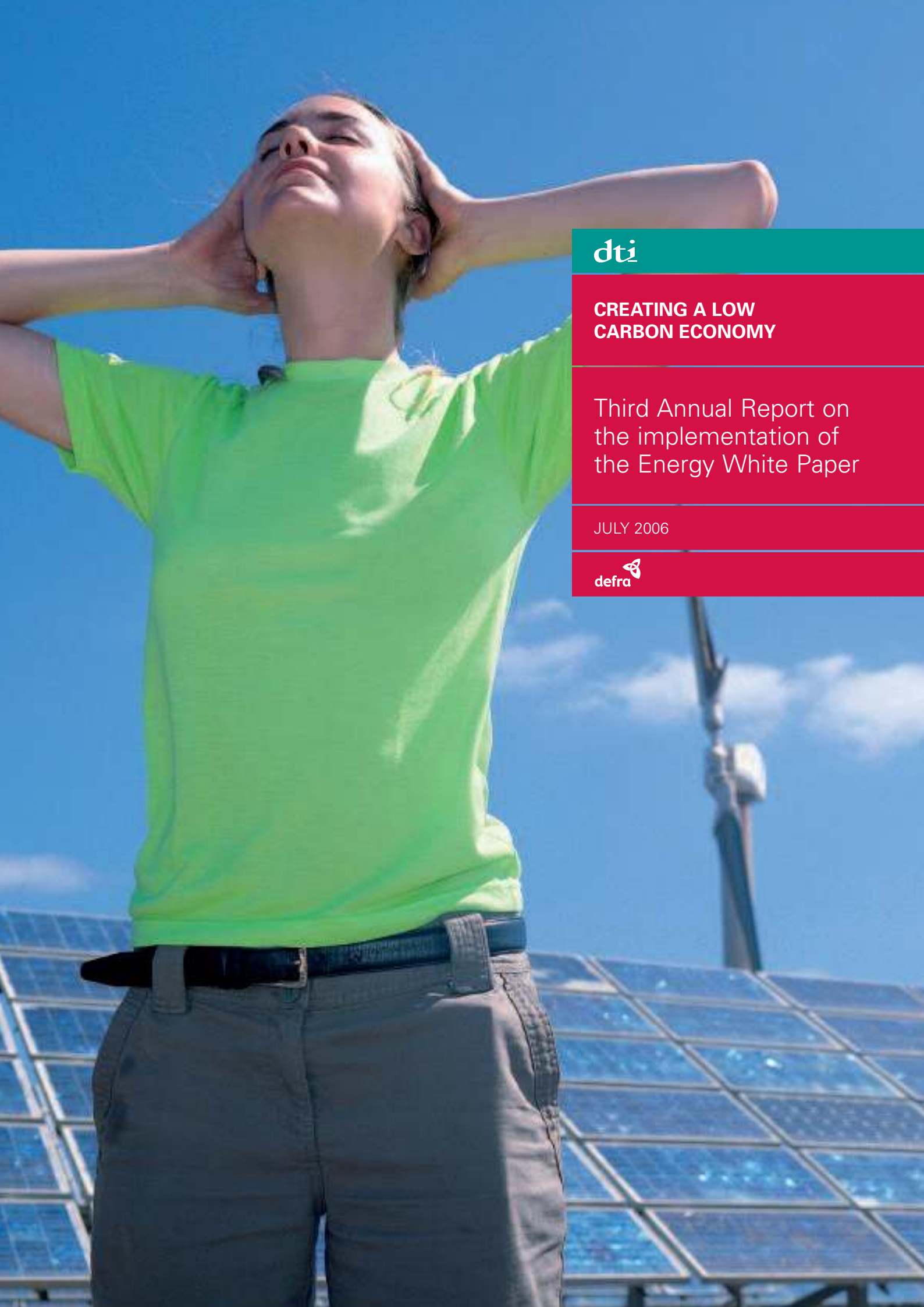

dti

CREATING A LOW CARBON ECONOMY

Third Annual Report on the implementation of the Energy White Paper

JULY 2006

defra

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Sustainable Energy policy Network

This annual report is being published as part of the work of the Sustainable Energy Policy Network (SEPN).

SEPN is a network of Government departments, Devolved Administrations, regulators and other key organisations that are jointly responsible for delivering the Energy White Paper 'Our Energy Future – creating a low carbon economy', published in February 2003.

http://www.dti.gov.uk/energy/energy-policy/sustainable-energy/index.html

SEPN's members comprise the:

- Cabinet Office
- Carbon Trust
- Department for Education and Skills
- Department for Environment, Food and Rural Affairs
- Department for International Development
- Department of Trade and Industry
- Department for Transport
- Energy Saving Trust
- Environment Agency
- Foreign and Commonwealth Office
- HM Treasury
- Ministry of Defence
- Northern Ireland Office
- Department for Communities and Local Government
- Office of Gas and Electricity Markets
- Prime Minister's Office
- Regional Co-ordination Unit
- Regional Energy Group
- Scotland Office
- Scottish Executive
- Wales Office
- Welsh Assembly Government

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Sustainable Energy Act 2003

The report is published in accordance with the Secretary of State's obligations under section 1 of the Sustainable Energy Act 2003. It describes progress made in the reporting period 24th February 2005 to 23rd February 2006 towards: cutting the United Kingdom's carbon emissions; maintaining the reliability of the UK's energy supplies; promoting competitive energy markets in the UK; and reducing the number of people living in fuel poverty in the UK. The report is based on information available to the Secretary to State at the date of its completion.

FOREWORD

In the last year climate change and energy truly became global issues. There is no question of the need for international action but more needs to be done to increase agreement and cooperation between nations on issues such as climate change and clean energy technologies and the growing importance of emerging energy powers such as Brazil, Russia, India and China. There has also been evidence of the sensitivities of importing and exporting energy across national boundaries. We made a start at Gleneagles, gaining agreement on the need for urgent action to reduce greenhouse gas emissions and a Plan of Action. All this must be backed up by action to address the strategic challenge of transforming our energy systems to create a more secure and sustainable future.

As EU Presidents we held discussions at Hampton Court on the development of an EU energy policy. We also organised and chaired the first EU Permanent Partnership Council with Russia, successfully increasing the EU's role in a more concerted EU-Russia dialogue, as the first step in increasing EU and UK security of energy supply. We also established consensus on clear links between energy policy and climate change, hosted international discussions on EU wide agreement on energy efficiency and agreed adoption of the Energy End User and Energy Services Directive. At the December Energy Council we got the agreement of Member States to a wide range of actions designed to bring about tangible improvements in the functioning of European gas and electricity markets. It was a good start, but only a start, more needs to be done.

