TSEC Trust Symposium

Workshop Report

28th-29th June 2006
St. Anne's College, Oxford

By:
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Malcolm Eames, Brunel University

Event organised and sponsored by:

UK Energy Research Centre

THE UK ENERGY RESEARCH CENTRE MEETING PLACE

The UK Energy Research Centre's mission is to be the UK's pre-eminent centre of research, and source of authoritative information and leadership, on sustainable energy systems. The Centre was established in 2004 following a recommendation from the 2002 review of energy initiated by Sir David King, the UK Government's Chief Scientific Advisor. It is a central part of the £28 million cross-Research Councils programme Towards a Sustainable Energy Economy (TSEC) and is funded by three research councils: the Engineering and Physical Sciences Research Council (EPSRC), the Natural Environment Research Council (NERC) and the Economic and Social Research Council (ESRC).

A key supporting function of UKERC is the Meeting Place, based in Oxford, which aims to bring together members of the UK energy community and overseas experts from different disciplines, to learn, identify problems, develop solutions and further the energy debate.

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INTRODUCTION

This workshop report presents the key outputs from the TSEC Trust Symposium, held on 28th-29th June 2006 at St Anne's College, Oxford. The report is organised along the five themes of the TSEC Trust project (see below) and includes the abstracts upon which the presentations given at the workshop were based, along with a summary of the discussion & breakout sessions.

Over 30 participants took part in the Symposium, with both presentations and discussion sessions being audio-recorded. Notes were made from this recording by Roman Buss and Safeena Aslam and were edited by Paul Bellaby and Rob Flynn. These notes form the basis of the discussion summaries in this report. The presenters were also asked to contribute to a special issue of the leading international journal *Energy Policy*, which is organised around the same themes and is to be edited by the Symposium organisers.

Presentations and the programme from the Symposium are available on the UKERC website at http://www.ukerc.ac.uk/www.ukerc.ac.uk/content/view/321/123. Full versions of the papers presented (14 in total) are available on the TSEC Trust project website: http://www.psi.org.uk/tsec/.

Workshop overview

The aim of the TSEC Trust Symposium was to bring together key individuals from the UK energy research community with leading UK and international social scientists who had previously worked on issues of trust in other social and technological contexts, in order to:
  • stimulate inter-disciplinary debate;
  • allow UK energy researchers to engage with and learn from leading UK and international social science researchers working on issues and concepts of trust;
  • develop new synergies between different strands of energy research and research on trust;
  • improve the capacity of UKERC researchers to effectively engage with and critically employ concepts of trust within their own research; and
  • contribute to UKERC's networking function and build up the strengths of the research community.

Sustainable development, global warming and energy security are issues for the current generation and action/inaction now will profoundly affect future generations. Changes seem to be inevitable, but there is room for debate about the extent to which the market will deliver the necessary energy transition or there must be policy-led 'managed change'. Whichever course is taken, changes on the scale and of the complexity required will depend on cooperation between stakeholders at many levels. Trust/mistrust will play a part, positive or negative, in securing that cooperation. As yet little work has been done on trust in an energy policy context. The TSEC Trust workshop and project are part of an attempt to build capacity among researchers to undertake that task.

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TSEC Trust project

TSEC Trust is a one-year ESRC funded project under the Towards a Sustainable Energy Economy (TSEC) Programme. The TSEC programme is co-ordinated by Natural Environment Research Council (NERC), the Engineering and Physical Sciences Research Council (EPSRC), and Economic and Social Research Council (ESRC). The 'whole-systems integrated approach' is the bedrock of the TSEC programme.

The TSEC Trust project is being undertaken jointly by the Policy Studies Institute and the University of Salford. This is a collaborative project involving Professors Paul Bellaby and Rob Flynn at the University of Salford, together with Professor Malcolm Eames, Brunel University, and Julia Tomei at the Policy Studies Institute (PSI) in London. Full details of the TSEC Trust project are available at the project website http://www.psi.org.uk/tsec/

The over-riding aim of the project is to build in the UK a 'whole system' view of the transition to sustainable energy. A more specific aim is to build capacity among social scientists to research the complex and subtle role that trust/mistrust between actors might play in managing uncertainties in the global energy market.

The project has the following research deliverables:

- Improved capacity in the UK academic community – at senior and junior levels – for investigating the part trust/mistrust between stakeholders might play in managing uncertainty during the transition to a sustainable energy system, in particular with respect to five themes:
  - ❖ Theme 1: Concepts and methods in the study of trust
  - ❖ Theme 2: Trust between citizens and authority with respect to innovative technologies
  - ❖ Theme 3: Trust among producers, distributors and regulators
  - ❖ Theme 4: Trust around change in consumption practices
  - ❖ Theme 5: Trust between nations with respect to international negotiations on energy and climate
- A literature and web search for the main themes in the literature on 'trust' and the management of uncertainty, which have potential application in the five themes.
- A two day symposium, organised in association with the UKERC Meeting Place, bringing selected stakeholders and academics together with academics identified in the search, in order to cover the five themes in the study of 'trust'.
- Commitment among participants to develop appropriate research collaborations and engage in an internet discussion group.
- A working paper on the literature that, like the discussion group, would be open to the research community as a whole, and an edited collection in journal or book form arising from the symposium.

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SYMPOSIUM PROCEEDINGS
June 28th 2006

Theme 1: Concepts and methods in the study of 'trust'
Chair: Malcolm Eames, Brunel University

Is 'trust' necessary on the way to sustainable energy? Where might this apply, and why so?
Professor Paul Bellaby, University of Salford

The background to this symposium is how to achieve a sustainable energy future in the long term and to break out of dependence on fossil fuel in the short and medium term. Technologies are necessary for these changes, but they will not achieve them alone. Changes in institutions and way of life will be needed too.

Our immediate focus is how to manage changes in technology, institutions and way of life sufficient to propel us in the direction of a sustainable energy economy, for it is unlikely that the market will deliver a sustainable energy future by itself, at least not in good time – before much damage is done to the environment and much international conflict has taken place, maybe even before oil and gas 'top out'.

A large measure of trust is necessary if we are to cooperate, manage the uncertainties and confront the risks of working towards a sustainable energy future. Though trust might seem like motherhood and apple pie, it is no comfort that trust is necessary, for it is fragile, hard to achieve and even more difficult to maintain.

