

Energy Policy Stakeholder Consultation

Opening Workshops organised by the Institute of Energy

June/July 2002

A Summary of Discussions

Introduction

In February 2002 the Performance and Innovation Unit (PIU) of the Cabinet Office published a report to Government on the subject of future energy policy.¹ This took particular account of the implications of the possible need for long-term carbon emission reductions and of possible threats to security of supply.

Government subsequently published a consultation paper on energy policy in May 2002² aimed primarily at stakeholders. This document, largely but not wholly based on issues raised by the PIU, announced a wide-ranging programme of consultation and invited responses by 13th September. It also promised a White Paper on Government's future approach to energy policy around the turn of the year.

The DTI has since May taken a pro-active role in the consultation, and one of the processes it initiated was a round of three consultation meetings for stakeholders. These were held in London on 24th June, Newport on 28th June and Glasgow on 3rd July. The events were organised on Government's behalf by the Institute of Energy, and Government is grateful to the InstE for the efficient and effective way in which these meetings were organised and conducted, and to the individuals who gave up their time to act as chair, as facilitators and as rapporteurs. Thanks are also due to the many stakeholders who also gave their time to attend the meetings, and participated so effectively in the discussions

The remainder of the present paper provides a summary report of the discussions at these three meetings, highlighting both strategic and more detailed questions raised. It concentrates on three issues:

- Validation of what the Government saw as the key issues which are summarised in Annex A and which are set out in more detail in its *Key Issues* consultation document.
- Views on the PIU report, especially any omissions or weaknesses as well as on broad and cross-cutting issues.
- Substantive views of participants on major energy policy issues raised by the PIU, divided into four major themes as outlined below.

The Meetings

Invitations to the three meetings were sent by the Institute of Energy to a wide range of senior stakeholders in England, Wales and Scotland, and some 120 people in total attended the three events.

The format for each meeting was similar. Professor John Chesshire, a member of Government's Energy Advisory Panel, chaired the meetings, assisted by workshop leaders and rapporteurs. An opening address was given by a Minister or (in London) a senior Government official followed by an introductory talk by Professor Chesshire. A plenary session then raised major issues from the PIU report and the Government consultation document and this was followed by a set of four 'breakout' sessions, each with its own facilitator and rapporteur, covering the following four topics:

- Overall policy frameworks, trade-offs and synergies
- Security of supply
- Low carbon technologies
- Energy efficiency and transport.

Rapporteurs then briefly reported back to a final plenary session, followed by a concluding plenary discussion.

Participants at the meetings represented the full range of stakeholders interested in energy and energy/environment issues. Their affiliations are shown below (in a very few cases affiliations were either unclear or cut across more than one category: these have been omitted):

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| ▪ Large energy supply companies, including utilities | 26% |
| ▪ Small energy supply companies (esp. renewables, CHP) | 11% |
| ▪ Companies supplying services to energy industry (equipment manufacturers, consulting engineers etc.) | 10% |
| ▪ Government officials (Whitehall, devolved and local/regional) | 20% |
| ▪ Academics | 13% |
| ▪ Energy users | 9% |
| ▪ Regulators (economic and environmental) | 4% |
| ▪ Others (NGOs, lawyers, etc.) | 7% |

There are several ways in which the present report could be structured. It would have been possible to report separately for each venue, or by main topic, or both. Reporting separately for each venue would however have added little value to the process. Across the whole subject area there were no systematic differences in view by venue. There were slight differences in emphasis (in Scotland nuclear and possibly renewables were mentioned more than elsewhere, and in Wales, coal featured more prominently) but this probably reflects historic or present energy supply patterns more than anything else, and was not reflected in major differences in view.

The approach taken has therefore been to summarise the discussion in terms of the four topics covered in the breakout sessions: policy frameworks, tradeoffs

and synergies; security of supply; low carbon technologies; and energy efficiency and transport. Before this discussion of specific areas, however, the report covers two other issues: the adequacy of coverage in the *Key Issues* document, and participants' overall views on the PIU analysis and on cross-cutting themes in general.

