

From Fossil to Future Fuels 5th British German Environment Forum

British–German Environment Forum Conference Report

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From Fossil to Future Fuels

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British German Environment Forum (BGEF)

The central issue of the coming decades is the need to reconcile industrial development with the protection and enhancement of our environment. The BGEF generates *action in this area*: a key goal is to develop the experience and insights of *practitioners* in business, local government and the voluntary sectors involved in designing and implementing initiatives at local and regional levels as well as the national level. The conference series reflects the acknowledgement by the UK and Germany of the significance of sustainable development, and the potential for each country to learn from the other in this area. It provides a forum for the exchange of views and lessons for good practice and innovations between two key European countries with distinctive strengths and weaknesses in environmental policy, and with different policy cultures in relation to the environment.

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Summary

How to push forward the gradual but critically important switch from 'fossil fuels' to 'future fuels' was the topic of the fifth British–German Environment Forum, which met in Berlin in February 2004. The 60 participants represented the spectrum of activity in sustainable energy in both countries: politics and policy-making (at local, national and European levels), technological and commercial development, and research, reporting and campaigning. The mix was a stimulating one, for it soon became clear that all these different interests must work together (above all regionally and internationally) to create acceptance of the need for a radical realignment of energy policies, sources and usage.

The conference took place at a fulcrum moment: eighteen months on from the World Summit on Sustainable Development in Johannesburg, which called for the global development of renewable energy, and also in the immediate run-up to the much-anticipated renewables 2004 conference (the International Conference for Renewable Energies organised by the German government in Bonn in June 2004), designed to map the expansion of renewables worldwide. Beyond that lies the major issue of the Kyoto Protocol, in particular ratification by Russia and by other major industrial nations worldwide. And overlying all these is the bleak threat of inescapable climate change – of far greater importance, many participants argued, for the future of the planet than issues of security – and the urgent need for political commitment to develop new energy technologies and increase energy efficiency.

In their opening speeches, Jürgen Trittin and Lord Whitty, the German and British ministers most closely involved with developing policies for sustainable energy, reviewed political and technological advances – the establishment of the Renewable Energy and Energy Efficiency Partnership and the greenhouse gas emissions trading scheme in the UK, the renewables 2004 conference and plans for increased use of more recent forms of renewable energy (e.g. hydrogen, biomass and geothermal) in Germany – and pointed to areas for potential future co-operation. Following their contributions, Professor Robert Worcester, who chairs MORI, the UK market research agency, gave a perhaps surprisingly positive overview of public opinion about environmental issues in the two countries. Among many other significant indicators, he pointed to increasing awareness of and concern about environmental issues in Germany and the UK and to a strong preference, again in both countries, for protecting the environment even at the expense of slower economic growth.

Participants then debated – in workshop groups and in plenary discussion – three main challenges:

- how to reduce dependence on imports of fossil fuels
- how to promote a more rapid take-up of sustainable and energy-efficient practices and technologies *and*
- how Germany and the UK can more effectively pursue common aims within the international energy system.

Broad (though by no means always unanimous) agreement was reached on a number of important topics. These included:

- The leading role played by both Germany and the UK in taking steps towards a sustainable energy system. This puts these countries in a strong position as advocates of change (to other EU members and to other countries). However, the consensus was that Germany's progress was more substantial on the ground than the UK's. (Delegates joked that 'Britain has all the wind but Germany has all the windfarms.') That said, its EU and G8 presidencies in 2005 will offer the UK a big opportunity to move things forward.
- The need to develop new renewable energy sources and energy efficiency measures – neither is sufficient on its own – and to focus on energy for heat and transport as well as for electricity supply.
- The leading role the EU can play in persuading Russia, and possibly also the USA, to ratify Kyoto. Russia in particular needs to feel that it has a role to play in the worldwide energy economy.
- Political will as the essential ingredient required to fix and implement targets for moving towards a sustainable energy system. Politicians and government must give a lead, using economic, fiscal, political and social tools. Politicians also need to recognise that often the people are ahead of governments in their willingness to embrace change and that the goal is too important to be left to the market alone.
- The crucial significance of alliances at regional level (e.g. the EU) and at sub-national level (e.g. between NGOs) in pressing for Kyoto targets to be implemented.
- The importance of crafting messages that reach people's hearts as well as their heads. Economic influences alone will not be enough – public education and public relations have important roles to play.
- The need to look beyond the Kyoto deadline of 2012 and develop long-term goals that focus on the biggest emitting nations (Brazil, China, India, Indonesia, Russia and the USA).