Some of the key questions to address include:

1. What is 'trust'?
2. At what levels in the 'whole system' of energy provision and use might 'trust' make a difference to the management of uncertainties and risks in the transition to sustainable energy?
3. Are there conditions under which 'trust' might put the brake on change rather than drive change?
4. How can 'trust' be best understood and researched?

Dimensions of trust in science, technology and society
Professor Steve Rayner, Said Business School, Oxford University

Professor Rayner's presentation sketched out the contours of the climate change debate focusing on the diagnoses and prescriptions proposed by three distinct voices. He then showed how the same voices frame the issues of energy strategy, embodying distinctive principles for approaching the closely interrelated issues of trust, liability, and consent (TLC) in the development and implementation of energy technologies. Drawing also from examples in other technical domains (such as water resources) Professor Rayner argued that policies embodying diverse approaches to TLC may achieve higher levels of public support than those representing narrower framings.

Theme 1 Discussion
Because trust has many meanings in everyday discourse, we need a multiplicity of concepts. The aim is to examine how trust might serve as a force for innovation and against lock-in to prevailing energy solutions. There is no simple relation between

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interests in change or resisting change and trust/mistrust in others. Broadly, we need to distinguish the following:

- ❖ Generalised trust throughout society (or 'social capital')
- ❖ The truth-value people assign to scientists or governments (their 'trustworthiness')
- ❖ Background 'confidence' in technical competence or technology
- ❖ Trust in science in specific relation to climate change, distinguishing between 'process trust' (in deciding whether and why there is a problem) and 'outcome trust' (in being able to deliver solutions)

- The resolution of controversial issues (such as nuclear power, GM crops or nanotechnology) relies on the overall credibility of science and other institutions and on trust that individual agents will act responsibly. Sometimes trust in NGOs (like Greenpeace) is higher than in government or industry. There is often trust in institutions rather than in science and technology in the abstract.
- The term 'trust' is often used to imply consensus about a course of action, but there may be a tension between solving problems and maintaining consensus. Moreover, there are several paths to sustainable energy - pluralism, and there may be diversity in the outcomes.
- There is an issue as to who trusts whom. Usually the focus is upon trust/mistrust of authority, including that of science. However, it is significant that government may not trust its own citizens, for instance, to reduce demand and increase supply by using decentralised home energy systems; while citizens may, in turn, display wholly rational, not irrational, distrust of institutions or people in science or politics.
- Trust and distrust (rational and irrational) can be and are used as strategic resources by government. There are differences here between the UK and the USA, where a Promethean unquestioned faith in technological solutions (but not in science) is to be observed. Distrust in science is exemplified in the US Administration's attempt to suppress the climate change issue, despite major findings in climate change science resulting from research funded by the Administration (Department of the Environment).
- A distinction has to be made between 'confidence' and 'trust' and it was observed that trust might "put the break on change rather than drive change". Confidence relies on institutional settings ("passive background confidence") whereas trust means agents "having an active interpersonal commitment to each other". Abrupt and radical change might undermine confidence in institutions and break the tacit understandings on which interpersonal trust rests.

Questions remain to be answered about what sort of intervention is realistic (tax or regulation) and what level of change needs to be achieved to bring about sustainable energy.

Other key points:

- How mistrust and tensions might impede breakout of the status quo.
- The need for debate about the role of consensus in making possible gradual change.
- The extent to which consensus and conservatism are linked.
- There are potential collisions between different interests, such as the most acceptable system to the public as opposed to the most cost-efficient system.
- We need to attend to the role of corporations in rational-choice based policy interventions and the lack of a framework for joint decision-making.
- What are the links between processes of change from above and change of behaviour among citizens?

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Theme 2: Trust between citizens and authority with respect to innovative technologies

Chair: Miriam Ricci, ISCPR, University of Salford

Agency, trust and power in social choice among sustainable energy paths

Dr Andy Stirling, SPRU, University of Sussex

Focusing on policy making for transitions to sustainable energy, Dr Stirling's presentation reviewed four assumptions that frequently underlie general discussions of 'trust'. The first is that technological transitions like that to sustainable energy can reasonably be seen as a single strategic 'pathway'. This effectively marginalises questions over uncertainty and divergent values and interests and so risks misleading simplification of the implications of trust and distrust. The second is the tendency to restrict attention to trust *by* relatively powerless actors *for* relatively powerful actors. The opposite relationship of trust is also crucial. The third is that situations of trust will tend to correspond with a state of consensus. This neglects the value in fostering trust of pluralistic engagement with dissenting positions. The fourth and final assumption is that trust can usefully be addressed in an undifferentiated way. Practical distinctions should be made between instrumental issues of 'trust' between actors; normative questions of the 'trustiness' of different governance processes; and the extent to which the substantive technology and policy outcomes themselves are actually 'trustworthy'.

Public trust in experts

Professor Nick Pidgeon, University of Cardiff

Professor Pidgeon discussed the issues around trust and risk government, looking at the perception of risk, with examples from BSE and nuclear power, and the relationship between risk attitudes and trust. He then outlined some conventional models of trust and introduced the concept of critical trust – a combination of scepticism and reliance on an agency or organisation - which is useful in thinking about public responses to regulation and risk issues (trust is definitely not 'all or nothing'). Trust for some issues may be as much a consequence of wider affective beliefs rather than the cause of those beliefs. In policy terms, both this perspective and the concept of critical trust imply that a condition of absolute trust may be something of a holy grail.

Professor Pidgeon then went on to give an overview of the Nanotechnologies inquiry process undertaken by the Royal Society of Arts and the Royal Academy of Engineering in 2003-4, and discussed the issues around upstream engagement in this context.

In conclusion, there is a need for a critical perspective on efforts to 'improve' trust and in many circumstances it may be just as important to understand what is driving concern (over GM Food, nuclear energy, nanotechnology etc.). Finally, 'upstream' engagement with new technologies presents significant challenges as well as potential opportunities in relation to emerging technologies.

Public engagement - how can, and does, this impact on trust

Professor Judith Petts, University of Birmingham

One common but rather simplistic assertion is that one of the benefits of increasing public engagement will be an increase in trust in those groups who are suffering a 'crisis of trust' – politicians, policy-makers, businesses - and even, to an extent, science itself. Indeed public engagement is often argued for (at least by government) entirely in these terms as opposed to other potential benefits such as learning, quality assurance, etc.

