of 'NIMBYism' and universalizing their support by gaining the legitimacy of landscape protection. Campaigners construct their case as favouring a different type of environmentalism rather simply opposing the environmental objectives which wind power advocates espouse

Our demonstration highlights some important methodological issues.

Regression analysis looks for patterns and generalizations within the data. It can be done well, or badly, as is illustrated in this paper. If done well, relevant factors can be identified, although in this case further analysis is required to consider how and why they are important. The associations in the models can help develop understandings of social practices. They can act as effective guides to further qualitative research.

By contrast, as Gill (1996, p. 155) points out, discourse analysts are critical of the idea that it is possible to make generalizations about social behaviour, arguing that discourse is always designed for specific interpretative contexts. Nevertheless, it may be possible to use the analysis here to inform other cases; the themes identified in the data may be relevant beyond these examples, and further research could explore this (Taylor 2001).

It may be possible to argue for a complementary use of the two approaches if we carefully separate out our notions of ontology and epistemology. For example, we can say that all models involving logistical regression analysis have their own distinctive ontologies. These ontologies are thus incommensurable with each other on account of having different arrangements of variables and data inputs. These ontologies are also incommensurable with the ontologies which comprise discourses owing to the different nature of the data under analysis.

Yet despite these incommensurabilities between different ontologies, it is possible to deploy an epistemology which involves three sets of understandings. First, it can allow for truth being in context, there being different types (and individual cases) of context whether they are statistical models or discourses. Second, the epistemological approach will eschew the generation of universal laws of social behaviour which can be used to predict behaviour. Third, the approach will still recognize the possibility of using insights gained from the study of discreet ontologies in order to increase explanation and understanding of social practices and outcomes beyond the narrow case studies which have been analysed. In conclusion, then, we believe that the approach outlined here is a beneficial and fruitful one, both for the insights it can offer, and the methodological development it allows.

ACKNOWLEDGEMENT

The research which led to this article being written was conducted under two ESRC programmes. First, the Sustainable Technologies Programme research award RES332250001, 'Accounting for the Outcomes of Windfarm Planning Applications'. Second, the Environment and Human Behaviour Programme 'Tilting At Windmills? The Attitude-Behaviour Gap in Renewable Energy Conflicts' award RES221250015. The authors also wish to acknowledge advice from Yaojun Li and Ji Yao on some statistical issues.

REFERENCES

Berry, F.S., R.S. Brower, S.O. Choi, *et al.* 2004. 'Three Traditions of Network Research: What the Public Management Research Agenda can Learn from Other Research Communities', *Public Administration Review*, 64, 5, 539–552

Billig, M. 1996. *Arguing and Thinking: A Rhetorical Approach to Social Psychology*, 2nd edn. Cambridge: Cambridge University Press.

Bogason, P. 2001. 'Postmodernism and American Public Administration in the 1990s', *Administration and Society*, 33, 2, 165–93.

Bryson, J.M. and S.R. Anderson. 2000. 'Applying Large-group Interaction Models in the Planning and Implementation of Major Change Efforts', *Public Administration Review*, 62, 1, 143–62.

Brower, R.S., M.Y. Abolafiamy and J.B. Carr. 2000. 'On Improving Qualitative Methods in Public Administration Research', *Administration and Society*, 32, 4, 363–97.

Burningham, K. 2000. 'Using the Language of NIMBY: a Topic for Research, not an Activity for Researchers', *Local Environment*, 5, 55–67.

Callahan, R. 2001. 'Challenges of (Dis)connectedness in the "Big Questions" Methods in Public Administration', *Public Administration Review*, 61, 4, 493–9.

Celec, S.E., D.Voich, E.J. Nosari and M.T. Stith 2000. 'Measuring Disparity in Government Procurement: Problems with Using Census Data in Estimating Availability', *Public Administration Review*, 60, 2, 134–42.

Cunningham, R. and L. Weschler. 2002. 'Theory and Public Administration: Student/Practitioner', *Public Administration Review*, 62, 1, 104–11.

De Vries, M.S. 2004. 'Framing Crises: Response Patterns to Explosions in Firework Factories', *Administration and Society*, 36, 5, 594–614.

Driscoll, A. and J. Morris. 2001. 'Stepping Out: Rhetorical Devices and Culture Change Management in the UK Civil Service', *Public Administration*, 79, 4, 803–24.

