

## **Environmental citizenship, sustainable energy and public attitudes to the risks of Hydrogen technologies**

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### **Abstract:**

Sociologists have given systematic attention to environmental risks and their impact only relatively recently. Despite Beck's seminal arguments about ecological risks (1992, 1995), Newby (1991, 1996) specifically criticised sociology for its neglect of environmental issues, although Turner (1990, 2001) and van Steenberg (1994) urged consideration of environmental risks as a further dimension of citizenship affecting life-chances. Arguably, social policy analysts (Cahill & Fitzpatrick; Huby) and political scientists (Dobson; Dobson and Bell) have given greater attention to the necessity of expanding the conventional Marshallian concept of citizenship, to include rights (and responsibilities) surrounding environmental sustainability, proposing the concepts of 'environmental' or 'ecological' citizenship. This paper examines some of the principal arguments in this debate about environmental citizenship as it applies to risks associated with the crisis in energy resources and the development of alternative energy systems such as Hydrogen. In particular, it examines qualitative evidence drawn from a study of public attitudes towards hydrogen energy technologies and their perceived risks and benefits. Using data from focus groups in three areas of the UK, the paper argues that while awareness of the importance of energy issues is apparent, opinions about innovation using hydrogen are generally 'agnostic', and there is little indication of the collective and solidaristic values said to characterise environmental citizenship.

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## Introduction

In contemporary advanced industrial societies, political concern about the impact of global warming and climate change has begun to intensify. Despite some evidence that the general public is aware of environmental problems and a crisis over fossil-fuels, evidence that this is resulting in major changes in behaviour (for example energy use) is not compelling. Nevertheless, some analysts of social policy have acknowledged that people's access to scarce resources such as energy and a 'clean' and sustainable environment are important components of life-chances, and themselves both reflect, and partially limit, the scale of welfare state intervention in market capitalism. Some have suggested that the conditions of modern citizenship can be extended to incorporate ecological rights and responsibilities, in the form of environmental citizenship. This paper first briefly reviews the fundamental argument that concepts of citizenship are inextricably linked with the concept of life-chances, it then considers various aspects of 'environmental citizenship' and the linkages between social policy and the environment. The paper finally examines qualitative evidence about public perceptions of energy, hydrogen technologies and sustainability. It is argued that while the level of public awareness of environmental (and specifically energy) risk issues is generally high, there is little sign of a substantive commitment to the solidaristic values ascribed to environmental citizenship. So-called environmental citizenship is latent and provisional, and has yet to transform into 'ecological citizenship'.

## Life-chances

Any discussion of risk and the environment must at the outset acknowledge their significance for people's life-chances, and note that many advanced industrial economies have experienced political disputes about the consequences of technology, and the (unequal) distributional effects of economic growth. Concerns about welfare broadly conceived – and the evolution of interventionist public policy - can be traced to disquiet about public health, air pollution, and environmental degradation. T.H.Marshall (1965/1975) argued that a characteristic feature of modern capitalist societies is that social policy - and its institutionalised form in the 'welfare state' - ameliorates the negative effects of the market economy. More positively, 'social rights' embedded in the welfare state and social policy enable the practice of entitlements which ensure access to commonly-approved 'life-chances'. Such life-chances were defined by Giddens (1973, 131) as "the chances an individual has of sharing in the socially-created economic or cultural 'goods' which typically exist in any given society". Giddens stressed that life-chances are "shaped in a basic way" by the availability of material rewards and goods, and – most importantly – are inherently subject to exploitative relationships connected with class structures. In focusing on the unequal distribution of life-chances, he builds upon and develops the classical Weberian account of life-chances. Thus, "Class relations are predicated upon

asymmetries in the material reproduction of modes of social existence or 'life-chances' (Giddens, 1976, 123; see also Giddens, 1971, p164-165).

Max Weber – as Dahrendorf (1979) pointed out – provided the seminal but fragmentary account of the significance of the concept of life-chances in the two volumes of *'Economy and Society'* (1968/1978). Analysing the sociological categories of economic action, Weber identified the crucial importance of advantages or opportunities for present or future use of goods or services. Economic advantages or potential future advantages are termed 'chances'. Weber noted that the categories of goods and services "do not exhaust those aspects of the environment which may be important for an individual for economic purposes and which may hence be an object of economic concern" [Volume 1, p69]. Importantly, he went on to discuss rational economic action in relation to the search for food, also referred to economic aspects of the natural environment, climatic changes, and the ways human groups adapt to scarcity in the means of subsistence. Weber then highlighted the tension between self-interest and co-operation in the exchange processes of a market economy, and identified the attributes of social classes and status groups. The overriding principle of economic action involving such groups was (and arguably still is) the satisfaction of needs in a context of scarce resources, goods and services. In Volume Two of *'Economy and Society'*, Weber discussed the distribution of power and the importance of differentiating class, status and power. Crucially: "We may speak of a 'class' when (1) a number of people have in common a specific causal component of their life-chances, insofar as (2) this component is represented exclusively by economic interests in the possession of goods and opportunities for income, and (3) is represented under the conditions of the commodity or labour markets" (Weber, 1968/1978, 927). Thus, class and life-chances, for Weber, are inextricably inter-connected.