Professor Pett's presentation drew upon evaluation of engagement activities and experience of running them to reflect upon such expectations.

One important question relates to how different types of engagement with different objectives ('upstream' and 'downstream') might create, or not, the conditions to increase trust. Engagement activities, passive and active, vary as to the extent to which individuals versus institutions become publicly visible and are challenged as to the veracity of their arguments. Of course, while the concept of ensuring that plural voices are heard is a key criterion of effective engagement, just how can the inevitably limited numbers of actual participants in a specific decision context impact on general or background trust? Different activities inherently determine how the theoretical dimensions of competence, empathy, openness and independence are played out and evaluated in the public domain. Some of the very people who appear to be least trusted are often the very people least willing, or least able, to engage. Finally, engagement is only ever one dimension of a decision-making process – what goes on behind closed doors, the impact of regulatory and political limitations as to the framing of a debate, the cultures of powerful actors, all become important in shaping and determining outcomes. The biggest potential danger for the trust assertion is the engagement activity that has high profile but which makes no impact on the decision. For example, if the political decision to have new nuclear build has already been taken upstream there is little point engaging people in a discussion about what energy options should be considered nationally. However, it would certainly be relevant to engage people 'downstream' in key decisions about where new plant should be sited.

Theme 2 Discussion

A shift from formal consultation to more active patterns of communication and engagement is being promoted in the policy arena, on the debateable assumption that an increase in engagement leads to an increase in trust between citizens on the one hand and science and policy-makers on the other. In turn the public is now thought to demand active inquiry and debate rather than to blindly accept what authority advocates.

• In the course of discussion, possible connections were seen between the contributions here on public engagement and contemporary developments in green political thought (such as Dobson[1] on environmental citizenship/ environmental justice). It was pointed out that the presenters came to similar conclusions from different starting points. There was also reference to Eckersley's 'The Green State'[2], which argues that there can be a Green State that is based upon discursive processes. The critical application of Habermas[3] as a normative foundation for Green thought was discussed, as also the 'anti-ecological' tendencies of neo-liberalism.
• Is public engagement consistent with top-down managed discourse? Potential problems in introducing public engagement into a representative democracy were highlighted. Do participatory elements fit in a representative system? It is also hard to say when an engagement process is successful: there might be a lack of transparency in the process.
• Trust has been defined as shared expectations. These can be drivers of innovation, but 'shared networks' and 'guided visions' may also conflict with the introduction of alternative ideas.

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[1] Dobson, A. and Valencia Siaz, A (eds), *Citizenship, Environment, Economy,* Routledge, 2005
[2] Eckersley, R., *The Green State: rethinking democracy and sovereignty*, Cambridge, Mass: MIT Press, 2004
[3] Habermas, J., *The Theory of Communicative Action*, translated by Thomas McCarthy, Boston: Beacon Press, 1984

Other key points:
- Explanation of science and technology in public engagement work raises problems. How are terms to be explained? How should language be used? Are real examples to be used or not? How can we illustrate developments of complex issues in science? How can arguments be developed through debate among the participants? How can mutual trust between facilitators and participants and among participants be ensured so as to avoid suspicion?
- The political and cultural context in which public engagement occurs and characteristics of the state may shape, even distort, communication, as may the role of power and normative orientations within discourse. For instance, epistemic communities play a part in public engagement in ways that may not at first be apparent.
- Also miscommunication about risk can take place, as, for example in public engagement over nuclear energy.

Theme 3: Trust among producers, distributors and regulators

Chair: Rob Flynn, ISCPR, University of Salford

Trust and legitimacy in environmental regulation

Professor Andy Gouldson, University of Leeds

Professor Gouldson's presentation considered the role of trust in the relationships between regulators, industry and stakeholder groups. He examined the emergence, evolution and influence of trust both in the core policy communities that are at the heart of the regulatory process and in the broader issue networks that surround the regulatory process. He argued that trust in core policy communities emerges because of resource inter-dependencies between regulators and the firms or industries that they regulate, and that over time it can evolve and become institutionalised through close, cooperative working relations between these actors. Professor Gouldson also argued that while actors within the core policy community often argue that these trusting and cooperative approaches lead to more effective and efficient regulatory processes and outcomes, this trust is commonly seen by stakeholders in broader issue networks to be akin to regulatory capture. The critical issue then is how to maintain the benefits of trust and cooperation in the relations between regulators and firms whilst also protecting against capture and building public or stakeholder confidence in the regulatory process. Professor Gouldson proposed that these competing objectives can be balanced through the adoption of transparent forms of responsive or risk-based regulation and that such approaches have been effective to some degree in the environmental sphere in the UK.

Trust between generators, network operators and regulators

Dr Catherine Mitchell

As the introduction to the TSEC Trust programme sets out, 'trust' is a difficult state to define. The extent to which it needs to exist, and where it should be placed, in order to achieve sustainable energy differs. 'Trust' also differs when achieving a clear function and a non-quantifiable but understood belief. For example, there can be 'trust' that a supplier will supply electricity. However, it is harder for customers to 'trust' that distribution network operators are doing their utmost to move towards a sustainable energy future. Dr Mitchell's presentation explored trust between producers (taken to mean generators of energy or companies and individuals or energy service companies which reduce energy demand), distributors (meaning both transmission and distribution network operators rather than suppliers) and regulators. In order to discuss that area, Dr Mitchell also covered a wider area, moving into Government (via implementation of legislation) and customer (who buy energy services) roles.

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Dr Mitchell agreed with the TSEC Trust introductory paper that suggests there is a term 'trust' which is used and understood in general from a wide set of perspectives. However, this general use of 'trust' is difficult to define and to operationalise. Very broadly, trust can be viewed as someone or something in this area behaving in ways that are not in their best interest and 'interest' is not necessarily taken to mean 'economic'. Another view could be that 'trust' in this energy area is a belief that the regulatory outcome will be better for society, rather than for companies or the regulator, that would otherwise be. Dr Mitchell argued that the operationalisation of trust will only occur under a system of incentives which encourages responsible behaviour or a 'stake' in the future.

'Trust' is thought to be important because it is argued that the sort of change that is required to become a sustainable energy system cannot be achieved by 'dragging' the stakeholders along. It will only occur in an energy system with responsible and connected individuals, companies and regulators which have a stake in it.