The three meetings covered a very wide array of topics. The notes provided by the Institute of Energy, while excellent, inevitably reflect the judgement of individual rapporteurs. There was in addition, no 'voting' at the meetings, and this means that any presentation of results is bound to involve the exercise of some judgement about the importance of different views and topics. The basic principle used in reporting is that views are only reported here if they were supported by more than two individuals. Some of the views reported below are inconsistent with other views also reported: this arises because the report is a summary of the proceedings, and participants, not surprisingly in such controversial areas, were not always in agreement with each other.

Coverage of Annex A and the *Key Issues* Consultation Document

Annex A and the *Key Issues consultation document* set out a very wide range of questions on energy policy, including such issues as security of supply; climate change; international; energy efficiency and combined heat and power; renewables; transmission, distribution and trading; nuclear; gas and oil; coal; innovation; transport; and institutional.

An important question is whether participants at the three meetings raised important energy policy issues that Government had not covered in these documents. Generally, the answer seems to be that they cover virtually all relevant subjects.

There was only one major exception to this and that was the issue of skills. While *Key Issues* raises the question of the adequacy of the skills base in relation to keeping open the nuclear option, a large number of participants raised serious questions about a much wider range of skill shortages that were either apparent now, or would become evident if Government initiated a number of possible policy directions. Skill problems were raised in relation to transport, energy efficiency and conservation, CHP, renewable energy, and upstream oil and gas.

The PIU Report and Cross-Cutting Issues

The purpose of this section is to present the main views of participants on the overall analysis of the PIU, and to cover all the wider views of participants that are not easily fitted into the four main subsequent topics. Where subjects raised are also related to the four more specific themes raised later, the points are not repeated in later text on those four subjects.

The PIU report was broadly welcomed as a substantial contribution to the energy policy debate. There was widespread acceptance of the report's argument that

both renewable energy and improved energy efficiency should be major contributors to reducing carbon emissions in the future.

The most pervasive criticism of the PIU report was that, although its scope was wide-ranging, its reach was still too narrow. It had, many believed, failed to take a broad enough view on transport, and had not adequately, or fully enough, covered the issue of skills, the subject of energy system innovation or the role of regional and local authorities.

In more detail, a number of participants believed that the main weaknesses of the PIU analysis were that:

- Much too little attention had been given to transport issues, including aviation, as well as private and public road transport questions. The PIU had covered only limited areas of transport policy, mainly demand growth and future technological questions (for example, the possible emergence of hydrogen as a major energy carrier). But transport was the most rapidly growing use of energy and was mostly captive to oil. Neglecting overall transport strategy meant that the PIU could not fully consider a major driver of future energy use.
- The issue of education in general, but especially the practical and sometimes immediate problem of skill shortages, had been underplayed. The PIU had raised the issue of skills in nuclear power as part of its consideration of keeping open the nuclear option, but many participants argued that the skills problem was pervasive. Different participants mentioned all the following areas as constrained (or soon-to-be-constrained) by skill shortages: nuclear power, the transport system, energy conservation, renewable energy, CHP and upstream oil and gas development. It may be that the pervasiveness of this list reflects partly the relatively tight labour market conditions that have characterised the whole economy in recent years, but it seems also to reflect a real concern among a wide range of stakeholders that future energy policy initiatives might be constrained by skill shortages.
- Technology policy had been treated too narrowly by the PIU. The important question, according to several participants, was the promotion of successful *innovation* in energy, and while expanded funding for R&D was a necessary condition for such promotion, it would not be sufficient. They stressed the need to consider the chain leading back to R&D from deliberate efforts to develop relevant markets and stressed that innovation would best be achieved when market developments sent the right incentives back along the chain. Also on innovation, while most participants welcomed the idea of a national energy research centre, many doubted the wisdom of setting up a single, centralised facility, and were in favour of a commissioning role for any core body that Government set up.
- The PIU had not focused sufficiently on the role of regional and local authorities. They had a key part to play in delivering a low carbon economy, in particular in the areas of energy efficiency and small scale distributed energy sources.
- The PIU had paid insufficient attention to the overall investment and financing needs of the future energy system. Many participants believed that the future investment needs of the energy distribution networks (especially in gas and electricity) would be very substantial and had not been recognised fully. Others also believed that financing obstacles had been considered too briefly: for instance, the problem that financing nuclear power would be

problematic unless energy suppliers could be induced to sign long-term contracts for nuclear output.