Dahrendorf (1979) developed the Weberian concept of life-chances to apply it to contemporary circumstances. For Dahrendorf, life-chances are not attributes or properties of individuals *per se*. Although individuals 'have' – or rather, experience - life-chances, those life-chances are opportunities, options, choices, alternatives for action – all of which are structurally constrained by what Dahrendorf describes as 'ligatures' and are linked with conditions of citizenship. Life-chances are "opportunities provided by social structure" (Dahrendorf, 1979, 29) and "the process called citizenship spreads options, which were originally available to a few, to more and more people" (*op cit*, 32). He argues that the development of life-chances in modern societies comprised the development of options, specifically through social rights, but this process is not continuous or inevitable.

Several important points emerge from this brief conceptual review. First, however defined, 'life-chances' are literally crucial for survival but at the same time are the currency of competitive struggle and wider processes of social inclusion and

exclusion. They are inherently concerned with (unequal) access to, and distribution of, scarce resources. Secondly, it is apparent that life-chances as determined by market mechanisms can be modified (to varying degrees) by social rights of citizenship. Third, it is commonplace but nonetheless essential to acknowledge that life-chances intrinsically require the basic provision of the means of subsistence and satisfaction of human needs (clothing, food, energy, etc). Fourth, following Dahrendorf's formulation, life-chances are necessarily connected with risks. All these dimensions are relevant to 'generic' aspects of modern citizenship, but especially to what has come to be termed 'environmental' or 'ecological citizenship'.

### Citizenships

To understand the meaning of notions of environmental or ecological citizenship first we must briefly consider some of the wider debate about the construction of modern citizenship. Bryan Turner's (1990, 2001) cogent critique of T.H. Marshall's concept of citizenship provided a synthesis of its changing scope and continuing relevance. Turner (1990) identified citizenship as a central issue for social integration and social solidarity, and emphasised the role of social struggles and conflict in its creation and maintenance. He noted that national boundaries around citizenship have become less important as a result of globalisation. Turner (2001) further developed his critique of Marshall's concept, in which social rights were the core. Like other commentators, Turner examined the significance of duties and obligations, and their connection with "an inclusionary process involving some re-allocation of resources and an exclusionary process of building identities on the basis of a common or imagined solidarity" (Turner, 2001, 192). In particular, he argued that a new regime of rights had emerged with changed economic and global environmental conditions. New forms of citizenship had developed, "driven by a common problem of modern society, namely the relationship between the human body and the environment" (*op cit*, 204). Social risks created by new technology, environmental pollution, and the spread of AIDS, were examples Turner cited in which new forms of citizenship had begun to emerge. Thus, rights to a safe environment were not seen as merely part of the agenda for environmental social movements, but part of much wider demands "to protect humans from the negative consequences of economic growth and technology on their health and safety" (*op cit*, 206).

In this, Turner was extending the important argument that Marshallian citizenship required adaptation to current contexts, particularly in relation to environmental issues and the wider debate about 'risk society' highlighted by Beck (1992). Newby (1996) also strongly urged that Marshall's concept of citizenship should be modified to deal with needs, rights, duties and obligations arising in relation to the environment and sustainability. For Newby, 'environmental citizenship' linked socio-economic with scientific-technological issues, especially global threats such as the depletion of natural resources and degradation of the environment. Newby (1996, 218) proposed that "we are all, therefore, environmental citizens

now”, and this raised classic problems of co-operation, interdependency and social order. Somewhat earlier, van Steenberg (1994) had noted that Marshall’s concept of citizenship was fundamentally about levels of material well-being, and argued that contemporary citizenship had a fourth dimension (to be added to civil, political and social rights) comprising environmental or ecological citizenship. This, he argued, was underwritten by responsibilities for the natural world and restraints on action. Dahrendorf (1994, 18) too had also acknowledged that while it was difficult to “stipulate an entitlement for all of us as world citizens to a liveable planet, and thus to actions which sustain it, ... something of this kind may well belong on the agenda of citizenship”.