Trust and its role in the evolving energy sector
Virginia Graham

In today's regulatory and commercial framework, issues of trust have a significant impact on each of producers, network utilities and consumers. Although increasing concern about the environment, and the various instruments that form the Government's Climate Change Programme, have started to affect producers, network utilities and consumers, there has not been a fundamental change to the regulatory and commercial framework surrounding the energy industry. This will involve politicians adopting a new modus operandi. To a large extent regulators are creatures of statute – therefore a change to the existing regulatory paradigms are not really about changing trust but changing legislation.

Theme 3 Discussion
Various characteristics of trust and levels in the generation of trust have to be distinguished at the interface between regulators, producers, distributors and government:
1. A policy level where what is to be regulated is decided.
2. A process level dealing with the processes and standards of regulation.
3. The actual performance or implementation of regulation - for instance, what sanctions are applied when things go wrong.

• Absence of trust is conspicuous at the process level.
• At the policy-level, the current shift away from state-centred command and control (the 'regulatory state') towards a 'facilitating state' could open up new opportunities for new firms and new forms of non-state regulation and governance. Different forms of engagement are getting more important. For example, the formulation of standards is becoming a precondition for the implementation of new technologies. This implies a more outcome-based approach to regulation and is different from prescribing a specific innovation in technology.
• How tough should regulators be and how close to government rather than industry? It might be in government's interest to narrow the gap between regulators and government, because it is "quite convenient to blame others"? Might there then be a collapse of trust in regulators? It was agreed that regime change as result of the Energy Review (2006)[4] could lead to loss of trust as some energy companies "are scared to death". In the past, trust was primarily based on a temporary coincidence between government agencies and companies. Trust was based on recognition by firms that the regulating agency was not being as 'bad' as they thought it might be.

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[4] DTI, *The Energy Challenge: Energy Review Report*, 2006

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Tensions might also occur between different regulating bodies, such as OFGEM and the Environment Agency.

- Another source of tension is the public image of the National Grid. Although the "cold business of localisation, privatisation, and the introduction of competition" were driven by the desire for consumer benefit, people sometimes did not understand completely the supply chains of energy. Another line of argument stressed potential inherent contradictions in the context of the reform of regulation and governance. On the one hand the public has "mystic views about powers and limits of regulators". The public is questioning the regulating process (in the form of naming and shaming as done by some NGOs) and demands that the regulator pass some of the regulation over for oversight by the public. On the other hand the public is demanding that the regulator "puts people in prison". Concerning trust between industry and stakeholder groups, there are clear boundaries of regulation and major debates are going on about what should be regulated. The limits of the power of regulators have become very evident.

Other key points:
- Questions arising in the discussions of regulation included:
    1. The role of the market and the role of consumers as citizens.
    2. The degree of flexibility within statutory frameworks.
    3. The scale of locked-in investment required to demonstrate commitment.
    4. Interested parties needing not only access to information but also access to interpretation.
- The efficiency and cost of compliance with regulations - should it be at the cost of the regulator and for the benefit of the regulated company?
- Agencies are required to deal with energy improvement. A part of the story sold to the public is the rhetoric: "if we can base our resources on the worst or highest risk performance then we have more effective regulation."
- How can the trust of the public be secured? Is it through commitment to contracts and capital investments?
- Mode of regulation is linked to possibilities of innovation - on the assumption that nobody knows what is required for innovation better than the firm.
- There might be collective market failures (as in EU carbon-trading prices in Spring 2006): how are these to be addressed?
- Private benefits have to be in balance with public benefits.

Keynote address

Citizens, consumers and permanent mistrust: a healthy state of affairs?
Professor Peter Taylor-Gooby, University of Kent

Professor Taylor-Gooby presented the keynote address which covered the SCARR (Social Contexts and Responses to Risk) network, housed at the University of Kent, and a discussion of trust and mistrust and responses to these. Results from the British Social Attitudes Survey on perceptions of NHS conditions were outlined as an example of levels of trust and service.

June 29th 2006

Theme 4: Trust around changes in consumption practices
Chair: Malcolm Eames, Brunel University

Trust and community: exploring the meanings, contexts and dynamics of community renewable energy
Professor Gordon Walker, University of Lancaster & Dr Patrick Devine-Wright, Manchester University

The emergence of policy and practice promoting community based renewable energy initiatives in the UK over the past few years has highlighted assumptions about the importance of collaboration, partnership and cooperation in the embedding of sustainable energy technologies.

Processes and relations of trust are implicated in community energy initiatives in a number of ways: trust between individuals residing in particular locations working and benefiting as a 'community' from renewable energy project development; trust of individuals in local institutions involved as partners in energy initiatives and in novel/hybrid institutions created to drive forward particular community energy actions; and trust between the various local, regional and national institutions which can become involved in localised community RET projects.

The degree to which these processes combine and interact are likely to be influenced by previous histories of social relations in each place, and to have a significant influence upon the ways in which community based renewable energy projects are conceived, progressed and evaluated.

Drawing from qualitative and quantitative data collected at six case studies of community renewable energy initiatives, three in Wales and three in England, Professor Walker examined the extent to which assumptions that community based project development can build on, develop and sustain stronger and more robust trust relationships is borne out in practice. He contrasted experiences across the case studies, focusing in particular on the degree of trust in project organisers and institutions held by local people and sought to explain the differences which emerge. This research was funded by the ESRC under the Sustainable Technologies Programme.

Consumer trust in alternative energy: the impact of inter-institutional tensions?
John Mumford

John Mumford's presentation presumed that trust is a social construct derived from relationships and events and relates specifically to individuals' judgements about the capability and motivation of others to perform future actions.

Modernity involves individuals increasingly delegating to institutions and forming expectations that these institutions will perform. This is most pronounced in the case of consumerism where the customer presumes that the supplier of a good or service has accepted accountability for a wide range of ethical and moral responsibilities related to both the production and consumption of the good or service.

The question posed in this presentation on consumer trust in the introduction of future energy systems is 'how are expectations being formed and who is expected to deliver?' Without close alignment between expectations and delivery, it is hard to see how the public can generate the necessary trust to participate in this agenda.

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Theme 4 Discussion

How much choice do people want? Is there too much choice around? Results from attitude surveys suggest that people want to get involved and participate and are keen to have choices. But equally they demand good and trustworthy advice. Transparency is important to generate trust in decision-making.