While the PIU had indicated that it might be necessary for retail energy prices to rise as an underpinning to a low carbon energy future, this had not been sufficiently strongly expressed. Many participants took the view that the public would not become engaged with major energy-related issues, especially climate change, unless energy prices rose significantly, probably via carbon taxes or emissions trading or both. These participants took the view that it would be impossible to pursue a coherent strategy towards climate change or energy security in a low-price energy system. The only serious qualification to this view came from some who believed it important that Government should protect the fuel poor from higher prices, and act effectively to tackle fuel poverty at its roots (believed to be low quality housing).

- Related to the point immediately above, many participants took the view that the current responsibilities of OFGEM, the economic regulator of gas and electricity, were inimical to the achievement of a low carbon economy, and this had also not been sufficiently emphasised by the PIU. The early operation of the new electricity trading arrangements (NETA) was frequently cited as a major cause of difficulty for the development of both renewable energy and, to a degree, of CHP. Some participants took the view that the objectives and remit of OFGEM, either through Ministerial 'guidance' or through new legislation to change the objectives of OFGEM, would be needed to make its role compatible with a more 'sustainable' energy system.
- There was widespread concern that the PIU analysis had been too complacent about threats to future supply security. There were several strands to this concern:
 - That the physical adequacy of long-term oil and gas supplies, especially on a world-wide basis, had been over-estimated;
 - That while imports of oil and gas might bring welcome new diversity, they also exposed the UK to risks arising from the political unreliability of major potential suppliers;
 - That, whether imported or not, gas would become too dominant a fuel in the UK economy and it might therefore become necessary for Government to find ways of discouraging its use. However, nearly all participants were wary of early Government moves in this direction and were also concerned not to encourage undue interference in the market.

Participants at the meetings also had a number of other cross-cutting views, less directly related to the PIU review. The main points raised under this heading were as follows:

- While there were clear advantages to the more widespread use of policy instruments of a market-based character (possible future examples are carbon taxes and emissions trading) there would always be a need for a wide range of policy instruments to be deployed by Government. Certain kinds of physical regulation (for example, enhanced building regulations) would be needed alongside market-based instruments.

- There was a danger that too much attention was being paid to electricity, when non-electric uses of energy – especially in heat markets and in transport – were also vital. This apparent bias might partly be explained, according to some participants, by the fact that some of the new low carbon technologies (many renewables) and the more established low carbon technologies (nuclear power) had either been predominantly or wholly deployed as generators of electricity.
- Many participants believed that setting targets (for example, the 10% target for renewable energy supply as a proportion of all electricity by 2010) was a good starting point for much of energy policy and should be used more extensively, especially to focus stakeholder and public attention on a longer term vision. However participants also in many cases felt that such targets always needed concrete policies for delivery, and in some cases participants favoured mandatory targets (i.e. commitments, such as the UK has entered into for its share of Europe's Kyoto commitment – a 12.5% reduction in greenhouse gases compared to 1990 levels).
- The issue of the relationship between technology development and energy policy was difficult and sometimes ambiguous. Participants virtually always agreed with the general proposition that governments should not aim to pick technological 'winners' in its approach to low carbon development. However participants often then found it difficult to avoid some element of 'winner-picking' when discussing the details of potential policy development. For example, several participants were keen to encourage Government to give more financial support for technologies that were not yet commercial but showed promise. It is difficult to see how Government could in practice implement such policies unless it engaged in at least a broad 'winner picking' set of decisions. The balance between universal and general encouragement to low carbon technology, so that markets can make most detailed resource allocation decisions, and the need to focus in a targeted way on promising developments not yet attracting market support, may be a difficult one for Government to strike.
- Industrial policy, in the sense of new export opportunities emerging from the development of new low carbon technologies, was also only partially covered in the PIU report. The PIU had covered the issue of loss of possible competitiveness in UK industry when it was subject to future forms of carbon valuation (taxes or emission trading) but it had not addressed the real prospects for building major export opportunities if the UK continued to take a leading role in climate change policy. A number of participants believed that Government should build such industrial policy considerations into energy policy.
- There was widespread support for the idea that the Foreign and Commonwealth Office should become more centrally engaged in energy policy development and especially implementation. Particular sources of this