At home, we have come through a difficult winter of tight gas supplies and price spikes. This has been partly as a result of lower than expected supplies from Europe, faster than predicted decline in North Sea gas supplies, and a fire at the Rough Field in February which significantly reduced our gas availability from storage. Combined with rising world prices, lack of competition in European markets and continuing difficulties in securing gas from alternative sources, the resulting price spikes have hit intensive energy users and had a knock-on effect to consumer energy prices. These are difficult issues that we take extremely seriously. Last winter, there was sufficient gas supply to meet demand and generators made the most of diverse sources of energy, for example by switching to coal. But we will need substantial market investment in new infrastructure to come on line over the next few years.

In the longer term, delivering our 2003 White Paper targets remains essential. Global demand for energy has increased, as have global prices, at the same time as we move to being an energy importer. Evidence of the adverse impacts of climate change has continued to grow and progress towards truly open energy markets has been slow.

There are some significant issues on the horizon as a result. It is clear we need to go even further in reducing emissions to tackle global warming. But this must be balanced with secure and efficient energy supply and a competitive UK economy. We will need to replace almost a third of our power stations by 2020 and we will increasingly import more of our oil and gas from a variety of countries.

We have already begun responding to these challenges. Last year, we reported on the series of important reviews such as the Transport White Paper and consultation on the Renewables Obligation. Over the last year we have completed our review of the UK Climate Change Programme, published our comprehensive Energy Efficiency Innovation Review and concluded the Energy Review, that looked at what more we need to do to stay on track for our long-term goals. Later this year the Stern Review will report its findings on the nature of the economic challenges posed by climate change.

These reviews are not about starting our energy policies from scratch: they are about building an evidence base to inform long-term decisions on the way forward.

The issues are complex and there can be no one answer to the challenges we face. Energy and climate change are not just a challenge for politicians and scientists. It is important to remember that Government, business and consumers all have a role to play and a responsibility to act. We cannot deliver a low carbon economy unless we are all living low carbon, energy efficient lifestyles. Through a combination of action to ensure secure, sustainable and competitive energy supply, coupled with greater energy efficiency, we can achieve our energy goals and continue to set an example for others to follow.

The Rt Hon
Alistair Darling MP
Secretary of State
for Trade and Industry

The Rt Hon
David Miliband MP
Secretary of State
for Environment,
Food and Rural Affairs

SECTION 1

THE LAST 12 MONTHS AND WAY AHEAD: AN OVERVIEW

1.1 The Energy White Paper published in 2003 set demanding targets. But more needs to be done to meet the challenge of climate change, whilst at the same time maintaining security of supply. The Energy Review, announced by the Prime Minister in November 2005, looked at what more needs to be done to stay on track to meet our medium and long-term goals.

Action this year:

1.2 The following are some of the main developments towards the four objectives of the Energy White Paper over the last 12 months up to February 2006:

- Under the UK **G8 Presidency** agreement was reached at the July Gleneagles summit on the science behind global emissions and also an action plan to help deliver reduction in global emissions. The UK also chaired the first G8 Dialogue meeting on 1st November, maintaining the momentum of the international debate and providing us with a valuable opportunity to raise the profile of this issue worldwide;

- Under the UK's Presidency of the EU, our EU representation called for and secured the following outcomes at the Montreal Conference:

  – The Kyoto Protocol was strengthened with the adoption of the Marrakech Accords and the compliance mechanism;

  – There was agreement to begin discussions on the commitments of developed countries, excluding the US and Australia, after 2012, when the first commitment period under the Kyoto Protocol ends; and

  – Agreement to start a broader dialogue to strengthen the Convention, which will include developing countries and the US.

- We opened up new channels of discussion and exchange with China and India on action to tackle climate change, and brought climate change policy to the heart of decisions being taken in the Council of Ministers across the policy board;

- The EU-China Partnership on Climate Change established a new initiative on Near Zero Emissions Coal, to demonstrate power generation with carbon capture and storage. The UK is leading the first phase of the project with £3.5 million funding, to examine the viability of different technology options for the capture of carbon dioxide from power generation and the potential for geological storage in China;

- In October 2005, the UK hosted the first energy Permanent Partnership Council with Russia. It provided an opportunity for an open exchange between Russia and the EU on energy issues, and marked a step forward in EU-Russia energy relations;

- Under the **UK Presidency of the EU**, we reached agreement that the Commission should put forward proposals for a common EU energy policy. It is important we develop a coherent EU external policy to maximise our influence on source and transit countries. In addition, at the December Energy Council,

we gained agreement of Member States to a wide range of actions designed to bring about tangible improvements in the functioning of European gas and electricity markets;

- Whilst EU Presidents we agreed the Energy End Use Efficiency and Energy Services Directive, which sets ambitious energy saving targets for all Member States and places obligations on suppliers to provide energy efficiency improvement measures;

- We launched the **EU Emissions Trading Scheme** (EU ETS), phase I of which runs from 2005 to 2007. Our National Allocation Plan for phase I, published on 24th May 2005, sets out the approach the UK will take implementing the EU ETS and determined the distribution of allocations to operators covered by the Scheme. Phase I saw 736 million carbon allowances allocated to over 1,000 operators in the UK. The first year of the Scheme shows that the UK set one of the most challenging limits on carbon dioxide emissions of all Member States. Following a consultation in the summer, phase II of the EU ETS was announced in November 2005 and the draft National Allocation Plan was published for consultation in March 2006. Phase II provides an opportunity to learn lessons from phase I;

- The **Nuclear Decommissioning Authority** (NDA) was established on 1st April 2005 under the Energy Act 2004. The NDA is now the owner of the plant and facilities of BNFL (the Magnox stations, Sellafield, THORP/SMP and Springfields), and took responsibility for managing clean up at the UKAEA sites. In creating the NDA, our aim is to provide a more effective means of dealing with the legacy of nuclear waste, by driving forward greater efficiencies and through the introduction of competition for site clean up. The NDA has published its overarching strategy to clean up the civil nuclear legacy. This is the first time that the UK has ever had such a strategy;