### Environmental Citizenship

The concept of environmental or ecological citizenship has gained widespread currency in political theory but perhaps to a lesser extent within the academic disciplines of social policy and sociology. In practice, it has been embraced politically by numerous environmental social movements and lobby groups. The rapid and extensive growth of the ‘Green’ movement and green political theory (see, for example, Barry, 1999; Dean, 2001; Dickens, 1992; Yearley, 2005) has forced social scientists to re-think their conceptual frameworks and to address much more systematically issues beyond the conventional or traditional approaches to questions of life-chances primarily determined by the labour market and welfare institutions. Environmental and ecological citizenship will thus increasingly feature as relevant questions for sociological investigation.

Andrew Dobson has extensively debated the significance of these issues in much recent writing. Dobson (2003) noted that current environmental problems are not confined to nation-state boundaries, and that globalisation itself produces new kinds of ecological asymmetries both within and between states. Dobson (2003) also distinguished a model of environmental citizenship which stresses entitlements and rights, from ‘ecological’ citizenship which stresses duties and responsibilities, based on obligations. Both, he claims are valid, and are complementary, oriented towards the achievement of a sustainable society. Ecological citizenship seeks a just distribution of (ecological) resources. Dobson and Valencia Saiz (2005) take these arguments further. They propose that ecological citizenship must be based on the recognition that sustainability implies commitment to the idea of ‘the common good’ (*versus* self-interest) and that in practice this requires a major shift in attitudes and behaviour. Bell (2005) identifies environmental citizenship as deriving from the ‘liberal’ model of citizenship, comprising basic environmental rights and duties. These rights minimally include environmental goods such as clean air and water, but also extend to procedural rights to be included in decision-making about the environment. Duties include the obligation to comply with environmental laws but also to justify choices about lifestyles which affect the environment.

Dobson and Bell (2006) analyse environmental citizenship theory, and differentiate the 'liberal' approach to rights, as compared with the 'republican' approach focused on responsibilities. Each problematises 'virtues' such as willingness to work for the common good and the connection between individual actions and their collective impact. Barry (2006) advocates the 'republican' approach and applies it to what he terms sustainability citizenship. This goes beyond environmental citizenship because it is not restricted solely to environmental issues – instead it raises questions about the structural causes of environmental degradation and implies a commitment to a different type of (sustainable) society. There has been some disagreement about whether Dobson's concept of ecological citizenship is indeed distinctive (since it does not entail membership of a *polity*), and whether his advocacy of a normative concept of ecological citizenship is convincing (see Hayward, 2006a, 2006b; Dobson 2006) but there is an emerging consensus that the concepts of environmental and ecological citizenship highlight important questions about values and behaviour associated with sustainability.

#### Environmental risks, sustainability and social policy

The connection between debates about environmental citizenship and social policy is evident in recognising the fundamental importance of the natural environment and resources and the satisfaction of basic human needs. As Huby (1998) pointed out, environmental issues are significant for social policy as the environment influences people's wellbeing and quality of life. Access to water, food and energy is essential for survival, and as Huby notes, the production, consumption and use of other resources (and the waste generated) raises major questions about risks and the distribution of welfare. There are health and environmental costs of economic growth, and private and public expenditures are required to cope with 'negative externalities'; these too affect the capacity of the economy and society to invest in other types of welfare. Cahill (2002) - also using the idea of environmental citizenship - outlined the ways in which social policies broadly might be reconceptualised in order to secure 'sustainability' - defined as meeting the needs of the present generation without damaging the capacity of future generations to meet their own needs. Fitzpatrick and Cahill (2002) argued that sustainability entails reducing human demands and/or increasing resources to minimise the growing gap between demand and supply. It also necessarily involves re-distribution of benefits and burdens. They also point out that strong ecologism threatens to undermine 'productivist' economic growth and therefore reduces the means to maintain a welfare state. Cahill and Fitzpatrick (2002) emphasised that just as all aspects of the welfare state have an 'environmental' dimension, so all environmental issues have consequences for people's welfare in its broadest sense. Dean (2002) among others indicated that environmental or ecological limits on economic growth restricted the ability to

redistribute resources not only for current generations but also future ones. Thus both environmental and social rights and entitlements are necessarily interdependent and highly constrained. 'Green' political thought and movements – and concepts of environmental citizenship more generally – thus pose critical challenges for conventional 'liberal' standpoints on citizenship and social welfare.