Discussion in the closing plenary session reflected the tensions inherent in the situation. Considerable and sombre concern about the scale, urgency and inevitability of the problems was balanced by optimism about the opportunities for Germany and the UK – individually and (more important still) in co-operation – to demonstrate political and technological leadership and to make a real and beneficial impact on long-term global energy policy.

National policies and targets

Two keynote addresses, from the British and German Ministers – Lord Whitty and Jürgen Trittin – most closely involved with developing policies for sustainable energy, launched the Forum. These were followed by two brief expert commentaries from different perspectives from within the energy policy community.

Lord Whitty, Minister for Farming, Food and Sustainable Energy (UK)

Lord Whitty began by commenting that the international community is starting to face up to the environmental and political importance of making our energy systems sustainable. We must, he said, continue to work towards the goals of Kyoto and the commitments made at the 2002 World Summit on Sustainable Development in Johannesburg. Political commitment and practical work is needed to turn these commitments into reality – and also to look beyond them to medium- and long-term targets. ‘Developed countries need to show that they are taking the lead in tackling climate change now’ in order to lead the way for developing countries.

The policies of both Germany and the UK provide very good examples of that leadership. Having praised Germany’s achievements in developing renewable energy sources and increasing energy efficiency measures, Lord Whitty outlined the UK’s policies (as set out in the 2003 Energy White Paper) for reducing greenhouse gas emissions, doubling its rate of energy efficiency improvement, extending its Renewables Obligation, increasing research into emerging technologies such as wave and tidal stream energy, and developing bio-mass fuels, and described the UK’s new national greenhouse gas emissions trading scheme (the world’s first). Industry has a vital role to play in helping Germany and the UK deliver on their targets and move towards a low-carbon economy – we need to convince the rest of the EU to be equally committed and ambitious.

Both Germany and the UK have clearly demonstrated that it is possible to reduce greenhouse gas emissions without compromising economic growth. The UK economy grew by 32 per cent between 1990 and 2002; greenhouse gas emissions fell by 15 per cent during the same period (provisional figures). Achieving the UK objective of reducing carbon dioxide emissions by 60 per cent by 2050 would mean a delay of only three or four months in GDP growth – ‘a price worth paying’. Kyoto is the first essential step in putting the world on the path to delivering significant reductions in global emissions, but it is only a small one. Only if action is taken to ensure that all EU member states meet the Kyoto targets can the EU hope to persuade other more reluctant countries, notably the USA and Russia, to make their contribution.

Developing environmental technologies, and getting them adopted, is essential if emission reductions are to be achieved. So the UK welcomes the recent EU Environmental Technology Action Plan, which is designed to stimulate innovation and help these

technologies to achieve market penetration. Germany and the UK need to lead from the front on this, especially since environmental technologies have the potential to re-engage the USA. The G8 will be focusing on the development of low-carbon technologies during the next two years, so the UK has a particular opportunity during its presidency in 2005.

The new environmental technologies are also of considerable importance to the developing world. In this context the International Conference for Renewable Energies in Bonn in June 2004, with its focus on how to make a global transition to a sustainable energy system while allowing for social and economic development, will be one of the most significant events since the Johannesburg summit. The outcomes currently proposed are closely aligned with the aims of REEEP (the Renewable Energy and Energy Efficiency Partnership), which the UK government established post-Johannesburg. (See page 11 for the contribution to the conference by Dr Amal-Lee Amin of REEEP.) REEEP works through industry and civil society in nine regions worldwide to remove the barriers to the development of sustainable energy.

The UK will have the presidency of both the G8 and the EU during 2005 and is thus, Lord Whitty concluded, strongly placed to ensure that commitments become reality.

Jürgen Trittin, Federal Minister for the Environment, Nature Conservation and Nuclear Safety (Germany)

Minister Trittin started by outlining the common commitment of Germany and the UK to a national sustainable energy strategy backed up by quantitative goals, and the two countries' significant role in achieving EU progress towards the Kyoto targets. Both countries are pursuing a similar strategy: increasing the use of renewable energies; reducing reliance on nuclear energy; and developing energy efficiency. Equally, both countries are founders of the Johannesburg Renewable Energy Coalition, and each has taken an initiative – REEEP in the case of the UK, the renewables 2004 conference in the case of Germany – to take its goals forward.

National policies – the climate change levy in Britain, eco-taxes in Germany – are beginning to work. Greenhouse gas emissions are falling in the UK, and in Germany wind farms now form an integral part of climate protection, saving 50 million tonnes of CO₂ every year. Compared with Britain, Germany is at a disadvantage in lacking a long coastline, and so Germany is planning to utilise other forms of renewable energy: sun, water, biomass and geothermal. Each country can learn much from the other in bringing energy efficiency to industry. In Germany industry has complained noisily about the requirements, especially the emissions trading scheme. This is entirely without reason, since there will be no additional financial burdens and industry has already committed to the targets.