- The Sustainable Development Commission uses a semantic trick: it does not want to 'restrict' people's choices of energy technologies but it wants to 'edit' their choices. An analogy was drawn between smoking and energy policy. Both hint at a shared vested interest between government and big market players - in tobacco and in fossil fuels.
- The diversity of public concerns about hydrogen energy, from local to international level (World Trade Organisation), is closely related to significant issues of trust. As with GM crops, there are different understandings of hydrogen in Europe and the US.
- Greenhouse gas emission mitigation is a "distant collective problem" in consumer's minds (70% think global warming an important topic but expect government to tackle the problem). Also some case studies question the approach of "local action for global problems."
- It is important to compare the social preconditions for alternative policy instruments and to contrast UK policy with other country's instruments for the promotion of renewable energy projects. Other policies than those tried so far might yield more positive results in UK. However, experiences from Austria with biomass, for example, may not be easily transferable to UK so the "legal and contractual things have to be worked through in a British context."
- There are practical difficulties for funding bodies in deciding which community energy projects to fund. Local authority projects often are too bureaucratic and so not funded, as there is no community action involved. Rather than seek a paradigm change in energy supply, researchers should pay more attention to different kinds of benefit. Carbon benefit, kWh and cost effectiveness matter a great deal less than community benefit. Action research in this area would be valuable.
- Projects are place and time dependent: when and where are conditions ripe for the successful introduction of new technologies? When BP sought to introduce a hydrogen filling station at Hornchurch, the sequencing with local authorities and regulators went wrong (it was the only one of ten BP projects to go wrong). Unintended consequences of technical decisions were not anticipated.

Other key points:

- Micro actions might create more spin-offs than collective actions. How then can household actions be connected to community action?
- Because there is not enough policy learning going on in community renewable energy, in order to avoid mistrust from the start it is important to build up trust in relation to other successful projects.
- Grassroots-based local initiatives and projects involving cooperative ownership processes are not easy to implement.
- There is insufficient scale of support for clear-skies projects.
- Carbon offset schemes based on planting trees: would it be more effective to get people engaged in buying emission allowances directly?
- Notable was the normative framing of discourses around renewable energy in community projects and the varied amount of community participation in projects. Benefit could be gained by referring to Mary Douglas'[5] cultural theoretic map and to organisational theory in analysing these.

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[5] Douglas, M., *Risk Acceptability according to the Social Sciences*, New York: Russell Sage Foundation 1985

Theme 5: Trust between nations with respect to international negotiations on energy and climate

Chair: Paul Bellaby, ISCPR, University of Salford

Risk communication and trust - an international perspective: Austria's energy relations with Slovakia and the Czech Republic

Professor Ragnar Lofstedt, Kings College, London

No abstract or summary available

The institutionalisation of trust in the International climate regime

Professor John Vogler

In the extensive literature on international environmental cooperation, trust is usually treated in terms of compliance and verification mechanisms, on the assumption that there will always be incentives for parties to international agreements to cheat or to 'free ride'. Indeed the establishment of adequate assurances that such behaviour will be detected and punished is frequently the sine qua non of agreement in the first place. Technical and legal compliance mechanisms have developed rapidly in environmental treaty-making over the last two decades. The climate regime is no exception and its provisions in this regard are briefly described and analysed. However, it will be argued that the development of trust amongst the parties goes well beyond formal compliance and depends upon the institutionalised relationships, often amongst officials and technical experts that have grown up since the negotiations for a climate treaty commenced in the late 1980s.

Learning together, growing apart: global warming, energy policy and international trust

Professor Andrew Kydd, Harvard University

Standard models of uncertainty in economics imply that sharing information can reduce uncertainty and help identify welfare improving policies. In international relations, "epistemic communities" of scientists are thought to help provide information for these purposes. However, conflicting preferences can frustrate the transmission of information and prevent effective information sharing. In addition, if parties are uncertain about each other's trustworthiness, opportunities for information sharing can deepen distrust as actors observe each other's reaction to what to them is credible information. Professor Kydd modelled this problem in a context where there is uncertainty both about the state of the world and about the parties' motivations, and discussed applications to international climate change negotiations.

Theme 5 Discussion

This part of the discussion asked how far what had been learned from examination of trust/mistrust in relations between citizens and states, regulators and producers and among consumers, might throw light on the vexed question of international cooperation with respect to energy policy.

• Discussion began with game theory, neglected in the earlier discussion but current in International Relations (IR) theory. A first model based on game theory defined trust as honesty (people telling the truth and expectations that people will be honest with you). The second model involved cooperation and defection. Here there might be a tendency to exploit cooperation - an incentive to cheat. However, critics wondered

what game theory had to offer when the dominant conditions of action are uncertainty and ambiguity? The climate change epistemic community has so far left open the definition of 'dangerous' climate change. It remains unclear and uncertain. Even if one accepts scientific characterisations of a problem, policy does not follow as a matter of course. Nor do the relations and responses of "two states of the world alone…characterise the (whole) climate problem."

- Discussion turned to historical examples illustrating lack of trust between states over energy issues. Reference was made to Swedish-Finnish relations in nuclear policy after incidents at Barsebäck nuclear power plant in the 1980s, where, over time, trust was re-established in association with the social construction of sovereignty and national identity in the EU[6].

- What happened to 'fairness' as the dominant theme in International Relations (IR) theory during the 1990s? There has been an upsurge in constructivism, which, in opposition to functionalist theories is "very fashionable at the moment". Theoretical contributions around justice are done by normative political theorists rather than by constructivists.

- Multinational companies are key players in the international arena. A contradiction exists between the perceived levels of trust between USA and EU, and tensions between EU and US oil companies (Exxon and BP). In this "game of future opportunities" a "superficial negative rhetoric and stereotyping" about players and oil companies in the USA (like Exxon) can be observed in the EU but, on the other hand, when we observe the "complex realities underneath the energy discourse", we find more patents in the USA in alternative energy technologies than in any other country, more bio fuel initiatives, hydrogen projects, and solar sales than in Europe.

- Finally it was suggested that the history of the European 'city state' might be an important enabler of social identity in IR and that officials in city-states, rather than politicians, were keepers of identity and the ones who create relationships and trust. To what extent, then, might cities rather than nation states contribute to cooperation on energy policy and climate change issues?

Breakout group feedback

The questions for the breakout groups were:

1. How could capacity for research on 'trust' be built?
2. What specific research questions about 'trust' emerge from the symposium?
3. What are the key messages for policy-makers and the audience outside?