Various writers have observed that social scientists have paid insufficient attention to the growing importance of ecological risks and environmental issues. From different standpoints, Dickens (1992), Newby (1991) and Beck (1995) criticised sociology for its neglect of the natural and physical environment, and each urged it to overcome the conventional 'nature/society' dichotomy. Barry (1999) advocated a 'relational' approach to the environment and nature, and argued that the 'greening' of social theory entails greater awareness of the ecological embeddedness and biological embodiedness of humans. He also noted that sustainability was a corollary of such an approach: concern for nature and environment inevitably involved a future orientation and sense of obligation to future generations. Irwin (2001) sought to avoid the constructivist versus realist dichotomy, but argued for a critical distance on 'sustainability discourse'. Thus:

“the linkages between a sense of environmental crisis, calls for inter-generational equity and the notion of togetherness are not simply given but instead are actively constructed... the environmental crisis does not simply impact upon our lives but is mediated and reconstructed within a host of social institutions and through ... kinds of discourse formation...”  
(Irwin, 2001, 47)

Irwin went on to advocate much closer attention to the experiences, 'framings' and locally-mediated understandings of environmental issues and sustainability. Similarly, Yearley (2005) has argued that ideas about sustainable living have been limited because they neglect sociological analysis of what constitutes a 'sustainable' life. Yearley acknowledged that as sustainable development is defined as meeting present needs without jeopardising the capacity of future generations to meet their own needs, there has tended to be a preoccupation with 'technical' (environmental) questions and economic arrangements, but very little attention paid to cultural practices and social institutions. The crucial questions about environmentalism and sustainability, Yearley claims, are ones about social order, and distributional and equity issues, and people's understandings and actions around such issues. Using the example of energy resources, Yearley notes that much research has focused on energy conservation and new sources of energy, and some aspects of consumer behaviour, but questions of how people regard the ownership, trading and use of energy as a commodity and as a social resource are rarely debated. Thus “the social institutions of sustainable societies are missing – or are implicit and unexamined” (Yearley, 2005, 180).

To summarise, this brief review has indicated a number of significant inter-related issues. First, self-evidently, any discussion of people's life-chances must incorporate the impact of social policy but within that, it must address the specific effects of environmental processes and the possible emergence of 'environmental' or 'ecological' citizenship. People's structured opportunities – both individually and collectively - are partly conditioned by the availability and distribution of scarce 'natural' resources (for example fossil fuels and the supply of energy) and the overall constraints of global environmental change. They are also directly and indirectly affected by private action and state intervention, reflected in consumer attitudes, producer behaviour, and regulatory regimes in particular spheres (for example pollution, energy use, recycling, etc). Second, insofar as 'green' environmental awareness has developed, notions of environmental/ecological citizenship presume changes in social attitudes and political belief – and behaviour - oriented towards duties and obligations connected with the 'common good'. If access to and use of energy resources, for example, is a major element in people's life chances, how far are they prepared to alter their behaviour to safeguard those resources, or accept redistribution among competing users/citizens, or tolerate rationing by price and/or state controls? How far are they willing to support the development of new energy technologies which are being introduced ostensibly to cope with climate change or global warming but may involve potentially new risks and benefits which themselves may be unequally distributed? In the energy and related environmental sectors, does individual self-interest coexist with expressed concern for collective welfare, and how might this affect environmental citizenship and sustainability? Some studies have already identified some of the contradictions between 'egoism' and 'altruism' in environmental policy, and the tensions between the citizen and consumer role. Berglund and Matti (2006) for example, provide evidence (from Sweden, about the recycling of waste) that the civic virtue associated with 'the common good' is tempered by rational economic incentives. They argue that in practice, people have 'multiple preference orderings' which are applied differentially in different contexts. The next section of the paper examines some evidence about public perceptions of an emergent innovative energy technology based on Hydrogen, and some of the implications of a move to a hydrogen economy.

### Attitudes and beliefs about energy and Hydrogen technology

In the context of rapid depletion of fossil fuels (coal, natural gas, oil) and concern about climate change and global warming, governments in the major industrial capitalist countries have been investigating the potential contribution of alternative or renewable energy sources, and also the feasibility of using Hydrogen as an energy carrier. Hydrogen is the most abundant element in the universe; it can be produced by splitting water into hydrogen and oxygen, and can be derived from electricity (from any source, including nuclear energy) or from reforming gas (from natural gas, and methane from biomass). Hydrogen

has been frequently described as 'clean' and 'green' and non-polluting. It can be used in fuel-cell vehicles (where the only immediate waste is water vapour), in localised combined heat-and-power systems for buildings, in mobile applications (such as laptops) and in a variety of other uses. Rifkin (2002) claimed that the widespread introduction of hydrogen energy technologies could revolutionise the economy and social structure, as it might enable the decentralised local generation of electricity - it might 'democratise' energy production. Hydrogen is not a fuel as such, but is an energy *carrier*. The principal concerns among technical experts and energy economists are its infrastructure investment costs and relative efficiency, possible hazards and safety regulation (see Flynn et al, 2006; Hennicke and Fishedick, 2006; McDowall and Eames, 2006; Ricci et al, 2006). Major international bodies, energy agencies and private corporations have committed significant investment expenditure in research and development of hydrogen energy systems (European Hydrogen and Fuel Cell Technology Platform, 2005; United Nations, 2006). The major advantages claimed are reduced greenhouse gas emissions and improved security of supply. However, there are still significant uncertainties about the performance and reliability of fuel-cell technologies, about the overall feasibility and efficiency of production, distribution and storage systems (as a gas or liquid there are highly demanding requirements about pressure and temperature) and questions about public perceptions (and acceptability) of hydrogen's hazards, risks and benefits. Technological innovation is in its earliest stages, with, for example, prototype hydrogen fuel-cell vehicles (cars and buses) now being introduced, and other applications under development.