Minister Trittin reminded his audience that the importance of renewables stretches beyond the generation of electricity. Heating and transport are also vitally important areas. The greatest growth in demand is for energy for mobility – CO₂ emissions from traffic will increase by 60 per cent between 1990 and 2030, and 75 per cent of all CO₂ emissions take place in the industrialised world. In the short term we must promote the

use of diesel vehicles. But we must also be planning for a leap forward to sustainable public transport powered by low CO₂ fuels – biomass and natural gas and we must work to translate some of the technologies already used in buildings to transport vehicles. One possibility is 'Sunfuel', a synthetic diesel fuel derived from biomass, which several German companies are developing.

The goal, the Minister concluded, is a mobile but sustainable future. Offshore wind will be the backbone, sustained by other renewable energies, in particular hydro power. The UK and Britain must work together towards this goal, learning from each other's achievements and technological advances.

Commentary 1

Professor Dr Fritz Vahrenholt, Chairman, REpower Systems

Herr Vahrenholt started by remarking that both ministers had focused on climate change policies in their speeches. He then put forward three drivers for sustainable energy:

- The increasing depletion of oil and gas reserves – with the consequence that depletion-point is approaching fast. With 2 per cent growth, half the reserves will have been used by 2025. With 6 per cent growth, they will have been used entirely by then. China's energy hunger is an increasingly important factor.
- Europe's growing dependence on imports (especially of gas) from politically and economically unstable regions. The 'strategic ellipse' – the region from the Gulf of Aden through the Middle East and on across the Black Sea and Caspian Sea into central Asia and Russia – contains about 70 per cent of the world's reserves of oil and about 65 per cent of reserves of gas. The UK is already importing gas from Russia – by 2025 western Europe will be totally dependent on Russia and Turkmenistan for gas supplies, as all other supply sources will have been used up.
- The threat of climate change. We are at the beginning of a fundamental shift in climatic conditions. Average temperatures have been growing steadily since the 1970s, and will grow even more rapidly during the 21st century. The consequences of increased CO₂ emissions are especially grave for northern Europe. A doubling of CO₂ emissions will lead to a five-times increase in the frequency of heavy rain in large parts of the UK, northern France, Belgium, the Netherlands, northern Germany, Scandinavia and northern Russia – with resulting flooding of low-lying areas.

Dr Vahrenholt argued that these threats can be overcome through a combination of new technologies and energy efficiency measures – but that neither will be sufficient on its own. The new generation of giant offshore generators is reducing the cost of renewable energy, enabling the Atlantic and North Sea countries – France, the UK, Belgium, the Netherlands, Germany, Denmark and Sweden – to benefit from the prevailing high wind speeds off their coastlines. In addition, coal remains a major energy source. So long as we are prepared to meet the high cost of sequestering CO₂ from coal (a process that is already technologically feasible), coal reserves are sufficient to meet demand.

Commentary 2

John Ashton, Director for Strategic Partnerships, Leadership for Environment and Development International

Energy policy, traditionally considered a domestic issue, is now taking a central part in the foreign policy of states across Europe. The environmental and security debates are coming together as governments focus on how to meet energy needs as efficiently as possible. Environmental policies are closely linked with security issues, and should form an integral part of Europe's response to terrorism. Decentralising the energy system, and developing a variety of energy processes, will spread the risks.

The Johannesburg Summit gave rise to a stream of 'new diplomacy'. While individual countries are resisting specific targets, the Johannesburg Coalition is pressing to extend the targets. Targets are most effective when effective delivery mechanisms can be created – Lord Whitty's contribution demonstrated the wide range of technical options currently being explored in the UK. It is politically inconceivable that the EU will not fulfil its obligations – but it is not good at getting its message across.

The most effective way of bringing the USA on side is for Europe to show that its current portfolio of policies – including the emissions trading scheme and energy efficiency measures – produces an innovative, competitive economy. For Russia, President Putin needs to be given additional incentives to ratify Kyoto– Russia needs to feel that it has a role to play in the worldwide energy economy.