- Market investment in new and enhanced **UK gas infrastructure** has continued. An additional 33 mcm/d of gas storage and import capability was commissioned during the year. This is equivalent to about 13% of average UK gas demand. In addition, construction of the Langeled pipeline to Easington in East Yorkshire has been completed. The Langeled pipeline will be capable of importing up to 70 mcm/d of gas from October 2006 but imports from Norway are likely to be constrained by Norwegian gas production levels until the large Ormen Lange field is commissioned in 2007/2008;

- The £12 million new **Climate Change Communications** initiative 'Tomorrow's Climate, Today's Challenge' was launched on 1st December 2005. Its focus is on improving understanding of climate change and the role individuals can have in making a difference. The initiative includes a £6 million fund, available over the next two years, to support local-level projects in England. So far, more than 280 organisations have registered their interest in the fund. Details can be found on **www.climatechallenge.gov.uk;**

- As part of the annual **offshore oil and gas licensing** rounds we continued to include the new "Promote" and "Frontier" licenses, which are aimed at bringing in smaller players and generating more exploration west of the Shetland Isles. Reaction to these innovations has been positive and in 2005 we saw the highest number of licences awarded in UK North Sea history – 152 licences in total, covering 266 Blocks;

- £35 million in funding was announced in the Pre-budget report to allow the Carbon Trust to significantly expand its proven pilot scheme, providing interest-free loans for energy efficiency measures to SMEs, as well as to build on this model and establish a revolving loan scheme to encourage investment in the public sector;

- We published the **Carbon Abatement Technology Strategy** in June 2005. The strategy addresses the future requirements for reducing carbon dioxide emissions, from large-scale power generation in the UK using fossil fuels, including coal. It focuses on two areas: increasing the efficiency of power stations to reduce emissions and carbon dioxide capture and storage. £35 million has been allocated to fund demonstration of these technologies. The 2006 budget included a consultation document on the barriers to wide-scale commercial deployment of carbon capture and storage in the UK;

- The Government's response to the **Strategic Framework for Hydrogen Energy in the UK** was published in June. This included the announcement of a £15 million four-year programme for hydrogen and fuel cell demonstrations. This forms part of the £50 million package also covering carbon abatement, hydrogen, and fuel cell demonstration projects;

- **Renewables** capacity has continued to increase. In June 2005, the UK became one of only eight countries around the world to have installed over 1,000 MW (or 1 GW) of wind capacity, following the opening of Cefn Croes wind farm. At the beginning of 2006, the UK had some 1,300 MW of installed (onshore and offshore) wind capacity. Looking forward, although development activity continues at a high rate, there remain barriers that are inhibiting further development;

- The **2005 Pre-Budget Report** announced that an additional £300 million would be made available to tackle fuel poverty across the UK. In England, this means that funding for the Warm Front Scheme will exceed £300 million in 2006/07, and puts total funding for the Scheme over the 2005-08 period in excess of £800 million; and

- On 25th January 2006 a new public/private Energy Research Partnership was launched. The Partnership brings together key funders of energy research and innovation across Government, the research community and industry, along with other key bodies such as OFGEM, to provide leadership, enhance dialogue and improve the coherence and impact of the total UK energy research and innovation effort.

Taking the energy strategy forward

Key developments for 2006-07 are:

- We recently published the conclusions of the Energy Review. The conclusions are a large, ambitious, evidence-based package of measures plus further action to be taken forward in the coming year on both the energy supply and demand side;

  The review is about putting us in a position to meet the two major long-term challenges in UK energy policy:

  – Tackling climate change by reducing carbon dioxide emissions; and

  – Delivering secure, clean energy at affordable prices, as we move to increasing dependence on imported energy.

- Examples of the actions following the Energy Review include: consultations on an Energy Performance Commitment; consultation on reform of the Renewables Obligation; establishing a coal forum; and reform of the planning system for large-scale energy projects;

- We are determined to use the Gleneagles Dialogue to promote greater consensus on the way forward and to ensure that the world's growing energy demand is met sustainably. Our work this year will further help to build the relationships and deepen the trust between countries with the greatest energy needs, helping to create the right conditions for progress in the formal UN process;

- The focus of the UN process this year will be on the post-2012 framework and we are working closely with our EU colleagues to formulate formal submissions on the key issues for debate;

- The Stern review, a major review of the economics of climate change, will report to the Prime Minister and Chancellor later this year. Its focus is primarily on the long-term global picture, not on specific short-term UK policy recommendations, so its analysis has the potential to help all countries, not just the UK, make better policy choices in the future. This will help to inform the UN negotiations on a post-2012 framework and the Gleneagles Dialogue;

- In Europe, the Commission will take forward a process of reviewing the Emissions Trading Scheme, with the aim of strengthening and building on an already successful market mechanism. An improved, harmonised trading scheme will be a powerful international demonstration of how to make the necessary deep cuts in emissions at least cost. The commission is due to make a legislative proposal leading from the review in 2007;

- We published the revised Climate Change Programme in March 2006 and are now taking forward the package of new polices it contained. The measures will reduce emissions of greenhouse gases by between 23-25% below 1990 levels in 2010. We are also taking forward proposals for an office for climate change;

- The Government also announced, in November 2005, that it would introduce a Renewable Transport Fuels Obligation (RTFO) as a way of further supporting the uptake of biofuels in the UK. This will require all transport fuel suppliers to ensure that 5% of their total aggregate sales comes from biofuels or other renewable transport fuels by 2010. This will deliver a net carbon saving of about a million tonnes a year – the equivalent of taking a million cars off the road;

- DTI launched the Government's strategy for the promotion of microgeneration on 29th March. It sets out a framework that aims to stimulate the development of a sustainable microgeneration industry. DTI will co-ordinate the implementation of the strategy with other Government Departments, OFGEM, regional bodies and industry representatives;

- We have announced a new regulatory arrangement for offshore electricity transmission. These offshore wind generation projects are important to achieving the Government's renewable energy targets. The announcement was made following a DTI and OFGEM joint consultation last summer, that set out the range of high-level options for the regulation of offshore electricity transmission; and

- In his 2006 Budget speech, the Chancellor announced the establishment of a new public/private National Institute for Energy Technologies. This will bring a new level of focus, ambition and industrial collaboration to the UK's work in the field of energy science and engineering, particularly in relation to energy sources and technologies that reduce carbon emissions and contribute to the security of energy supply. The objective of the Institute will be to build on existing funding structures, in order to better leverage the already substantial funding of energy research in the public research base.

SECTION 2

REDUCING CARBON EMISSIONS

COMMITMENT

To put ourselves on the path to cut the UK's carbon emissions by 60% by 2050, with real progress by 2020. The UK also remains committed to the Kyoto protocol commitment to reduce greenhouse gas emissions by 12.5% below 1990 levels by 2008-12.