enhanced role were the increasing importance of international treaty activity (such as the Kyoto Protocol) and the expectation that the UK will have increasing needs, in the second half of this decade and beyond, to import part of its net gas and then oil needs.

Frameworks, Trade-offs and Synergies in Energy Policy

As energy policy increasingly needs to integrate climate change concerns into its long-standing economic efficiency objectives and also needs to give close attention to the achievement of adequate supply security, it becomes increasingly possible that there may be conflict between objectives, and a consequent need to rank one objective above another in a particular decision. The purpose of these breakout sessions was to consider the framework for future decision-making, the extent to which such conflicts between objectives would arise, and equally the extent to which there would be synergies – areas of policy where pursuit of one objective would enhance the pursuit of other objectives.

Discussion on these topics was lively and well-informed at the breakout sessions devoted to this area, and the main points made were as follows:

- Participants recognised that the scope of a fully adequate policy for energy was extremely wide-ranging, covering issues in transport, industrial policy, land use planning, environment (including climate change), fuel poverty, as well as ‘traditional’ elements. It would involve devolved administrations and other sub-national levels of Government as well as international elements. It would be impossible to ‘join up’ all these elements in one huge department of state. On the other hand, responsibilities were split currently between many departments, including DTI, DEFRA, Department of Transport and the Office of the Deputy Prime Minister (the latter for local Government and planning issues), as well as a range of different kinds of regulator. There was often currently insufficient co-ordination between them. Several participants believed that the right framework for policy would be a process of joined-up *decisions* rather than a joined-up *structure*. The achievement of such effective co-ordination would be difficult.
- There might well be a conflict or trade-off between the pursuit of low carbon options and general industrial competitiveness. Higher energy prices in the UK might penalise energy-intensive industry engaged in international trade (though the extent of this would be limited as long as other countries followed similar policies to those of the UK). Should such conflicts arise, it would be important, thought several participants, to allow energy prices to rise and to find methods to compensate directly the relatively small number of industrial sectors that would otherwise suffer as a consequence.
- As between pursuit of low carbon objectives and security of supply, many participants believed that there would be more likely to be synergies than trade-offs. Low carbon supply options would usually be domestic and would offer greater diversity in energy sources – both attributes that would enhance certain kinds of security in the energy system. Energy efficiency would also help security by reducing energy demand pressures and some participants believed that the low carbon/security axis could become of great importance in future policy development.

- Because many new energy efficiency measures could be introduced at low cost (or were cost-effective already) energy efficiency was probably unique, argued several participants, in being synergistic with all other major policy objectives.

- The pursuit of low carbon objectives might well come into conflict with fuel poverty objectives, again because higher energy prices would directly aggravate fuel poverty. Nevertheless fuel poverty affects a minority of households and the numbers have recently fallen. There might therefore be no *fundamental* conflict here, as long as active and direct policies were pursued to overcome fuel poverty. Such policies might well concentrate on improving the quality and energy efficiency of the relevant housing stock, a policy that would bring other benefits outside the energy system.

Security of Supply

In the last few years there have been a number of apparently new threats to security of energy supply (or 'energy security', bearing in mind that demand-side measures may be as effective as supply side measures in guaranteeing continuity of supply). These new threats include: the instability in oil markets; the growing share of gas use in the UK economy; the prospect, later this decade of net gas and then oil imports; the implications of the California power crisis; the impacts of the fuel protesters in late 2000 in the UK; and fears about the adequacy of the electricity and gas supply infrastructure in the UK.