Public opinion in the UK and Germany

The wide-ranging survey by Professor Robert Worcester (chairman of MORI and Visiting Professor of Government at the London School of Economics) highlighted recent evidence from research into of British, German and Europe-wide attitudes towards issues of energy and the environment. Findings of particular relevance and interest are:

- Energy and the environment do not feature among the top five issues of concern in each country.
- Reactions to globalisation are mixed. A small majority in Germany thought that globalisation is good for the economy as a whole and also for their own standard of living. The majorities in Great Britain were much more substantial: 3 to 2 and 2 to 1 respectively. In both countries a majority thought that globalisation is good for strengthening the economy of poor countries and providing jobs there. Again, the proportion was much higher in the UK than in Germany (54 to 30 per cent; 46 to 36 per cent).
- However, about three quarters of those questioned in each country thought that globalisation would threaten their own country during the next ten years. In both countries over 90 per cent of those questioned considered global warming to be a threat.
- Concern about the environment – i.e. issues such as global warming, pollution, resource depletion – is increasing in both countries: 31 per cent of people questioned in 2001 named the environment as a world problem, compared with 25 per cent in 1996.
- People are attaching more importance to companies demonstrating social and environmental responsibility. 84 per cent of British people think social responsibility is important when deciding about buying a product or service from a company, compared with 70 per cent in 1997.
- After increasing sharply in the late 1980s, the proportion of people who would call themselves 'green consumers' stayed roughly steady during the 1990s at between 40 and 50 per cent. However, the proportion of people who would avoid using companies with a poor green record increased – from 20 per cent in 1993 to 40 per cent in 1999.
- Trust is an important factor in environmental concern. In 1989 more people trusted the European Commission than the British government to make the right decisions about the environment (54 to 30 per cent). Ten years later the balance had shifted to 43 per cent trusting the British government and 27 per cent the EC; in the same period those trusting neither rose from 8 to 21 per cent. In 2002, environmental associations were most trusted on environmental issues in Germany (59 per cent), with scientists and consumer associations scoring 34 and 30 per cent. In the UK overall trust levels were lower. Environmental protection associations scored 38 per

cent, scientists 33 per cent and consumer associations 15 per cent. In both countries the EU and government (national, regional and local) all scored least, below 10 per cent.

- People mean varying things by 'the environment'. In the UK and across the EU as a whole it was defined most often (by 31 and 25 per cent of people) as 'pollution in towns and cities'. The profile of answers in Germany was quite different: 27 per cent said 'protecting nature' and only 12 per cent 'pollution'. However 'using up natural resources to provide a comfortable life' was not rated highly anywhere, scoring only 2 per cent in the UK, Germany and the EU alike.
- 38 per cent of people in Germany thought the EU should be responsible for decisions about environmental protection – but only 15 per cent in the UK. National government was named by 31 per cent in both countries; the UN by 25 per cent in Germany, 18 per cent in the UK; and local government by 18 per cent in Germany and 29 per cent in the UK.
- In both countries television and newspapers are the main sources of information about the environment. Radio is the third most important source in Germany, films and documentaries in the UK.
- Concern about the future of the environment was similar (but not identical) in the two countries. In Germany 40 per cent believe that changing our way of life can halt the deterioration of the environment and 49 per cent believe that human activity can lead to irretrievable damage to the environment; the proportions in the UK are 46 and 40 per cent. By contrast, 56 per cent of Germans but only 39 per cent of British people believe that their actions can make a real difference to the environment; 48 per cent of British people against 36 per cent of Germans believe that the environment is an issue beyond their control.
- 83 per cent of Germans and 70 per cent of British people are making an effort to take care of the environment.
- Both countries prefer the environment to economic growth. 81 per cent of people in Britain and 78 per cent of Germans agree that protecting the environment should be a priority, even at the expense of slower economic growth and some job losses.

Three challenges

After this stimulating introduction, participants were presented with three 'Challenges'. Each was launched by a pair of crisp 'Provocations': brief presentations designed, as their name suggests, to kick-start discussion and controversy. Having heard the two Provocations and briefly debated them, conference participants divided into three workshop groups to discuss each Challenge in greater depth, reassembling an hour later to report their findings in plenary session. The Challenges are reported here in note form in order to summarise the range and depth of the discussion in as accessible a form as possible and to indicate the contrasting views expressed. That any particular view is noted here does not necessarily signify that it was generally accepted.