Responses from breakout groups

General

- It was agreed that what has been happening in the media is central to the reframing of energy discourse and that representations of climate change have been changing. For example, 20 years ago, being an environmentalist was equivalent to being anti-nuclear, whereas today environmentalism is synonymous with anti-climate change.

- Currently the nuclear debate in the UK involves crucial issues of trust. Government seems to have decided to go nuclear, has set up the energy review, and by a massive PR and communication exercise hopes to increase public acceptance in the short term or even expects that people might accept it in the long-term. It was suggested that if the same thing had been done with renewable energy four years ago, there would be more progress in market penetration and fewer obstacles in planning enquiries.

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[6] http://en.wikipedia.org/wiki/Barseb%C3%A4ck_nuclear_power_plant

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Question 1

The following strategy was suggested for developing research capacity in the more field:

- Develop a network of researchers, akin to ESRC SCARR that has:
  a. Cross-disciplinarity
  b. International spread
- Initiate a seminar series
- Develop a cluster of small scale, rapid pay-back projects
- Apply for UKRC Small Grants to fund such projects, and seek ESF funding to do the same on an international level

Basic conceptual and empirical work is required on 'trust'. The following questions should guide this:

1. Might there be merit in taking *relational activity* as our focus and treating trust/mistrust as an aspect of it?
2. What influence do the *social identities* of parties have on whether cooperation takes place between them, and in this context, what specific relevance has trust between the parties?
3. Trust lends itself to study from various perspectives using various methods. Would further attention to *game theory* and *institutional economics* be of value?
4. What are the *conditions* that engender trust and mistrust?
5. What are the conditions under which *subversive* trust develops among peers who distrust authority?
6. What is *constructive* engagement? And what part does trust play in this? In other words, what are the social-psychological foundations of 'dialogue'?
7. How do we decide the dimensions of and *calibrate* trust relations and processes?
8. To what extent are there similarities or differences in the type and intensity of trust by *scale* in neighbourhoods, organizations, between nation states and so on?
9. In what ways do *intermediaries* between these various scales play a role in building trust between them (e.g. insurance companies between sectors in the market; regulators between the state and firms; diplomats in brokering international agreements)?
10. It is important to understand change over time in relational activity in general and trust/mistrust in particular and so to adopt a *longitudinal approach*.
11. What is the impact of constructive engagement of the public on *trust in science and policy*?
12. By what means would it be effective to propel technological innovation and linked social changes: by entrepreneurial activity *in the market or through policy coalitions*?

Question 2

The following questions need answers in the more specific field of sustainable energy futures and trust:

1. What role does trust play in *innovation* within stakeholder energy networks?
2. What impact might the introduction of *IT-based metering* of energy use in the UK have on consumption and the relation between producers and consumers?
3. What are the benefits, costs and risks, both economic and social, of investment in *distributed energy generation* (micro generation, community energy)?
4. What role has trust in cooperation/conflict between nations around *energy security*?
5. What role has trust in relation to the *rewards* that flow from new technologies and their (re-) distributional effects?

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6. What 'cycles' and *dynamics* of trust might there be in the policy process and in particular in relation to investment in new technologies?
7. How is trust implicated in the *governance* system and in long-term planning for sustainable energy?
8. What are the roles of *regulators* and stakeholder and public trust in them in delivering on energy policy?
9. How does regulation vary across *sectors*, including energy but also water, telecoms etc and with what consequences for coordination of energy-related policy?
10. How do *regulatory regimes* vary both from country to country and also within international relations?
11. What are the respective roles of *city and national identities* in developing energy futures and cooperating to implement them?
12. What parts do *scale* and the need to mediate between different scales play in forming energy policy, and how might this vary with the size of whole technological system required?
13. How does trust relate to *equity/fairness* with respect to changes in energy use?
14. What implications does the close examination of trust have for how we should define and design *public engagement* in the energy arena?

Question 3

The following messages to stakeholders were proposed:

•   We cannot manufacture trust, nor might we want to do so
•   However, some types of trust are required for cooperation in some relationships
•   Developing trust between the regulators in different sectors which contribute to energy production, supply and use would spur formation of a coherent energy policy and help in implementing it
•   Doing the same between nation-states but through the mediation of diplomats and regulators in the international relations system – rather than at high level – may be the key to achieving post-Kyoto agreement on emissions trading
•   Within the UK, trust at such levels, but also between citizens and state will be crucial to reviving the nuclear power industry
•   A virtual community, based on a dedicated interactive web-site is now established for TSEC Trust

Final summing-up

Professor Jim Skea, UKERC

'Trust' is vital to achieving a sustainable energy future, given the demanding targets of a 60% reduction in carbon emissions by 2050. Single actors cannot achieve this target alone but only by cooperation and engagement that in turn requires trust relations. Trust, although a "slippery concept", problematic and multifaceted, is widely applicable. Mistrust and scepticism were often mentioned as opposing concepts to trust and seem to be equally important dimensions. The concept of trust is still under-explored in application to energy studies.

Energy-related projects in social science could be classified in three or four boxes: 1) politics, policy-making and institutional studies; 2) an economic perspective on markets and regulation; 3) works on the acceptability of technologies; and 4) studies about people's behaviour as citizens and consumers and how they might be changed. Each area was represented in the workshop. Trust was a very "promising concept." Further network activity or seminar series were suggested, supplemented by more specific projects and initiatives, and activities like small grant applications that can be processed quickly.

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Appendix A: Speaker & chair biographies

(Listed alphabetically)

Paul Bellaby
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Paul Bellaby is Professor of Sociology and Director of the Institute for Social Cultural and Policy Research, University of Salford, Greater Manchester, UK. He was educated at Cambridge University and has taught there and at the Universities of Keele and East Anglia. He has researched the school and educational knowledge and workers' encounters with health and safety. Currently he has funded projects in the EPSRC Supergen programme on sustainable hydrogen energy and the ESRC programme on e-Society. His central interest is risk and uncertainty, especially with respect to health, and their management in everyday life.

Malcolm Eames
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Professor Malcolm Eames joined the BRESE Research Centre at Brunel University to take up a Chair in Innovation and Sustainable Development in June 2006. He was previously a Senior Research Fellow with the Policy Studies Institute in London, where he led the UK Sustainable Hydrogen Energy Consortium's (UKSHEC) work on hydrogen future scenarios, and spent five years as Coordinator of the Sustainable Development Research Network (SDRN).