To investigate public perceptions of the emerging 'hydrogen economy', and as part of a large EPSRC-funded research programme on sustainable hydrogen energy (see [www.ukshc.org.uk](http://www.ukshc.org.uk)), the authors have carried out focus groups with members of the general public in three case-study areas. Interviews have also been held with key stakeholders (local authority officers and councillors, industrial and commercial executives, regional agency officials). Three case-study 'regions' in the UK were selected for detailed study, based on the knowledge that there were already either commercial production and storage facilities for hydrogen *in situ* and/or that in those areas, energy agencies, private companies and local authorities had embarked upon the introduction of hydrogen-energy based technologies. The areas selected include Teesside, South Wales and Greater London. Given the fact that hydrogen energy is still a relatively 'unknown' and emergent technology, it was decided that large-scale survey methods were inadequate and inappropriate to gauge the extent of public awareness of, and attitudes to hydrogen energy. Given time and resource constraints in this phase of the research project, focus groups were used: in total, nine groups were held, four in Teesside, three in London and two in Wales.

Members of the public were recruited through local authorities' public consultation panels; in some areas, there were already-existing 'citizens panels'

which were drawn from a representative sample of the local population. The focus groups were mixed in terms of age, gender, ethnicity and socio-economic group. They were specifically recruited on the basis that they did not have scientific or technological background, or close familiarity with energy technologies. Groups varied in size from six to (in one exceptional case) thirteen members. Meetings were facilitated by the researchers, and lasted one-and-a-half hours. Discussions were tape-recorded; subsequent to transcription, thematic analysis was carried out independently by each team member, and then through a process of validation by 'triangulation' (see Barbour and Kitzinger, 1999; Bloor et al, 2001). Focus group members were first asked to indicate whether they were aware of general issues about the environment, energy, global warming etc, and then were asked to consider different types of energy source; they were asked if they had heard of hydrogen energy, and then shown some visual materials and given brief simplified explanations of hydrogen technologies. The discussion below is based on qualitative data analysis of segments of focus group discussions about 'the environment', 'sustainability' and issues which relate to the concepts of environmental citizenship outlined above.

There were some consistent and general findings from all of the focus groups in each of the three areas. First, people had high levels of awareness of problems associated with climate change and global warming; they were aware of 'greenhouse gases' and the effects of pollution. Many participants characterised these problems in terms of extremes in weather patterns, and referred to perceived increases in air pollution from road transport. Second, people were very aware of a 'crisis' over the supply of fossil fuels, and were especially knowledgeable about (and concerned by) recent increases in fuel (gas, electricity, petrol/diesel) prices. Third, these concerns were frequently linked with some anxiety about and criticism of the international political situation, and their recognition of dependency on foreign states for future supplies. Fourth, in general, while most people could describe some of the properties of hydrogen (e.g. as a gas, abundant, as potentially explosive, etc) knowledge about hydrogen as an energy carrier was limited. Fifth, public perceptions of hydrogen were neither entirely positive nor completely negative. People always framed their views about hydrogen and its possible uses in terms of their own experiences and in relation to the local context – for example whether there was a history of employment in local industries related to, or similar to, hydrogen production (coal mining, petrochemicals). Sixth, people expressed opinions and asked questions about hydrogen within a broad framework of concern about the natural environment and made explicit comparisons with other sources of energy. Seventh, it was evident that they were willing and able to discuss energy issues in the context of their personal beliefs and values. While concerns about potential hazards and risks to safety were voiced, these did not appear to form the basis of outright opposition or rejection of hydrogen technologies. The dominant presumption was that hydrogen energy technologies will have been thoroughly tested and systems 'engineered' before their widespread introduction. In almost all the focus group meetings, participants indicated that the decision to adopt

these new technologies would be determined by 'trade-offs' between cost or price, 'useability' and convenience, safety, and environmental benefits. Finally, a general finding was that participants shared a distrust of government (and also to some extent, business and industry) in relation to their willingness to genuinely accommodate citizen or consumer views about energy.

More specifically, when examining focus group views connected with environmental citizenship and sustainability, the following observations can be made from different groups in the three areas.