Challenge 1: Security – reducing the dependence of the economy on fossil fuel imports

Provocation One – Daniel Varey, Economics Unit, Group Business Centre, BP plc

- World fossil fuel consumption grew at an average of 1.9 per cent per annum between 1990 and 2002. This figure masks huge regional variations. In the same period consumption was up 3 per cent in Europe and 17 per cent in North America (in both regions considerably less than GDP); 48 per cent in Asia (just above GDP growth).
- In the 15 EU states, only Germany and Sweden succeeded in reducing consumption of carbon and fossil fuels over the same period; the UK consumed less carbon but more fossil fuels. However, even this modest success was the result of special, non-repeatable factors:
 - reunification in Germany
 - Sweden's increased imports of electricity from Norway
 - the UK's 'dash for gas', which reduced carbon consumption.
- Conclusion number 1: No country anywhere is on a low fossil fuel (or carbon) growth trajectory.
- The International Energy Authority (IEA) forecasts that demand for fossil fuels will continue to increase and that demand worldwide will be 69 per cent higher in 2030 than in 2000; EU demand will be 28 per cent up.
- The IEA's alternative policy scenario shows fossil fuel consumption continuing to grow until 2010, but then stabilising.
- Conclusion number 2: Policies will have to become more radical if they are to put nations on a low fossil fuel growth trajectory.'

Provocation Two – Daniel Mittler, Head of International Campaigns, BUND e.V. (Friends of the Earth Germany)

(Daniel Mittler replaced at short notice Michael Grubb, Director of the Carbon Trust, who was ill.)

- Security of energy supply is becoming a major theme of the Bush administration. The goal of overcoming dependency on fossil fuel imports is a major threat to the environment: Alaska is being opened up for oil drilling, and nuclear power stations are planned. Is there any way in which the British and German governments can influence these developments – especially the British government, given Blair's real, if limited, influence on Bush?
- We need to look beyond security as traditionally conceived of by nation-states and replace the current centralised energy system with a decentralised system. Recent major grid failures (in the USA, Italy) demonstrate the vulnerability of a centralised power system and the need to develop alternatives.
- The 'anti-social', inequitable policies of both the British and German governments make individuals less willing to make drastic changes to their lifestyle for environmental reasons. Why should they, when they feel insecure and constantly fear that their jobs are on the line?
- The current debate on links between security and the environment is often simplistic. Some wild claims by environmentalists about the security threat posed by environmental issues are simply attempts to jump on the political bandwagon of the post-September 11 security mania. However, there are many reasons why the world is insecure – even if there were no demand for oil there would be security problems and economic and strategic threats.
- The Baku-T'bilisi-Ceyhan oil pipeline from the Caspian to the Mediterranean, which BP proposes to build, will double BP's emissions and have a direct impact on security in volatile regions such as Azerbaijan. There are major issues around how it will be secured and its impact on human rights.

Points from the workshop groups and debate

- The energy debate needs to send out strong signals to politicians. At the moment politicians are motivated by security issues – climate changes, whose impact is potentially far more radical, do not generate the same impetus.
- Even if there were sufficient fuel to meet requirements we would need to reduce energy use. The demand side needs to be tackled through a combination of financial, political and behavioural levers:
 - the large cost of changing to renewables, and introducing energy efficiency, will not be a problem if governments provide sufficient financial incentives
 - the real issue is political willingness to change. Although the policies of the British and German governments are providing good examples, there is no long-term strategy for reaching the targets

- a radical change in behaviour and thinking is needed if energy use by individuals and industry is to be reduced – governments have no idea how to do this, how to motivate people.
- It would take a major shock – a massive increase in oil prices, or melting ice caps, or the disappearance of the Gulf Stream – to make governments respond quickly. For the moment, energy conservation is considered to be a substitute for energy efficiency and renewables.
- What matters is the security of the entire energy system – not just of energy imports. We need to increase security through trade, by increasing countries' interdependence.
- Cost is an important driver for change. The depletion of fossil fuels will lead to price increases. This movement needs to be matched by incentives to encourage people to invest in renewables, and also to buy them for their own use. This is particularly important in the UK, where investors are used to getting a quick return.
- We need to balance the cost of acting against the cost of not acting – and also to realise that change will not happen all at once. The British energy systems in 1900, 1950 and 2000 were all very different – there is no reason to doubt that by 2050 there will have been another radical change.
- We need to focus on the consequences of climate change and to create a sound framework for investment by creating credible technologies, setting long-term targets and establishing a suitable timescale for the investment community.
- Although the UK's transport system is responsible for 25 per cent of UK carbon emissions, 90 per cent of the political effort in this area is devoted to reducing those emissions.
- Alternative energy supplies are important for poorer countries, which can find that the cost of oil imports exceeds their exports.
- Relying on Russia as the sole source of gas is dangerous. As demand increases in Asia, especially China, Russia may find other markets for its gas.

Challenge 2: How do we promote a more rapid take-up of sustainable and energy-efficient practices and technologies?