This breakout session considered such issues and the ways in which UK energy policy might respond to such apparent threats. The main points that emerged were as follows:

- Although markets had some role to play in ensuring adequate levels of security (and there were major differences among participants about the effectiveness of markets to achieve given levels of security unaided), most participants believed that Government had a major role in ensuring adequate levels of security. This was both to ensure adequate stability in energy markets, and to provide 'insurance' against shocks. Security was and would remain a highly legitimate focus for Government intervention in the energy markets, even though Government was enjoined to take no major early action in promoting security.
- It was important that the Foreign and Commonwealth Office should in future play a larger role in the development and especially the implementation of energy policy. This role had increased in recent years due to the emerging importance of climate change negotiations, and would become even more important as the UK began to import increasing proportions of its gas and oil needs in future years.
- It was almost universally agreed that further progress in European gas liberalisation was an important pre-condition for safeguarding UK supplies of imported gas. A liberalised European market would provide better assurance that the market would be deep, diverse and liquid, and so provide more choices and opportunities for UK gas importers.

- Very few participants dissented from the view that, other things equal, fuel imports would enhance security of supply by offering a wider range of sources at low cost. Diversity and diversification were widely endorsed as a founding principle of energy security. However there were a significant number of participants who believed that the politics of importing gas and oil were inherently unstable; this would not only imply an enhanced role for the FCO but also require some discouragement to 'excessive' import levels. This relatively large group still fell some way short of endorsing the idea that imports are *inherently* problematic.

- It would be important, according to many participants, for the DTI to undertake the difficult but vital work of analysing the cost-effectiveness of a wide range of alternative routes to better energy security. This reflected the idea that it was important to achieve security as cost-effectively as possible.
- The question of how far the rising share of gas in the UK energy economy would threaten energy security was a matter of substantial disagreement among participants. Many shades of opinion were expressed, between 'relaxed' and 'alarmed' reactions. Despite the alarm felt by some, few were willing to interfere with the energy market at present to the extent of advocating Government intervention to influence primary fuel shares. Rather more participants were willing, over a longer timescale, to contemplate more serious Government interference in the market in the interest of limiting the gas share. There was a general reluctance to sanction market interference unless the risks of not intervening were substantial and the benefits of intervention clearly beneficial.
- There was widespread approval of the work of the relatively new DTI/OFGEM working party on energy security. However the work of this group was currently limited to gas and electricity and there was also widespread support for the idea that the remit should be extended to all energy sources (including coal and oil) and to non-fuel security threats – especially the adequacy of energy supply networks for gas and electricity.
- Even though most participants strongly disavowed 'picking winners' as a sensible approach to policy, some of the same people nevertheless seemed to feel able to spot 'winners' well in advance of commercialisation, and consequently advocated Government support for quite specialised individual technologies. A number of participants mentioned nuclear power as a particularly good hedge against insecurity but this view was opposed by others who believed that supply security would not depend at all on the volume of nuclear capacity installed, but rather on the management and planning decisions of the whole system.
- Too much of the security and other debates in the UK were conducted as if only electricity really mattered, according to several participants. They advocated paying as close attention to non-electric uses of low carbon technologies, for example, for direct combustion, heat generation and especially transport.

Low Carbon Technologies

Substantial future reductions in carbon emissions in the interests of mitigating climate change will require the deployment of technologies of much lower carbon content per unit of output than today's average, even if energy efficiency improves substantially. It may be necessary to try and induce an acceleration in the rate of deployment of such technologies if deep carbon cuts are to be achieved. The breakout sessions on the topic of low carbon technologies considered the possible roles of policy in achieving lower carbon futures.