Progress to date

2.1 Energy efficiency and renewable energy are two of the key means with which we help achieve these carbon savings. The Energy Act 2004 contains a requirement for the Secretary of State to report annually on progress towards our 2004 Energy Efficiency Action Plan which aims to save 3.5 million tonnes of carbon from homes in England through energy efficiency measures by 2010. As a result, efforts to promote improvements in energy efficiency are dealt with separately, in a later chapter, but should be read in conjunction with this carbon reduction chapter.

2.2 Latest estimates show that total UK greenhouse gas emissions in 2005 had fallen 15% below 1990 levels. Current projections show that they should be about 24% below by 2010, around double our Kyoto target.

2.3 Meeting our goal of reducing carbon dioxide emissions by 20% on 1990 levels by 2010 is proving challenging. Higher than anticipated levels of economic growth and the recent rise in global energy prices, which has altered the relative prices of coal and gas, have led to increases in our carbon dioxide emissions in recent years. Latest projections suggest that the UK will have reduced carbon dioxide emissions by around 11% below 1990 levels by 2010. The measures in the revised Climate Change Programme are projected to reduce emissions further. The latest projections suggest that the UK will have reduced emissions by around 16% below 1990 levels by 2010, when taking into account new measures from the revised Climate Change Programme and the EU ETS. The Climate Change and Sustainable Energy Act 2006 commits Government to report annually to Parliament on progress to reduce Greenhouse Gas Emissions.

2.4 At the UN Climate Change conference in Montreal in December 2005, the Kyoto parties adopted the detailed rules and procedure implementing the Protocol, including the

compliance regime which lays down penalties for failure to meet emission reduction targets for the period 2008-2012. The conference showed that there is real international will to build on the first commitment period of the Kyoto Protocol. This is a strong signal to business that there will be a long-term value of carbon beyond 2012 which, in turn, will help to influence their investment decisions.

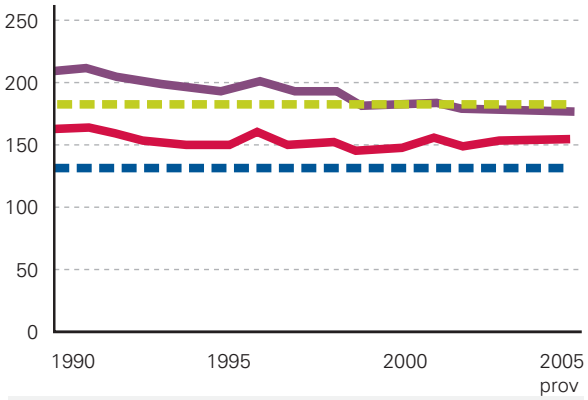
2.5 A thriving and competitive carbon market is a key element in achieving our climate change goals cost-effectively. Evidence already points to an active carbon market and to the fact that the 'real price' of carbon plays an increasingly important role in companies' long-term decision-making.

2.6 The carbon market has developed rapidly since the EU ETS started and, by the end of the first year of the Scheme, around €7.2 billion worth of carbon trading had occurred. Volumes of allowances traded have also increased as the scheme has progressed. An average daily volume of one million tonnes was traded in 2005. Market liquidity is growing and volumes traded are now often in excess of 2 million allowances per day.

2.7 The European Commission published the results of the first year of the EU Emissions Trading Scheme from the Community Independent Transaction log in May 2006. The first year results showed that the infrastructure behind the scheme is sound and forms a solid base to build on for the future. Compliance was excellent in the UK – almost all operators submitted their verified emissions reports and surrendered the correct allowances within the deadlines. There will be a need to ensure that allocations are in line with Member State's Kyoto commitments in phase II.

2.8 The Linking Directive was transposed into UK law in November 2005. This Directive amends the Emissions Trading Directive (Directive 2003/87/EC[1]) to enable UK operators

Progress to date (million tonnes of carbon)



2005 figures are DTI provisional estimates
Source: Department for Environment, Food and Rural Affairs

to use credits, obtained through Kyoto project mechanisms, to comply with their obligations under the EU ETS. This approach provides greater flexibility and potentially reduces operators' compliance costs, by allowing credits to be used from projects that reduce emissions overseas. For further details please see: **www.defra.gov.uk/environment/climate change/trading/eu/Kyoto/index.htm**

Increasing renewables

2.9 In November 2005 we published the consent process for wave and tidal demonstration projects in England and Wales. We have also ring-fenced elements of the £50 million Marine Renewables Deployment Fund. Up to £2 million will be used for impact monitoring and research funding over the life of the demonstration projects. We have set aside up to £6 million for infrastructure projects. The remaining £42 million will be allocated through a new scheme that will support the first multi-device demonstration projects.

1 Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community, available from: http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_275/l_27520031025en00320046.pdf

2.10 The Government has a target of 10% of electricity coming from Renewable Obligation eligible sources of energy by 2010; with an aspiration to double that by 2020. The Government recognises that the target is ambitious and we have continued to work with stakeholders to alleviate the barriers that are preventing industry from achieving this target. Recent action includes:

- In 2005, four consent applications under the second round of offshore wind farms were submitted to the Department and, of these, the London Array development has the potential to be the largest offshore wind farm in the world, supplying around 1% of the UK's electricity supply;
- Bringing forward a £2.5 million Research Advisory Group to fund research into the impact of wind farms on the environment, including addressing concerns over seascape, birds and navigational safety;
- Announcing a decision on the regulation of offshore transmission, to meet the requirements of new offshore wind farms and the next generation of offshore renewables;
- Continuing to pursue concerns over possible wind turbine interference with aviation and radar systems. A joint study between MoD and DTI into radar issues related to Greater Wash Round 2 is likely to see MoD shortly lift their objections. The MoD has also accepted the recommendations of the joint BWEA, DTI, MOD Eskdalemuir study that has allowed objections to more than 1,000 MWs of wind to be lifted;
- Taking forward recommendations emanating from the Renewable Advisory Board's report on the Barriers to Commissioning Renewable Energy Projects;
- Organising a series of Renewable Energy workshops, with local planning officers and councillors across England and Wales, with the aim of increasing the understanding of the issues related to renewable developments. This will enable wind farm applications, and other renewable proposals, to be processed more quickly and decisions made on an informed basis; and
- Announcing £30 million of additional funding over three years for the Low Carbon Building Programme.