In *Teesside*, one group in particular expressed very strong concerns about the fossil fuels crisis, carbon emissions and environmental pollution. They indicated that while these issues were not having an immediate impact on their own daily lives, they were worried that their children and grandchildren's lives would be negatively affected. For example:

*"In our lifetime maybe the changes are going to be relatively small. But when we read about what could be happening in forty years time, thirty to forty years, it's horrifying to think about our grandchildren"*  
(Teesside, Group 1, male)

In a second Teesside group, one man commented:

*"You are talking to people, do you think that the environment is getting in a worse state? I think at my age I am realising that. I think it's our younger generation that are going to come through, the kids ..."*

Another man interjected:

*"I know about it .... My ten year old probably thinks that everything's absolutely fine and when she gets to thirty and she starts having a family, is she going to think the same? Is she going to be alert to it, and is it going to be too late by then?"*

There was group agreement that "something must be done" about this, especially at international level.

In both the groups in *Wales*, high levels of concern about the environment were expressed; each spontaneously mentioned the need to develop 'alternative' and renewable energy sources. Central government was identified as the crucial agent to bring about large-scale change, but there was recognition that individuals had to change their lifestyles – most people believed that cost pressures would eventually force individuals to change their behaviour in energy use. In *London*, the 'young persons' group was especially concerned about global warming and the international dimensions of pollution and energy crises. They advocated much stronger programmes of energy conservation and recycling, and major changes in people's attitudes to transport. However, most agreed that energy issues were not equally salient for everyone, that people could not be forced to change their behaviour unless price was the crucial factor. The two other groups in London identified problems with global warming and the decline of fossil fuels. One group were critical of 'vested interests' preventing radical innovations; the other group agreed that people generally were aware of

environmental problems but were unwilling to change their own behaviour. In one London group, a male participant said :

*“I think people are aware, but they are not, at the end of the day, being aware and actually doing something about it. They are interested in different things aren’t they? But I think most people ... say ‘I know about global warming, but I’m not going to stop driving my car.’”*

Costs and taxation were seen as the most likely instruments to induce change in energy use, and several members referred to the impact of the London congestion charges and higher taxation on polluting vehicles. In a third London group, one male participant argued that expecting the public to alter their environmental behaviour when private corporations continued unchecked was ineffective:

*“In terms of individuals, I’m not sure that changing everybody’s how they use energy in this country is going to be much different if the way business and industries uses and disposes of energy and waste isn’t changed first, because that’s much greater. Industry is throwing out a lot more waste than ordinary people are”.*

Much later in the discussion in this group, when considering the promotion of hydrogen fuel-cell buses, a man commented about a potential disjunction between people’s immediate health priorities and global environmental concerns:

*“It’s no good saying you’re going to save the planet, they [the general public] don’t give a toss about saving the planet – they care about saving their lungs, they care about what’s happening to their kids. And it’s better to be selling things that matter to people ... saying that this bus is healthy, it isn’t polluting your kids, asthma and all this.”*

Another participant immediately followed this up by indicating the need for some collective or universal benefits to be demonstrated: *“What will ‘sell’ this is if we can find ways and means for it to be available to all, and that will ‘sell’ it”.*

In terms of locating responsibilities for taking action to improve energy use, and the question of duties and obligations, opinion was somewhat divided across all the focus groups in all the areas. For many participants, central and local government were seen as needing to provide leadership and to take responsibility for initiating energy conservation and encouraging the take-up of new ‘green’ technologies, in order to achieve the necessary large-scale and long-term changes required. At the same time, individuals were seen as the ultimate source of action, but changes in behaviour were mainly seen as resulting from self-interest, linked with direct ‘threats’ caused by large increases in fuel prices, for example, and/or financial incentives to move to new technologies. For a significant minority in each of the focus groups, there was scepticism about whether people would make changes voluntarily, and doubts about whether people would be motivated by wider solidaristic goals.

To illustrate this, from the second *Teesside* group, one man commented:

*“Well when I think about the environment I look at it from a personal and*

*local perspective rather than globally. Because no matter what we do here, somebody else somewhere ... might do something totally different which negates what we're doing here. So I look to the fact that my living environment is clean. If it's good for me, then it's up to everybody else to clean theirs"*

A woman in the same group, discussing recycling schemes, said that *"there is a shocking amount of apathy where I live certainly, and they [other residents] can't be bothered"*. She went on to say that residents should be penalised by higher council taxes if they did not participate in recycling. Other focus group members supported her view that in some neighbourhoods, people were not joining in with scheme, and they were critical of this apathy and non-participation. Later in the discussion, a man observed:

*"If you ask me, about responsibility, as a parent I'm responsible to my daughter and children about all sorts. I think there is responsibility for each and every one of us as well, individually... Erm, but I also think the responsibility's for the next generation to do something about it as well, and not just think it's someone else's responsibility"*.