Debate on low carbon technologies was lively, particularly as the issue of the uses of nuclear power and renewables (both zero carbon at the point of electricity generation) are an important part of the low carbon debate. Among the many points made, the following were prominent:

- Many participants were concerned about the practical effects of OFGEM's regulation of the electricity market on renewable and CHP deployment in the market-place. The negative impact of the introduction of NETA (the relatively new trading arrangements for electricity that have replaced the Pool) came in for strong criticism. NETA appears unduly to penalise both intermittent and small-scale generators and, while some of the negative early impacts are now being mitigated, many participants felt that NETA was inherently incompatible with encouragement to small-scale 'sustainable' technology development in the electricity system
- A significant number of participants took the view that the main obstacles to renewables deployment on the scale desired by Government was not the ability of existing technology to deliver enough energy at reasonable cost, but a range of institutional obstacles that needed to be tackled urgently. The chief obstacles concerned NETA (see previous bullet point), the planning system, which rejected an excessive number of applications for renewables projects, especially wind, and the lack of incentives for electricity distribution companies to connect small-scale projects.
- There was widespread support for the continued use of targets for renewables and CHP, such as the current Government effort to achieve have 10% of electricity supply from renewables by 2010, or 10GW of CHP by the same year. Many also believed that it was vital to have in place the necessary instruments to make the delivery of such targets realistic. In this context, it was believed by many participants that while the Renewables Obligation was a good underpinning for the 10% renewables target, the 10 GW CHP target lacked realistic supporting instruments.
- In the debate about the role of nuclear power, virtually all participants expressed the view that the option to deploy more nuclear power should be kept open. However opinions differed on what exactly this implied and how much Government intervention would be needed to achieve it. At one end

of the spectrum some argued that little was needed except to maintain the skill base (a problem that nuclear shared with other options), while at the opposite extreme, others argued in favour of early commitment to further nuclear power construction. Few suggested that Government should intervene directly to support this latter outcome financially, but some wanted OFGEM or Government to require electricity suppliers to enter into long-term contracts to take nuclear output as a way of guaranteeing the finance of new nuclear plants.

- Some argued that renewables ought to be treated differently from other low carbon technologies (such as nuclear power) in relation to R&D support. Specifically, renewables should be seen as an 'infant industry' with unusually high capital-intensity, this meriting particular Government support. There should however be 'exit strategies' that could be taken up where particular renewable technologies did not perform. Other participants, however, argued that nuclear power should not be handicapped relative to renewables for this reason. A large number of participants took the view that in the matter of carbon valuation (carbon taxes and/or emissions trading) nuclear power and renewables should be treated equally.

Energy Efficiency and Transport

Energy efficiency was at the heart of the PIU's proposals but it has often been observed that while energy efficiency has improved substantially over recent years, it has not delivered as much in policy terms as its apparent economic attractiveness would suggest is possible. How could improved energy efficiency deliver more in the future? Further, what issues arose in the energy aspects of transport, including efficiency, which might need to be tackled in policy terms?

These were the subjects tackled in the final breakout sessions, which also provoked a great deal of lively debate. The main points made, starting with mainly energy efficiency issues and then going on to a transport focus, were as follows:

- It was important, argued some participants, to ensure that the 'tilted playing field', as between investment in energy supply and in energy efficiency should be rectified. At present, distortions including differences in VAT and tax arrangements made the effective cost of capital for energy efficiency investment much higher than for most energy supply investment, and led the market to invest relatively too little in demand reduction and too much in energy supply.
- Many participants believed in the need to set a much wider range of physical targets for energy efficiency policy, for example tighter building standards and other targets for efficiency improvements (or possibly energy savings) in all major energy end-uses including transport. Most believed that these targets, while important in mobilising resources and generating enthusiasm, should also be backed by detailed policy instruments designed

to deliver the targets. A smaller number of participants also suggested that some or all of these targets should be mandatory.