2.11 In the 2003 Energy White Paper we committed to a review of the Renewables Obligation in 2005/06. The Review was an opportunity to consider amendments to improve the effectiveness of the Obligation in certain areas. Analysis and feedback from the preliminary consultation exercise, carried out during the summer of 2005, fed into the main statutory consultation document, which was published on 16th September 2005. Following an analysis of those responses, the Government published its final decisions in January 2006, which were subsequently brought forward through a new Renewables Obligation Order 2006. The Renewables Obligation Order 2006 includes measures to reduce the purity requirement for biomass to 90%, to extend eligibility for Renewables Obligation Certificates to include mixed waste plants that use Good Quality CHP, and to introduce a number of administrative and technical simplifications.

2.12 DTI launched the Government's strategy for the promotion of microgeneration on 29th March 2006. It sets out a framework that aims to stimulate the development of a sustainable microgeneration industry. DTI will co-ordinate the implementation of the strategy with other Government Departments, OFGEM, regional bodies and industry representatives. The 2006 budget included an additional £50 million to develop microgeneration technologies.

2.13 The UK has been engaging constructively in discussions on the EU Biomass Action Plan, which was published in December. The Plan does not contain any legislative proposals but includes a list of possible actions to increase development of biomass energy from wood, waste and agricultural crops in order to cut

Europe's dependence on fossil fuels, cut greenhouse gas emissions and stimulate economic activity in rural areas. The Action Plan focuses initially on measures to promote biomass in heating, electricity and transport.

2.14 The Biomass Task Force set up by the Government, and led by Sir Ben Gill, to identify the barriers to developing biomass energy and to recommend ways to overcome the problems, reported in October 2005. The report included recommendations to optimise the contribution of biomass energy to renewable energy targets and sustainable farming, forestry and rural objectives. The Government published its response to the report in April 2006.

2.15 On 20th June 2005, the Welsh Assembly Government launched for consultation the Welsh Energy Route Map: its agenda for the future of energy policy in Wales. This builds on existing strategies and sets out a vision and a wide range of actions to establish Wales as a global showcase for clean, safe energy production and energy efficiency. The focus of the new strategy is on pursuing a clean and high efficiency energy policy through renewable energies, including a strong base for the marine renewables sector, cleaner fossil-fuel technologies, raising the profile of energy efficiency, strengthening Wales's energy infrastructure (including its energy research and innovation base), increasing security of electricity and gas supplies and enhancing energy efficiency efforts (including promotion of realistic microgeneration options). The Energy Route Map was endorsed by the Welsh Assembly in a plenary debate on 9th November 2005.

Looking ahead

2.16 The Dialogue on Climate Change, Clean Energy and Sustainable Development, launched under the UK's Presidency of the G8 in 2005, will continue through to 2008 when Japan have asked for a report back to Heads of Government under their G8 Presidency. This will include a report on how G8 countries have met their commitments under the Gleneagles Plan of Action, which builds on existing work in order to increase the speed with which greenhouse gas emissions are reduced. The package includes improvements to energy efficiency in both appliances and buildings, cleaner vehicles, aviation, work on developing cleaner fuels, renewable energy and promoting research and development and the financing of future projects. In order to assist with this, the G8 has engaged with the International Energy Agency (IEA) and World Bank and asked them to undertake further work on actions to reduce emissions and improve funding for clean technologies in developing countries.

As outlined in the Gleneagles communiqué, the Dialogue will:

(a) address the strategic challenge of transforming our energy systems to create a secure and sustainable future;

(b) monitor the implementation of the Gleneagles Plan of Action and explore how we can build on that progress; and

(c) share best practice.

The next meeting of Energy and Environment Ministers from the 20 Dialogue Partner Countries will be hosted by Mexico in October this year. The UK Government is working with G8 Partners to ensure that the upcoming G8 presidencies will keep a close interest in the Dialogue's progress, keep climate change on the agenda and will make appropriate links to their priorities. The Dialogue will allow continued, more informal, discussion of the issues around climate change and measures to tackle it, such as those agreed at Gleneagles. This Dialogue will also help create the conditions for more constructive negotiations within the United Nations (UN) framework.

2.17 The focus of the UN process this year will be on the post-2012 framework and we are already working closely with the EU Presidency to formulate the EU's formal submissions on the key issues for debate. These discussions will not be completed this year or next but they are clearly discussions of immense interest to all.

2.18 The Department for Communities and Local Government is leading a cross-government review of the sustainability of existing buildings, which includes an assessment of possible measures to improve the energy efficiency, and reduce the carbon emissions, of existing buildings. New buildings account for only about 1% of the building stock in any given year, so the existing stock offers significant potential for carbon emission reductions.

2.19 In March 2006, the Government published a draft National Allocation Plan (NAP) detailing our proposed policy for EU ETS phase II for consultation. Following public consultation, we aim to submit a NAP to the Commission in the latter part of the summer. On 29 June it was announced that the UK will allocate 8 million tonnes of carbon below projected emissions in the Phase II period. The Government's final decision on the allocation of allowances to individual installations will be notified to the European Commission prior to the deadline of 31st December 2006. In Europe, the Commission will take forward the process of reviewing the emissions trading scheme, with the aim of strengthening and building on an already successful market mechanism. The Government is committed to the EU ETS and is currently engaging with the European Commission on including surface transport in the scheme.

2.20 With respect to the carbon dioxide emissions from aviation, the EU Environment Council last year agreed, under the UK chairmanship, that emissions trading seems to be the best way forward. We are now actively involved in the Aviation Working Group, which was set up by the Commission to consider how to include aviation in the EU ETS. The findings of this group will feed into a legislative proposal which the Commission aims to produce by the end of 2006. We are pressing for aviation to be included in the EU ETS from 2008, or as soon as possible thereafter. However, the Government recognises that emissions trading may not provide a total solution and so will continue to consider other options.

2.21 The revised Climate Change Programme, published in March 2006, set out a package of new policy measures to take us towards our domestic carbon emission reduction targets. However, the programme is not the final word and we will be exploring what more we can do to influence emissions directly and encourage action by others.

2.22 The full Government response to the Biomass Task Force was published in April. In addition, the Government will review the co-firing rules to assess the scope for co-firing with a wide range of biomass fuels, to provide a greater contribution to the Government's renewable energy, carbon reduction and wider energy policy objectives, while maintaining investor confidence in the Renewables Obligation.