Prior to this Professor Eames was a Research Fellow at SPRU - Science and Technology Policy Research, University of Sussex, where he also undertook his doctoral research. His current research interests span: sustainable development research policy; participatory and deliberative decision-making; technological change and sustainable development; socio-economic and technological scenario building, technology assessment; energy and environmental futures; and environmental justice.

Rob Flynn
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Rob Flynn is Professor of Sociology at the University of Salford, and member of the Institute for Social, Cultural and Policy Research. He has researched and published widely in urban sociology and about health policy and health services organisation. He was a member of the ESRC 'Contracts and Competition' programme, carrying out studies of the internal market and contracting in the NHS. He has a long standing interest in the regulation of professionals, and has published on managerial/professional relationships in health systems, and clinical governance. With other colleagues, he is completing an ESRC-funded empirical study of clinicians' uses of outcome measures in neuro-

rehabilitation. Currently, his major focus (as one of the social scientists working in the EPSRC-funded UK Sustainable Hydrogen Energy Consortium), is public perceptions of risk, and aspects of public engagement and trust. With Paul Bellaby and Malcolm Eames, he is also currently involved in a capacity-building project for the ESRC's Towards Sustainable Energy Programme. He was formerly Chairperson of the British Sociological Association's journal Sociology and is a member of the Editorial Board of Sociology of Health and Illness. Professor Flynn's main research interests are in the inter-relationships between risk, trust and regulation.

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Andy Gouldson recently became Director of the Sustainability Research Institute at the University of Leeds. The SRI employs more than 20 inter-disciplinary social scientists working on various aspects of sustainability. Prior to joining SRI, Andy was Deputy Director of the LSE Centre for Environmental Policy and Governance and Programme Director for the LSE-Alcoa Research Programme on `Good Governance and Corporate Sustainability'.

Andy's research focuses on the ways in which corporate behaviour can be influenced by governments, markets and civil society. His recent research projects have examined the implementation and impact of different forms of environmental regulation, the impacts of `right to know' legislation on the relations between business, regulators and community/pressure groups, the outcomes of corporate responsibility initiatives and the links between variations in corporate performance and notions of environmental justice.

Virginia Graham
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Virginia Graham is an advisor on social and environmental aspects of energy policy. She works in the both the public and private sectors. From 2000 until the end of 2005 she was Director of Social and Environmental Issues at Ofgem, the GB energy regulator, where she gained an insight as to the ways in which economic regulators seek to accommodate a changing political and scientific context.

Before 2000 Virginia worked for ten years on environmental, social, and consumer issues in the EU decision-making process. This followed several years as a policy analyst at the UK Consumers' Association. Virginia has an MBA from the University of Cambridge, an MSc from the London School of Economics and a BA from the University of Exeter.

Andrew Kydd
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Andrew Kydd received his PhD in political science from the University of Chicago in 1996 and has taught at the University of California, Riverside and at Harvard. His interests centre on the game theoretic analysis of international security issues such as arms racing, conflict, mediation and trust. He is especially interested in the interaction between state motivations, beliefs about motivations and international behaviour. He has published articles in International Organization, World Politics and the American Journal of Political Science, among other publications and his book, Trust and Mistrust in International Relations, was published in 2005 by Princeton University Press.

Ragnar Lofstedt
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Ragnar E.Lofstedt is Professor of Risk Management and the Director of King's Centre of Risk Management, King's College London, where he teaches and conducts research on risk communication and management in such areas as renewable energy policy, transboundary environmental issues (acid rain and nuclear power), telecommunications, biosafety, and the siting of building of incinerators, nuclear waste installations and railways. Previously he was a Reader in Social Geography at the University of Surrey, UK. He is also an adjunct Professor at the Harvard Centre for Risk Analysis, Harvard School of Public Health where he co-directs the Risk Communication Challenge Course for continuing education professionals with Mr. David Ropeik. He is Adjunct Professor at the Department of Engineering and Public Policy, Carnegie Mellon University, and he is a Visiting Professor at the Centre for Public Sector Research, Gothenburg University, Sweden.

Professor Lofstedt is the author/editor of ten books and over 90 peer reviewed articles/book chapters, is the editor-in-chief for Journal of Risk Research, editor of the Earthscan publications' Risk, Society and Policy book series, and is on the editorial boards of International Journal of Risk Assessment and Management, Journal of Health Communication, Risk Analysis and Risk Management. He is on the Society for Risk Analysis-Europe's Executive Committee and is the previous chair of the Society for Risk Analysis' Risk Communication Specialty Group. He is on the Academic Advisory Board of the UK National Patient Safety Agency, the Scientific Advisory Board of the UK Environment Agency, member of the European Food Safety Authority's Advisory Group on Risk Communications and the Swiss National Science Foundation's expert group on non-ionizing radiation. He is a senior advisor to the City of Vienna on risk communication and nuclear power and to the City of Gothenburg on climate change.

Catherine Mitchell
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Catherine Mitchell has been a Principal Research Fellow at Warwick Business School since 2000. She has worked previously in the Energy Group of the Science Policy Research Unit and the Energy and Resources Group at the University of California, Berkeley. From 1998-2003 she was a member of the Governments Energy Advisory Panel, in 2001 she was seconded to the Cabinet Office to work on the Energy Review and in 2000 she was the renewables representative on the DTI/DETR/Ofgem Embedded Generation Working Group.

John Mumford
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John Mumford has been in downstream oil with BP for nearly 40 years, serving in Australia, the Far East, Europe and UK. He is currently Vice President of the UK Region and chairs the board of BP Oil UK, the refining and marketing arm of BP in UK.

John is on the board of the University Vocational Awards Council and involved with Council for Industry and Higher Education. He served for four years as Chairman of the Sector Skills Council for Oil, Gas, Chemicals and Nuclear (Cogent) and was on the board of Foundation Degree Forward.

John is former President of UKPIA and was on the council of the Energy Institute for 8 years. He sits on the boards of the Low Carbon Vehicle Partnership and is a member of the Motorists Forum, and until recently sat on the board of the Energy Saving Trust. John received the OBE for services to the environment in 2003.