Provocation One – Dr Axel Friedrich, Head of Transport Department, Federal Environmental Agency

- We do not need renewable energies to create a sustainable transport system – there is more to sustainability than reducing CO₂ emissions. Our problem is that we have too much gas and oil – if we had too little people would change their behaviour.
- Changes in individuals' driving techniques could reduce fuel consumption by 40 per cent. Similar reductions could be produced on the railways. But government does

nothing to encourage these changes, which do not require any technical modifications.

- The amount of energy cars consume could be reduced by 30 per cent, saving 11 million tonnes of CO₂ per year in Germany alone. We do not need bigger and bigger cars – reducing acceleration would save fuel.
- Growing biofuels has negative environmental consequences. A switch to organic farming would be more beneficial.
- A long-term plan for renewable energy is essential, setting out where and how renewables would be used and how they can be used efficiently.

Provocation Two – Nick Goodall, Chief Executive, Renewables East and Energy Networks Association

- The task is the responsibility of politicians, and government generally – it is too important to be left to the market. But there is no magic bullet: economic, fiscal, political and social tools all have to be used as appropriate.
- The UK government's renewables obligation is 'fantastic' and is making an impact – partly because the electricity companies have been given enough time to respond – and the market is investing heavily in both offshore and onshore wind.
- However, despite this, the UK government is failing in other areas. For instance, biomass would be stimulated by changing the requirements laid down in building regulations.
- Change does not happen through magical osmosis. We elect politicians to provide leadership and vision, and they need to develop a long-term plan and recognise that often change is readily accepted, as in, for example, the introduction of compulsory seat belts and unleaded fuels.

Points from the workshop groups and debate

- Industrial nations should take the lead, with a global approach that works down to private individuals and by making technologies marketable and cheap so that the rest of the world can use them. The EU is an important driver at the product level.
- Behaviour patterns vary from country to country, so national limits and targets have to be introduced, such as CO₂ levels for cars and the eco tax, which has had a positive impact in Germany,
- Sustainability must be made visible to the consumer – the 2002 floods in central Europe made clear what lies ahead of us in environmental terms.
- We need to focus on the local level – by making energy costs (especially the cost of additional use) more explicit and providing price-based incentives for energy efficiency measures.

- A cultural change is required. But we must recognise that, while some regulation is necessary, it has its limits – the final choice is down to the consumer. Government is not always the best messenger – people don't like being told how to behave, so business is more likely to be able to influence consumers.
- Messages have to reach people's heads and hearts – economic influences alone are not enough. Both public education and public relations will be required to make energy efficiency and renewable energy 'sexy'.
- There are institutional and financial barriers to developing greater energy efficiency. Initial costs are high, and the projects are smaller scale than conventional energy projects – and banks like big investment projects with more certain prospects of a return.
- Government and business have very different attitudes to renewable energy. Business focuses on specific projects and short-term aims. Energy costs represent a very small proportion of most business costs, so changes to charging regimes have little impact.
- Mandatory and convincing long-term targets are essential – ideally on a regional (i.e. EU) basis to encourage industry to invest. If the EU commits itself to long-term goals, its example will be very influential in other regions.

Challenge 3: How can Germany and the UK more effectively pursue common aims within the international energy system?

Provocation One – Dr Amal-Lee Amin, Head of Secretariat, Renewable Energy and Energy Efficiency Partnership (REEEP)

- The Johannesburg conference set ambitious objectives. In organising the Bonn renewables conference, which will bring governments and stakeholders together, the German government is trying to provide the catalyst for the political will needed to transform the energy system.
- Through REEEP (which was launched by Environment Secretary Margaret Beckett at Johannesburg), the British government is trying to provide, at local, regional and national levels, the catalyst for governments, business, finance and NGOs to work in partnership.
- REEEP is working with key partners in nine regions worldwide to identify the specific activities necessary to bring about a step-change at national and regional levels. These activities are built around five themes:
 - policy and regulation
 - attracting finance, and bridging the policy/finance gap
 - financial models
 - energy efficiency *and*
 - awareness-raising and communication.

- Based on this work, the German and British governments will announce a world renewable energy programme at the Bonn conference. Alongside the Johannesburg conference and the EU initiative, this will make Bonn the launch-pad for a global movement for change.