SECTION 3

ENERGY RELIABILITY

COMMITMENT

Our goal is that people and business can rely on secure supplies of energy – gas, fuel and electricity – at affordable prices delivered through competitive markets, whilst minimising the impact on the environment.

We are committed to maximising economic benefits for the UK's oil and gas reserves and maintaining production levels of 3 million barrels of oil equivalent per day until 2010.

Progress to date

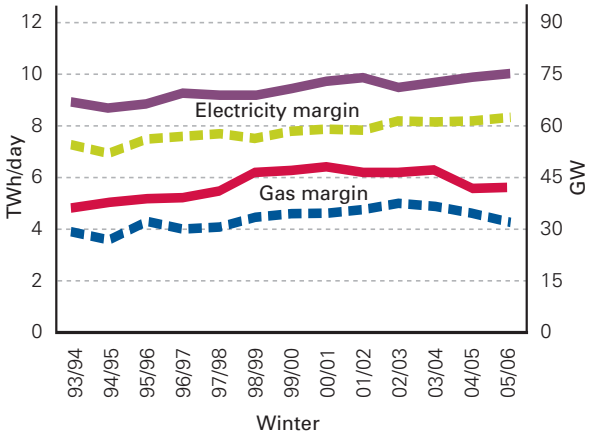
3.1 Government provides a market framework to deliver security of supply. For the market to work effectively, market participants need to operate within a stable regulatory framework, where they have the confidence of being able to make a return on their investment without fear of government interference. We made clear in the Energy White Paper 2003 that the Government will not intervene in the operation of the market, except as a last resort in extreme circumstances such as to avert a potentially serious risk to safety.

3.2 The gas market was tighter this winter than last for a number of reasons, including declining North Sea supplies and new gas infrastructure projects coming on-stream later than anticipated. National Grid stressed that under all credible scenarios, the market would be able to maintain energy supplies to domestic consumers and most smaller businesses and public sector organisations, and this was the case.

3.3 National Grid did issue a Gas Balancing Alert in March 2006 as a prudent signal to the market to further increase gas supplies. This was a planned measure and not an emergency response and did not threaten domestic supply or the huge majority of commercial/industrial supply.

Progress to date

Gas and electricity capacity margins – maximum supply and maximum demand 1993/4 to 2005/6



Forecast maximum gas supply (left hand scale)
Actual maximum gas demand (left hand scale)
Total electricity declared net capacity (right hand scale)
Simultaneous maximum electricity load met (right hand scale)

Data for winter 05/06 is provisional
Source: National Grid and DTI

3.4 Next winter is likely to remain tight. However, there are additional infrastructure projects which are expected to commission during the course of next winter that should help to ease the situation. DTI has played a proactive role working with developers and regulators to smooth the regulatory path in relation to infrastructure development. In response to recent higher electricity prices, more previously mothballed capacity was back in service for winter 2005/06, and one new plant began to operate in Northern Ireland. In Great Britain, the plant margin rose from around 20% in 2004/05 to 22% for the winter period in 2005/6.

3.5 We have seen that the high price of gas has led to a considerable contribution from coal to winter security. Coal has recently contributed some 40% of total generation, supplanting gas as the main generating fuel of choice, at least in the short-term, and contributing to the diversity of our energy sources. But there are environmental drawbacks to coal-fired generation and that is why the Government signed up to the Large Combustion Plant Directive. Many coal-fired plants – 12 in total, of the UK fleet of 17 – have signed up to the tough new limits on emissions required under the Directive.

3.6 UK oil and gas resources have produced some 36 billion barrels of oil equivalent with a possible 21–27 billion or so remaining. UK is, on most recent available figures, a net importer of around 7% of our gas, although this figure fluctuates in relation to demand. Gross imports, without balancing against UK exports, accounted for 12.7% of our total gas in 2004.

3.7 Government is working closely with industry to ensure we have the best licensing, environmental and business frameworks to attract the investment and activity needed to deliver this potential. DTI's innovations on licensing are particularly important, such as the "promote" and "frontier" licenses, providing opportunities for a wider range of companies to invest here. There have been 23 Rounds so far, the first taking place in 1964. Now held annually, planning is currently underway for the 24th Round in 2006.

3.8 The 23rd Round was one of the most successful ever, with the highest level of Blocks being applied for in 30 years. The DTI awarded the highest number of licenses in UK North Sea history – 152 Licenses in total, covering 266 Blocks. The spread of awards covers 70 Traditional, 76 Promote and 6 Frontier licenses, with strong competition for some Blocks. 17 firm drilling commitments have been made – the most for over a decade. The applications have brought in a further 24 new entrants.

3.9 On 4th April 2005, UK and Norwegian Energy Ministers signed a UK/Norway Oil and Gas Co-operation Treaty, paving the way for unprecedented co-operation on North Sea oil and gas projects between the two States. The treaty covers the construction of a new pipeline to the UK, capable of delivering gas

from Norway's new Ormen Lange field and other Norwegian fields to Easington in Yorkshire. This pipeline ("Langeled South") will be capable of delivering up to 16% of peak UK gas demand. Langeled South will be operational for the winter of 2006/2007.

3.10 The Treaty also covers the development of any future oil and gas reservoirs which straddle the maritime boundary between the two States, and the use of infrastructure on one continental shelf to explore for and develop an oil or gas reservoir on the neighbouring shelf. In July 2005 the first trans-boundary North Sea oil fields began to be developed since the agreement was signed. UK and Norwegian Governments have approved plans for the development of two fields, Enoch and Blane, operated by Paladin Resources plc. Both are expected to begin production by the end of 2006, initially producing an estimated total of 26,000 barrels a day.

Looking ahead

3.11 Our indigenous oil and gas resources remain significant but are declining. UK Government will therefore continue working closely with industry through PILOT, the UK industry/government oil and gas forum, to find ways to maintain investment and exploration. A number of initiatives will continue to be taken forward, including:

- finding ways to maximise recovery from existing "brown" fields;
- freeing-up and making available fallow acreage for others to exploit;
- annual licensing rounds (including new "promote" and "frontier" licenses); and
- finding ways to address skills shortages in the sector.

3.12 The DTI will continue to support the market delivery of new infrastructure to import oil and gas, and already some £10 billion of private sector investment is going into providing gas to UK markets in the next few years. Other infrastructure being built includes the BBL Interconnector, which could supply up to 10% of UK peak day demand, and should begin to come on stream in 2006; the further upgrading of the existing Interconnector; two major Liquefied Natural Gas import terminals, currently being constructed in Pembrokeshire, and potential new gas storage facilities. The DTI has additionally established the Gas Supply Infrastructure Task Force to identify and tackle any regulatory obstacles to new gas supply projects.