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Professor Judith Petts is the Head of the School of Geography, Earth & Environment Sciences, University of Birmingham. She is a member of the NERC Council and has sat on a number of committees to advise government departments and local authorities. She is also Chair of Environmental Risk Management (University of Birmingham) and a member of the Royal Commission on Environmental Pollution. She was previously Senior Lecturer and then Director of the Centre for Hazard and Risk Management (University of Loughborough). Her research interests include:

- Environmental risk and governance
- Public communication and engagement
- Use of formal assessment tools in environmental decision-making
- Science-society relationships
- Science-policy interface

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Professor Nick Pidgeon joined the School of Psychology at Cardiff University in February 2006. Before that he was with the School of Environmental Sciences at the University of East Anglia. His research looks at how public attitudes and trust in institutions form a part of the social dynamics of a range of technological controversies, including those of climate change, nuclear power, GM agriculture and nanotechnologies. Professor Pidgeon was a member of the Royal Society / Royal Academy of Engineering nanotechnology study group which reported in July 2004, and was first author of the chapter on risk perception and communication in the influential 1992 Royal Society Report on Risk. Co-author (with Roger Kasperson and Paul Slovic) of The Social Amplification of Risk, Cambridge University Press, 2003.

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Steve Rayner is James Martin Professor of Science and Civilization at the Saïd Business School and Director of the James Martin Institute for Science and Civilization. He also heads up the Economic and Social Research Council 'Science in Society' Programme. This £5.2 million, six year national research programme is hosted by the Business School and is designed to encourage and support research into the role of science in governance and the challenges facing the governance of science in a democracy.

Prior to joining the Business School, Steve Rayner was Professor of Environment and Public Affairs in the School of International and Public Affairs at Columbia University, where he directed the Centre for Science, Technology, and Environmental Policy. He also holds appointments as Professor of Sociology and as the Chief Social Scientist at the International Research Institute for Climate Prediction.

Before Columbia University, Steve Rayner held the rank of Chief Scientist at the Pacific Northwest National Laboratory. Located in the Washington DC office, he led the Global Change Research Group from 1991 to 1996. Previously, he was Deputy Director of the Global Environmental Studies Centre at Oak Ridge National Laboratory where he was responsible for research in policy, energy and human systems.

Steve is currently a member of the Royal Commission on Environmental Pollution and a lead author on the Third Assessment Report of the Intergovernmental Panel on Climate Change.

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Dr Miriam Ricci graduated in Physics at the University of Turin (Italy) and completed a PhD in technology and innovation policy, addressing in particular the industrial applications of particle accelerators. She has worked in a number of different industries, including automotive and energy companies, and has also provided scientific advice to local research agencies and international bodies, such as the European Parliament.

Dr Ricci has worked at the University of Salford since 2004 as a Research Fellow at ISCPR within the UK Sustainable Hydrogen Energy Consortium. Her research work focuses in particular on the risks associated with hydrogen energy systems and looks at the various ways in which such risks are represented by different groups, such as specialists, stakeholders and members of the public. Her broader research interests encompass science, technology and innovation policy and governance; renewable energy; the hydrogen economy; and issues around public engagement in science and technology.

Jim Skea
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Professor Jim Skea is Research Director at the UK Energy Research Centre (UKERC). Previously, he was Director of the Policy Studies Institute (PSI) from November 1998 to September 2004. Prior to that, he was Director of the Economic and Social Research Council's Global Environmental Change Programme and a professorial fellow at SPRU (Science and Technology Policy Research), University of Sussex.

Professor Skea is currently involved with the UK Research Councils' SUPERGEN Sustainable Hydrogen Economy Consortium. He has worked closely with government and in 2002-03, helped establish the Low Carbon Vehicle Partnership, an initiative bringing together government departments, automotive and fuel companies, NGOs and the research base. He chairs the Scottish Power Green Energy Trust.

His areas of expertise include energy and environmental policies, sustainable development, climate change, environmental regulation and technical change and general issues relating to business and the environment.

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Andy Stirling is Professor of Technology Policy at SPRU, University of Sussex. He co-ordinates the 'appraisal' strand of the work of the Sussex Energy Group – researching transitions to sustainable energy. He co-directs the new IDS-SPRU ESRC Centre at Sussex looking at Social, Technological and Environmental Pathways to Sustainability (STEPS), led by Melissa Leach. He serves on a number of advisory bodies for the UK Government and European Commission on issues of science, technology and sustainability.

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Peter Taylor-Gooby is Director of the ESRC Social Contexts and Responses to Risk network, which brings together leading psychologists, sociologists, economists and media, social policy and law experts in an integrated programme of research. His chief research interest is in what social science has to offer in understanding the way in which people perceive and respond to risk in a variety of everyday life settings. He previous directed the ESRC Economic Beliefs and Behaviour and the EU Welfare Reform and the Management of Societal Change programmes, and is the author of 15 books and numerous articles, including *Risk in Social Science*, Oxford University press, 2006, *New Risks, New Welfare*, Oxford University Press, 2004, *Making a European Welfare State*, Blackwell, 2004 and *Risk, Trust and Welfare*, Macmillan, 2000.

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John Vogler is currently Professor of International Relations at Keele University and is Chair of the British International Studies Association Working Group on the environment. He was also a committee member on the ESRC Global Environmental Change programme. His interests and publications cover international environmental co-operation and the global commons. He has recently been working on the EU as an actor in the international politics of climate change.

Gordon Walker
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Professor Gordon Walker is Professor of Environment, Risk and Social Justice in the Department of Geography and Lancaster Environment Centre at Lancaster University. He joined Lancaster University in April 2005, having developed a profile of research on the social and spatial dimensions of environment, risk and sustainability issues. He has an award on 'Community energy initiatives: the embedding of sustainable energy technologies at a local level' in the ESRC Sustainable Technologies Programme (jointly with De Montfort and Northumbria) and is a partner in a new collaborative network on 'Nimbysim and public engagement with renewable energy' in the TSEC programme (with De Montfort, Surrey, Northumbria and Loughborough). He is at the forefront of the development of research on environmental justice in the UK, including project work for the Environment Agency, Scottish Executive, Friends of the Earth and SDRN. Professor Walker is currently jointly convening an ESRC/NERC transdisciplinary seminar series on 'Addressing Environmental Inequalities'. Engagement with policy development includes being an independent member of the Advisory Committee on Dangerous Substances and the European Commission EU-MEDIN network.

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