Provocation Two – Alexander Ochs, Senior Research Associate and Project Manager, German Institute for International and Security Affairs

- Germany and the UK are the current front-runners in climate change policy. It is the EU that should be leading in this area. But, at least for CO₂ emissions, it is not doing so – 97 per cent of the EU's reductions come from the UK and Germany, and in many EU countries emissions are increasing. The emissions trading market in the enlarged EU will be big enough to foster technical change.
- Russia has a critical role to play. The chances of Russia ratifying Kyoto are low, though the Ukraine's recent ratification has helped. We need to convince Russia that ratification is one element of having a stake in the international politics and economy of the 21st century.
- An exit strategy is needed if Kyoto does not come into force in 2012. Even if Russia ratifies, the three other biggest emitters – China, India and the USA – will still be outside. We need long-term post-2012 goals that focus on these nations.
- We also need the USA both ecologically (because the USA produces about one quarter of worldwide emissions) and politically (because many other nations will not ratify if the USA doesn't). The signs in the USA are more positive than is often realised – for instance, the McCain-Liebermann amendment failed by only six votes, and many people are receptive to dialogue.
- A long-term political perspective is essential. The issues have to be promoted on the political agenda, and can't be left to environmental experts alone. It is disappointing that Fischer and Schröder are not responding to the potential in this area, which is one where Blair could take a distinctive position separate from Bush's.

Points from the workshop groups and debate

- We should not distract ourselves from the importance of Kyoto by focusing on a vision for post-2012.
- The UK and Germany share a substantial agenda, including putting the Kyoto process in force; getting the EU to deliver on its commitments; shaping a future sustainable energy system; and promoting the UK's position on sustainable development.
- Climate change, rather than just carbon-related issues, should be the driver for environmental campaigning. The moral argument – making the world a better place – is insufficient. Economic arguments must be made.
- The EU should not talk about the environment and climate change in isolation – we need to look holistically at the impact on the developing world, taking account of issues such as trade.

FROM FOSSIL TO FUTURE FUELS

- The UK and Germany do not have identical aims. The UK is more advanced in phasing out coal; the gas lobby is stronger in Germany, leading to concerns about German domination of the EU gas market; however, in both countries there is popular support for phasing out nuclear energy, which is already happening in Germany.
- The linkages between business and policy are closer in Germany than in the UK. However the policy-making processes are more transparent in the UK than in Germany, which does not carry out such extensive consultation. BP and Shell have made a clear commitment to reducing CO₂ emissions – in contrast with business in Germany, which also opposes emissions trading.
- It is crucial to build alliances at sub-national levels – e.g. between NGOs – to campaign for the Kyoto targets to be implemented.
- The post-election period in Russia should be used to push Russia to ratify Kyoto. Germany should step back a little in order to leave the UK room to put climate change on the agenda for its G8 presidency.
- There is considerable potential for convergence between the USA and Russia. Both would like to be self-sufficient in energy – in the USA the need to secure energy supplies is an important factor in thinking at federal level – and in both many different interests are involved.
- Europe should now form an energy coalition. Besides the UK and Germany, the Scandinavian nations have also contributed to the transformation of climate politics. The new EU members should also be included – they feel they have to be seen to be good Europeans, and also use a lot of energy.

Plenary session: Kyoto and beyond

Rainer Hinrich-Rahlwes, Director General, Central Functions, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

- We must work on climate change issues and push the Kyoto Protocol into force. We also need to start formulating some mid-range forecasts for post-Kyoto – including developing countries in the climate protection framework and ensuring that climate change supports economic modernisation. The moral argument is not enough.
- British and German co-operation is showing the way. The German Chancellor has invited the world to Bonn; the British Prime Minister has invited the world to participate in REEEP.
- Political will to fix medium- and long-term targets for changing the energy system is essential. By 2050 no economy will be able to compete unless 50 per cent of its energy comes from renewables.
- The Bonn conference must establish a global action plan for renewable energies, with voluntary targets for countries and regions and commitments from financial institutions on how they will promote renewables.
- Energy efficiency is equally important. Even if we reach the EU target – 20 per cent by 2020 – the fossil fuels that make up the remaining 80 per cent must be used in the most efficient way. Investment in research and development must be a priority.

Peter Knoedel, former Member of the Board, German BP AG

- Security of supply, and potential disruption of supplies for economic/political reasons is a secondary issue – disruption never happens. Germany has depended on one gas pipeline for 40 years.
- The focus should be on carbon. There are plenty of alternatives for 'stationary carbon' (used for heat and light), such as decarbonisation and, later, renewables. 'Carbon for mobility' is the important issue; currently in Germany 10 per cent of CO₂ emissions are from cars and a further 10 per cent from trucks, and emissions are rising. The alternatives are difficult:
 - fuel is cheap – a litre of fuel costs less than a litre of water:
 - restrictions on mobility are not feasible, especially at a time of EU expansion