SECTION 4

COMPETITIVE ENERGY MARKETS (INC ENERGY PRICES)

COMMITMENT

Our goal is to promote competitive markets in the UK and beyond, helping to raise the rate of sustainable economic growth and to improve productivity.

Progress to date

4.1 Despite recent price increases, UK energy markets remain amongst the most competitive in the EU on both industrial and domestic electricity and gas prices. Indications are that in January 2006, prices in the UK were below the EU median for both domestic electricity and gas prices and will remain so, even after the further recent increases. For industry, indications are that prices were above the EU median for all but the small size bands in January 2006. However, historically prices to industrial users have been below the EU median, and right up to October 2005 industrial prices were no higher than the EU median.

4.2 The Government understands the tough conditions that energy consumers are operating in and is working closely with industry to mitigate the situation and reduce the impact. In particular, our discussions with the Energy Intensive Users Group have helped us focus our efforts on maximising supplies, encouraging demand-side response, and pursuing fair access to markets across Europe. The Gas Prices Working Group and the report on the Forward Gas Market have also helped to identify improvements in the operation of the gas market.

4.3 The Government is actively addressing the impact of recent energy price increases, particularly on vulnerable or fuel poor households. Providing affordable warmth and eradicating fuel poverty are key to our energy policy. The Government is working closely with energy companies, and suppliers have already introduced special measures to help their most vulnerable consumers deal with price increases. Funding to tackle fuel poverty across the UK was increased by £300 million in the Chancellor's Pre-Budget Report, particularly helping the elderly. We are encouraging domestic consumers, where appropriate, to take energy efficiency measures, and switch energy supplier and payment method to mitigate the effect of price increases. We are also working with suppliers, OFGEM and Energywatch to

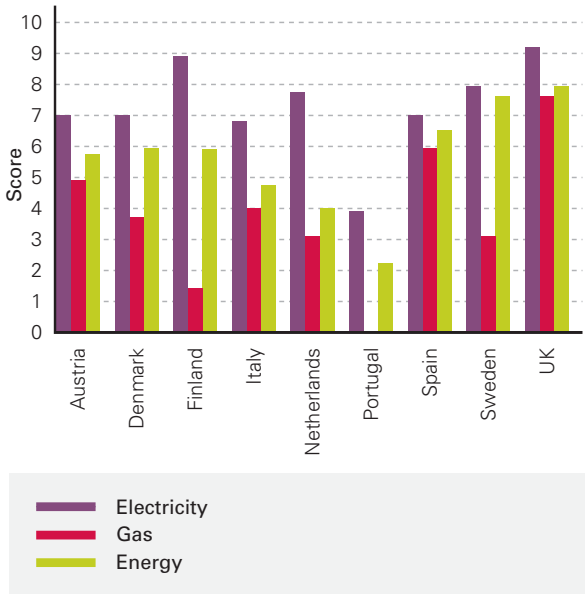
develop further initiatives to mitigate the impact of price rises on vulnerable consumers – such as the launch of the Home Heat Helpline for disadvantaged customers.

4.4 The project to open up the electricity trading market in Scotland, started as planned on 1st April 2005. It introduced a single wholesale electricity market for Great Britain, with a single transmission system operator independent of generation and supply interests; a common set of trading rules so that electricity can be traded freely across Great Britain; and a common set of rules for access to, and charging for, the transmission network.

4.5 Last December's Energy Council, chaired by the UK, brought broad consensus that secure electricity and gas supplies at competitive prices, delivered on open, transparent and competitive markets are crucial to Europe's competitiveness; and that full implementation of the second electricity and gas directives is vital. But the Commission's preliminary sector report, published in February, highlighted a high degree of vertical integration and poor transparency in EU energy markets. A functioning EU energy market is essential to ensure that we pay competitive prices for our energy and to provide the investment certainty and regulatory coherence necessary for investment in infrastructure by market participants. The Government therefore supports the Commissions' "anti-trust" efforts to promote more effective competition in wider European energy markets.

4.6 At the Hampton Court Informal Summit in October 2005, Heads of Government agreed new momentum was needed on a range of issues in order to meet the challenge of globalisation. In particular, it was agreed to consider how the EU can work together on a European Energy Policy. In response to this, the Commission recently published its Green Paper outlining a proposed EU Strategy for sustainable, competitive and secure energy.

Progress to date
Overall competitiveness score for selected EU energy markets (using preliminary 2004 data)



Looking ahead

4.7 Ensuring an open and competitive market throughout Europe will continue to be a priority for the UK and we continue to push for full implementation of the internal gas and electricity markets Directives by all Member States. We have been encouraging the European Commission to implement energy market liberalisation across the EU, and warmly welcome the hard-hitting report, published on 16th February. We will continue to work with them on anti-trust action.

SECTION 5

TACKLING FUEL POVERTY

COMMITMENT

The goal of the Government and the Devolved Administrations is to seek an end to fuel poverty. In particular, we will seek an end to fuel poverty in vulnerable households in England and Northern Ireland, as far as is reasonably practicable, by 2010. Wales and Scotland are committed to end fuel poverty, as far as is reasonably practicable, by 2018 and Scotland has an interim aim of reducing fuel poverty by 30% between 2002 and 2006. The ultimate aim is that, as far as reasonably practicable, no household in the UK should be living in fuel poverty by 2016-18.

Progress to date

5.1 The latest estimates published in the 'UK Fuel Poverty Strategy Fourth Annual Progress Report 2006' indicate that, in 2004, there were approximately two million households in fuel poverty **in the UK**. One and a half million of those were vulnerable households. This represents a fall of around four and a half million households overall, and of around three and a half million in the number of vulnerable households, from 1996 levels. Fuel poverty is a devolved issue, with separate targets and differing policy approaches across each of the devolved nations.

5.2 The number of vulnerable households in fuel poverty **in England** in 2004 remained at broadly the same level of 1.0 million, with 1.2 million households in total in fuel poverty (around 6% of English households). Warm Front is the Government's main tool for tackling fuel poverty in the private sector in England. The Scheme provides a package of heating and insulation measures to vulnerable households in receipt of certain qualifying benefits. From the introduction of the Scheme in June 2000 to the end of December 2005, over 1.1 million households received assistance. Warm Front also carries out Benefit Entitlement Checks for those not eligible for the Scheme at the point of application, or where the provision of measures has not increased the energy efficiency of the property to an agreed level. The average increase in income from a successful Check is around £1,200.