In a different Teesside group, when discussing policies which might reduce energy consumption and facilitating wider public involvement, one woman stressed the need for greater commitment by people, another then said *"You can't bludgeon people into your way of thinking... Society is interdependent surely, and whatever one person does there is ramifications for the next?"*. Somewhat later, having discussed variations in individuals' and companies' adherence to environmental health laws, and problems in encouraging the adoption of new energy saving technologies, a woman noted:

*"I still feel though that one of the important points has got to be about wastefulness, because there is sort of an enlightenment that science can provide for everything without personal responsibility for a change in our ways, and I think that has got to be addressed too. So it's fine and dandy coming up with new technology, but you've got to say 'Well look at this, this is the cost, as well as this is what you've got to do'. It's alright having rights but you've got to have responsibilities too, and I think that's what we've got to be careful of"*.

Another woman immediately followed this up by saying *"I think rights and responsibilities goes through life anyway. You know, that's standard for me"*. Another female then said: *"There will always be people who care, and people who really don't care. And I don't think you'll ever get round to the ones who don't care"*.

Similar views were expressed in each of the two focus groups in Wales, and there were some instances where caution was expressed about the willingness of people to modify their behaviour (to become more environmentally oriented). After discussing general levels of awareness of issues such as global warming and the energy crisis, and whether people were prepared to change their own patterns of energy use, in Group 1, one woman commented:

*“Yes, and they say something should be done, but it’s always by somebody else. They don’t think they can make any difference themselves. And as well, if somebody says ‘Well, do recycling’, they say ‘Oh, I can’t be bothered with that’. That sort of attitude as well, that’s what I get.”*

A few minutes later, a woman suggested that many people are reluctant to acknowledge the seriousness of the wider environmental problems and ‘push it aside’ and a man agreed with her, commenting:

*“They’re not going to worry about whether the ozone layer’s breaking down, or climate change or whether the ice cap’s melted. You know they’re too wrapped up in getting by from day to day, you know”.*

Later still, there were some more positive expectations that people could be persuaded to engage in ‘green’ actions. One woman argued that energy policy initiatives would succeed if they came from the ‘grassroots’, so that *“people realise that they as an individual can make a difference, and it’s getting over that hump of what an individual can do”*. As the debate continued, however, this was countered as one man questioned the impact of local environmental and energy-saving schemes, and argued instead for more job creation to combat local unemployment:

*“I’d rather see ten factories ... keeping people in work ... Now I’d rather have my gas on or my energy, my lights on, than a few little doves running around...I’m not being funny about it – sometimes you’ve got to take a step back and say ‘Listen, we haven’t got a choice here folks, this is what we’re going to do”.*

The second focus group in Wales predominantly tended to emphasise that it is economic constraints and incentives that would most affect people’s decision to adopt new energy technologies and more ‘environmentally-friendly’ lifestyles – rather than some generalised commitment to collective or global welfare. One man claimed that:

*“We are doing too little too late, and if you want to make a difference then you have got to do it by yourself. You have got to change yourself”*. This was immediately followed by a woman who observed:

*“...but the trouble is the individual person, they don’t know – say they want to save the environment, but how much is it going to cost?”*

Later in the meeting a different man challenged the belief that most people were sufficiently concerned about the environment and energy. He said *“It’s very difficult to know what proportion of the population really care about these things...I don’t know what the public, what proportion of the public really care”*. A few seconds later, a woman observed *“I think they [the public] don’t understand the seriousness of it”* – this provoked a debate about the influence of the mass media, conflicting advice from scientists and experts, and the importance of school-level education about these issues. Most in the group, throughout the exchanges, seemed to agree that cost factors will probably determine people’s acceptance of new energy systems: wider environmental or ‘public good’ objectives were seen as less immediately relevant in everyday lives.

There were clearly variations within and between the focus groups in their reported beliefs about and attitudes towards 'environmental' and 'sustainability' issues. But there are also some consistent themes which recurred in each area. First, there was a recognition that global warming, climate change and energy use were problems which confronted individuals and nation states. Second, however, there was a kind of dissonance between people's acknowledgement of the problems and challenges, and their willingness or capacity to adjust their behaviour. This was expressed in several ways. One concerns the tension between individual self-interest and collective or solidaristic benefits. Some people indicated that they might try to alter their consumption or approve stricter environmental controls if it was beneficial to their own and their children's health, for example – but their concern for 'global' matters, or even other regions of the country, was more limited. Similarly, many suggested that they might adopt more environmentally-friendly practices, but could not (or would not) rely on other people to do the same, so this was a deterrent – the classic problem of collective action. Another aspect of people's reluctance to radically change their behaviour concerned their cynicism – or perhaps, more accurately, fatalism - about business and governmental interests. It was frequently noted that innovation and change needed leadership from government, but this was counterbalanced by some opposition to 'vested interests' and support for more 'grassroots' action. Finally, another dominant theme emerged from each of the focus groups: economic factors were highly significant in people's approach to environmental and energy issues. Thus, people's interest in, and willingness to adopt, new energy systems and technologies was heavily influenced by considerations of cost or price. Many were also cautious about the potential trade-offs between economic growth and employment, and more rigorous environmental and energy controls.