- alternative fuels have major disadvantages: for instance, making hydrogen and synthetic fuels leads to substantial increases in CO₂ emissions.
- Possible answers are:
 - emissions trading, with a consistent lowering of the cap. If this happens, engineers will respond to the pressure to find a cheap means of preventing CO₂ emissions.
 - use of hard coal and lignite, if engineers succeed in developing cheap sequestration or neutralisation technologies. Sequestration may turn out to be cheaper than renewables.
- Politicians from the developing world have a different agenda because renewables are costly and technologically sophisticated. If the developing world is to adopt renewable energies, we need to deliver turnkey solutions, including operation and management, although this goes against the grain of current thinking about the developing world.
- If the UK and Germany used a 2 cent per litre fuel surcharge on renewable energy projects for the developing world, their own use of CO₂ in mobility would be neutralised, the developing world would move fast towards renewable energies, and export opportunities for Europe would be created.

Andrew Stunnell MP, Shadow Liberal Democrat Energy Minister

- There are distinct differences between German and British attitudes:
 - Public opinion in Germany is broadly sympathetic; in Britain indifferent/unaware
 - Britain has always been a net exporter of energy; the prospect of becoming a net importer is creating insecurity.

Cultural change is essential in the UK. Without it, the necessary legislation will not work successfully.
- The political system can be the vehicle for fundamental political change, which then becomes accepted throughout society. Examples in the UK are the introduction of state pensions (the 1906 Liberal government); the foundation of the NHS (1945 Labour government); the liberalisation of state industries (1990s Conservative governments).
- We need to create a sense that the facts of climate change are unalterable and to tap the underlying good will in society (as reflected in Bob Worcester's findings – see page 5). Because they have taken a leading role in developing the technologies for sustainability, Germany and the UK are in a strong position, and can create jobs and wealth from a programme for sustainability.

- We should not be sidelined by the issue of getting Kyoto ratified. The GATTs have been implemented more or less completely during the past 40 years although they were never ratified.

Stewart Boyle, freelance journalist

- Climate change is the big issue. The scientific evidence makes it clear that we are at the point of dangerous interference in the planet's support system – the climate change roller-coaster has begun.
- The emissions trading market will not fix things in the short term – both the allocation targets and the price are too modest.
- We need specific policies for sustainable energy that will influence everyday investment decisions – in buildings, cars, appliances, pension plans, transport infrastructure, energy networks etc.
- Europe can offer many exemplars for sustainable energy:
 - wind: Germany, Spain, Denmark, with (possibly) offshore wind in UK
 - biomass: Austria, Finland, Sweden, Denmark
 - solar: Germany, Switzerland, Cyprus
 - efficiency: Netherlands, Denmark, UK.There are examples of doubling energy efficiency and 30-50 per cent per annum expansion of some renewables.
- Leadership is the key. Europe – and especially the UK and Germany – must show leadership on
 - Russia ratifying Kyoto
 - sustaining the growth of renewables
 - keeping targets strong
 - integrating sustainable energy with a range of government objectives and the work of different government departments, e.g. farming, forestry, poverty, fiscal incentives, to ensure coherent policy and implementation
 - building the coalition at the Bonn conference.

Points from debate and discussion

- We should not deliver turnkey projects to developing countries. Turnkey is about creating markets for the western world – we should be providing environmental and economic growth at the local level. If developing countries are to adopt targets, we have to demonstrate that sustainable energy will benefit them through increased employment.

FROM FOSSIL TO FUTURE FUELS

- Although there is no danger of liquid fuels running out, the days of easy oil are over, Large investments are needed, including in coal-based synthetics.
- EU does not have a consistent programme beyond 2010. We need a new political commitment to pave the way to an EU policy for sustainable energy.
- How long oil will last is not an issue. We should still push in every way possible towards creating renewable energies, e.g. biomass, solar, and use these to replace fossil fuels.
- Free or low-cost turnkey projects are the only way of getting renewables technologies to developing countries. Existing projects in the developing world do not work – they create more debt and no more energy.
- Solar technologies have failed in the developing world because they were not introduced on a business basis – no one made money out of maintaining the system.
- If renewable technologies are not developed now, they will not be ready in 20 years when they are needed. Renewables receive very low subsidies – compare the subsidies paid to bring natural gas to homes across the UK.
- We need targeted pragmatic solutions appropriate to different countries. For example, persuade China to burn coal more efficiently; increase the UK's renewables target by 1 per cent per year to 2050 (50 per cent by 2050) and also use the other 50 per cent, from fossil fuels, more efficiently.
- Climate must return to the global agenda. The UK has a unique opportunity to push this forward during its EU and G8 presidencies.