Dryzek, J. 2000. *Deliberative Democracy and Beyond*. Oxford: Oxford University Press.

Edwards, D.1996. *Discourse and Cognition*. London: Sage

Edwards, D. and J. Potter.1992. *Discursive Psychology*. London: Sage.

Englehart, J.K. 2001. 'The Marriage Between Theory and Practice', *Public Administration Review*, 61, 3, 371–4.

Enticott, G. 2004. 'Multiple Voices of Modernization: Some Methodological Implications', *Public Administration*, 82, 3, 743–56.

Farmer, D.J. 2002 'The Rhetoric of Public Administration', *Administration and Society*, 34, 2, 135–40.

Haggett, C. and J.L. Smith. 2004. 'Tilting at Windmills? Using Discourse Analysis to Understand the Attitude-behaviour Gap in Renewable Energy Conflicts'. Paper given at the *British Sociological Association Conference*, York, 22–24 March.

Hay, C. and D. Richardson. 2000. 'The Tangled Web of Westminster and Whitehall: the Discourse, Strategy and Practice of Networking Within the British Core Executive', *Public Administration*, 82, 3, 743–56.

Heritage, J. 1984. *Garfinkel and Ethnomethodology*. Cambridge: Polity Press.

Gill, R. 1996. 'Discourse Analysis: Practical Implementation', in J.T.E.

Richardson

(ed.), *Handbook of Qualitative Research Methods for Psychology and the Social Sciences*. Leicester: BPS Books.

Lawes, R. 1999. 'Marriage: An Analysis of Discourse'. *British Journal of Social Psychology*, 38, 1–20.

Lan, Z. and K.K. Anders. 2000. 'A Paradigmatic View of Contemporary Public Administration Research', *Administration and Society*, 32, 2, 138–65.

Naff, K.C. and J.C. Crum, 2000. 'The President and Representative Bureaucracy: Rhetoric and Reality', *Public Administration Review*, 60, 2, 98–110.

Olson, D. 1986. 'Mining the Human Sciences: Some Relations Between Hermeneutics and Epistemology', *Interchange*, 17, 2, pp 150-167.

Outshoorn, J. 2002. 'Gendering the "Graying" of Society: a Discourse Analysis of the Care Gap', *Public Administration Review*, 62, 2, 185–96.

Potter, J. 1997. *Representing Reality: Discourse, Rhetoric and Social Construction*. London: Sage.

Potter, J. and M. Wetherell. 1987. *Discourse and Social Psychology: Beyond Attitudes and Behaviour*. London: Sage.

Quine, W.V. 1972 'Epistemology Naturalized', in J. Royce and W. Rozeboom (eds), *The Psychology of Knowing*. New York: Gordon and Breach.

Rootes, C. 2002 'Why do Some Campaigns Against Waste Facilities Succeed Where Others Fail?', in C. Ludwig, S. Hellweg and S. Stucki (eds), *Municipal*

Solid Waste Management: Strategies and Technologies for Sustainable Solutions. Berlin: Springer Verlag, pp. 425–8.

Sheaff, R., S. Pickard and K. Smith. 2002. 'Public Service Responsiveness to Users' Demands and Needs: Theory, Practice, and Primary Healthcare in England', *Public Administration*, 80, 3, 435–52.

Taylor, S. 2001. 'Locating and Conducting Analytic Research', in M. Wetherell, S. Taylor and S.J. Yates (eds), *Discourse as Data: A Guide for Analysis*. London: Sage/The Open University.

Walsh, E.R, R. Warland and D. Clayton Smith. 1993. 'Backyard NIMBYS and Incinerator Sitings: Implications for Social Movement Theory', *Social Problems*, 40, 1.

Wetherell, M. 2001. 'Introduction', in M. Wetherell, S. Taylor and S.J. Yates (eds), *Discourse Theory and Practice: A Reader*. London: Sage/The Open University.

Wolsink, M. 1994. 'Entanglement of Interests and Motives: Assumptions behind the NIMBY-theory on Facility Siting', *Urban Studies*, 31, 851–66.

Wooffitt, R. 1992. *Telling Tales of the Unexpected*. Hemel Hempstead: Harvester Wheatsheaf.

Date received 23 September 2004. Date accepted 15 December 2004.