- A number of participants emphasised the central role that policy for energy efficiency in buildings of all kinds should play in the future. Because the building infrastructure, especially in housing, was so long-lasting in the UK, the focus of policy effort should be on improvements to the existing stock of building, as concentration on new construction had relatively little overall impact. A wide range of possible policy initiatives were suggested, several of which come under the general approach of 'building labelling', in which the energy efficiency characteristics of all buildings would first need to be measured and then policies put in place for improvement over time. Some participants argued that past policy had concentrated on industry too often because it was a 'soft' target, both practically and politically. It was now time to move to other sectors where scope for efficiency improvements was now greater and more cost-effective than in industry.
- It was in the area of energy efficiency that many participants thought that long-term improvements in public education were most needed. The argument was that most members of the public had little idea of the consequences of their energy use decisions for climate change, and that education would help correct this. There was a need for Government, according to several participants, to help empower energy consumers more effectively. However, most of those who held this view also believed that part of the 'education' process should include a rise in energy prices so as to back up education with sharpened economic incentives. Several argued in favour of an explicit domestic carbon tax regime.
- Some participants believed that it would be possible and desirable to use further energy efficiency improvements targeted at the fuel poor (as is the case to a degree at present) as a way of reconciling rising energy prices with protection for the fuel poor. Largely the same group of participants also argued that a more local approach to energy efficiency would also be necessary to achieve efficiency objectives.
- On transport, there was widespread support for the view that transport energy issues were of critical importance and had not yet been effectively tackled. There was also a view expressed by several participants that a more systemic approach was needed to transport policy if energy and other transport problems were to be tackled realistically. Some also argued that as there were multiple objectives in transport policy it was important to distinguish clearly between economic objectives in transport policy and environmental objectives. Changes in energy policy might be involved in both but the complexity and variety of objectives in the transport policy system needed to be explicitly recognised.
- Several participants were concerned about the rapid growth in aviation energy uses and argued that the aviation uses of energy would need to be

controlled by new market-based instruments as soon as possible. While there was widespread support for further Government initiative in public forms of transport, it was also recognised by some participants that only a small part of the problems of the transport system could be solved by modal shift between private and public transport. While some participants argued that it was inevitable that hydrogen would eventually come to dominate as a transport fuel carrier, there was relatively little enthusiasm for early policy commitments by Government in the direction of the 'hydrogen economy'. Hydrogen was generally seen as an important but essentially long-term issue.

Annex A: Key Issues

1. What is the Government's response to the Royal Commission on Environmental Pollution's recommendation on a target for reducing UK carbon emissions by 60% by 2050?
2. Looking forward, how fragile is our current security of supply likely to be, especially at peak demand? Will the market react alone to invest in time in the necessary infrastructure? How can we get the most out of the UKCS? To what extent can we rely on the international gas and oil markets to meet our needs at competitive prices? If not, what could Government do?
3. Against this background, should there be a new general objective for energy policy? What relative weight should be given in that objective to security of supply, environment, competitiveness and social issues? How far do these complement each other, and what are the relative priorities if they conflict? How do we build on the strength while addressing any weaknesses of liberalised and competitive markets, including the regulatory framework and role of OFGEM, including NETA? How can we ensure the Government's energy policies are seen to be consistent without undermining the basis of economic independent regulation?
4. What cross-cutting supply side measures and instruments would be needed if we were to move towards a low carbon economy, and on what sort of timescale?
5. How could a step change in energy efficiency be achieved?
6. What measures should be taken on renewable energy, including whether to set a 2020 target?
7. Given the Government's commitment to a low carbon energy policy, what needs to be done to keep the nuclear option open? How quickly can we find an acceptable long- term solution to managing nuclear waste effectively?
8. What measures should be taken to address energy use in the transport sector?
9. How can we best deliver our fuel poverty objectives?
10. What more is needed to ensure that the business and research communities deliver the innovations we need? Do we need a more coherent strategy for research into low carbon technologies?
11. How should the UK take forward policy objectives internationally?
12. How do we raise public awareness and acceptance of energy policy measures, and involvement in their implementation?

13. How will policy and delivery be overseen in future and what will be the monitoring and reporting arrangements?

¹ Cabinet Office *The Energy Review A Performance and Innovation Unit Report*, February 2002

² DTI, DEFRA and DTLR *Energy Policy. Key Issues for Consultation* May 2002