These findings confirm those from various other studies. Data from the large-scale British social attitudes survey demonstrated a 'disconnection' between environmental awareness and action. The incidence of environmentally-friendly behaviour was found to be far lower than people's level of environmental concern. This was explained, partly, by people's sense that they had little capacity to act even if they felt a kind of responsibility, as well as a broader distrust of industry and government, and an anxiety that not everyone would 'do their bit'. In general, attitudes to the environment were characterised by contradictoriness, confusion and inconsistency (Christie and Jarvis, 2002). The problem of 'breaking out' of an economy totally dominated by fossil fuels (sometimes called the carbon lock-in), and difficulties in bringing about systemic change as well as wholesale changes in most people's lifestyles towards sustainability has been noted by many commentators (see Murphy and Cohen, 2001). One recent report on moves towards sustainable consumption and social justice described the current inertia, expressed in a prevailing public attitude of "I will if you will" (Sustainable Development Commission, 2006). However, at the

'micro' level, the apparent gap between attitude and action cannot be explained solely in terms of lack of information. Hobson (2001, 2003) showed in a detailed qualitative study of household consumption and lifestyles, that the limits on people's willingness to change is partly linked with specific discourses or rhetorics about consumption and the environment, and partly to do with the deeply-embedded nature of everyday practices.

More broadly, the results from the focus groups reported here are very similar to those described by Macnaghten and Urry (1998). In their research – also using focus groups – about people's knowledge of 'nature' and the environment, Macnaghten and Urry found that people's beliefs and attitudes were ambivalent and contradictory. 'Environmentalism' had diverse and multiple meanings, and such meanings were highly contingent on people's local experiences and cultural practices. Sustainability issues entailed ontological questions which were seen as very challenging for people's sense of identity and group membership. Perhaps most significantly, they showed that when presented with different scenarios and standpoints, people adopted contradictory positions, depending on how the issue was 'framed'. Thus, in connection with certain environmental controversies, the *same* issues were understood in different ways when those issues were presented in different ways. Macnaghten and Urry (1998, 229) further concluded that groups "did not sense that personal individual actions were likely to make a difference", and that "collective action was unrealistic, given people's sense of the prevalence of 'short-termism' within the state and business". Although there was evidence of environmental concern, there was little indication of adjustments in lifestyle: "most people were not radically restructuring their lives or actively engaged in environmental protest" (*op cit*, 231).

## Conclusions

Clearly environmental risks and energy issues have become more problematic at national and international levels, they do influence the overall distribution of life-chances, and people's general awareness of them is substantial and growing. There is a consciousness of the importance of energy resources and potential ecological crises, and some acknowledgement that these have an immediate impact upon lifestyles and general sustainability. Without necessarily conceptualising (or articulating) it in terms of 'life-chances', people generally are at least superficially knowledgeable that their patterns of consumption, lifestyles and living standards – and those of others - are constrained by structures and processes which they usually regard as beyond their immediate control. The qualitative case-study evidence described here indicates that, while there may be a conditional or provisional recognition of environmental rights and responsibilities, this cannot be characterised as a fully-fledged 'environmental citizenship'. Sustainability may have been identified as a worthwhile goal, and as having resonance with the notion of a 'common good', but there were few signs

in focus group discussion that people's collective welfare was the primary objective. Instead, attitudes seemed to converge on instrumental and privatised outlooks, with an improved environment or greater energy efficiency being seen as desirable for individuals and households. Environmental and energy threats were acknowledged, but they tended to be seen as 'distal' concerns, remote from immediate practical action. The 'responsibilities' assumed to be inherent to ecological citizenship were salient for some participants, but their practice was contingent on many other factors.

If ecological or environmental citizenship requires endorsement of (and moving beyond?) elementary collective values and solidaristic objectives, then in this case of attitudes towards energy and new energy systems, there is little evidence of a 'social base' let alone a 'social force' with a shared (perceived) community of interests. The Weberian model of life-chances presumes common causality, shared economic interest and a commodity market. This objectively seems to apply to the question of energy and the environment: people's material well-being is dependent on access to scarce (and depleting) energy sources; and energy itself is commodified, but their 'common' interest is only constituted at an abstract and 'macro' level. It is the expediency of everyday life, and the immediacy of localised conditions, which appear to shape people's beliefs and action about energy, whether based on conventional fossil-fuels or on the hydrogen economy. In this field at least, 'environmental citizenship' has only emerged tentatively, and 'ecological citizenship' has yet to evolve.

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