5.3 The number of households in fuel poverty **in Scotland** in 2002 was 286,000 (13% of Scottish households). The key scheme for tackling fuel poverty in Scotland is the Central Heating programme. From its launch to December 2005, the Central Heating Programme installed central heating systems in almost 63,000 homes. Along with the installation of heating systems, the Programme provides Warm Deal insulation measures (primarily loft and cavity wall insulation), energy efficiency advice and a Benefit

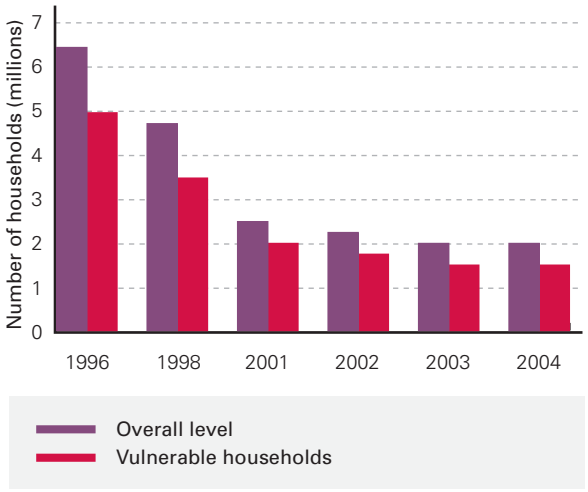
Entitlement Check. The Warm Deal Programme has so far insulated almost 224,000 homes, around 10% of Scotland's housing stock.

5.4 The total number of households **in Wales** in fuel poverty in 2004 was 130,000, which represented 11% of Welsh households. The Home Energy Efficiency Scheme (HEES) is the Welsh Assembly Government's main vehicle for lifting Welsh households out of fuel poverty. The Scheme assisted 57,000 households in Wales up to December 2005, and had a budget of £14.1m for 2005/06. Since August 2004, all households applying to the Scheme have been offered benefits advice, to ensure that they maximise both the assistance available to them under HEES and access benefits to which they are entitled.

5.5 Figures for 2004 show a substantial decrease in the numbers in fuel poverty **in Northern Ireland**, from 203,300 (33% of all households) in 2001 to 153,500 (24% of all households) in 2004. Warm Homes and Warm Homes Plus are the main instruments for tackling fuel poverty in the owner-occupied and private rented sector in Northern Ireland. Since 2001, over 25,000 households have received assistance. Funding for the scheme has increased significantly, from just over £3 million in 2001 to almost £15 million in 2005/06.

5.6 Under the Energy Efficiency Commitment (EEC), electricity and gas suppliers are required to meet targets for the promotion of improvements in household energy efficiency in Great Britain. As a result of the focus on the priority group of low-income consumers, EEC will make a contribution to the alleviation of fuel poverty.

Progress to date
Number of households in fuel poverty in the UK, 1996 – 2004



5.7 The Decent Homes Standard is a trigger for action to improve living conditions and, among other things, requires the presence of efficient heating and effective insulation in homes. The work that social landlords in particular have carried out to achieve and, in many cases, exceed the standard, has made very significant improvements in the heating and insulation of the housing stock contributing to reductions in fuel poverty. In the social sector, the proportion of dwellings classified as having very poor energy efficiency has more than halved from 16% of the stock in 1996 to 7% in 2004.

5.8 The theme of partnership is very much prevalent within the latest UK Fuel Poverty Strategy Annual Progress Report[2]: partnerships with other Government Departments, advisory bodies across the UK, the energy supply industry and the voluntary sector alike. A major development this year has been closer working between the DWP and both the Warm Front Scheme Manager and energy suppliers. Building on the Link-Age programme, which is about building more effective partnerships between The Pension Service and local partner organisations, a two-way referral system with the Warm Front provider has been established.

5.9 All of the constituent countries of the UK now have dedicated advisory bodies to advise Ministers on progress towards targets. The Fuel Poverty Advisory Group for England's Fourth Annual Report was published on 15th March 2006, and contained a number of recommendations for Government. In turn, the Government responded to these recommendations in 'The UK Fuel Poverty Strategy Fourth Annual Progress Report'.

5.10 The 2005 Pre-Budget Report announced that an additional £300 million would be made available to tackle fuel poverty across the UK. In England, this means that funding for the Warm Front Scheme will exceed £300 million in 2006/07, and puts total funding for the Scheme over the 2005-08 period in excess of £800 million. This represents a substantial contribution to our work in this area, and will strengthen the ability of the Scheme to target and deliver assistance to the most vulnerable households.

5.11 It was also announced that those householders over 60 who are currently ineligible for benefits, and therefore not able to receive Warm Front assistance, can qualify for a £300 contribution towards the cost of a central heating system and that Winter Fuel Payments will remain for the length of the current Parliament.

5.12 The average price paid by households for electricity and gas in 2005, compared to the average price for 2004, rose in real terms by 12% for gas and 8% for electricity. This follows a smaller price rise between 2003 and 2004, and means that energy prices in 2005 were around 1994 levels for gas and around 1999 levels for electricity. Further price increases have occurred in 2006.

Looking ahead

5.13 In assessing the UK's progress against the medium- and long-term Energy White Paper goals, the Energy Review has considered whether there are any further steps that the Government, working with the energy supply industry and other stakeholders, could take to accelerate our progress towards meeting our respective targets.

2 www.dti.gov.uk/energy/consumers/fuel_poverty/fuel_strategy.shtml

5.14 It has concluded that in the context of rising fuel prices, further action is needed to tackle fuel poverty. We need to ensure:

- We get details of the help that is available to those who need it most;
- We consider whether there are further ways we can reduce a household's energy bills via energy efficiency measures;
- That the energy a household consumes is competitively priced; and
- That households that are eligible for benefits are claiming them.

5.15 It proposes to take forward work in these areas. The breadth of issues shows that fuel poverty is a complex issue with no single solution. Many of the proposals generated through the Energy Review consultation would have impacts outside the energy area. In dialogue with the energy companies and other interested parties we will continue to keep the policy framework under active review.

SECTION 6

ADDITIONAL REPORTING FOLLOWING THE ENERGY ACT 2004

Energy sources and technologies

6.1 Section 81 of the Energy Act 2004 requires the Government to include information in this annual report about a range of energy sources and technologies. Specifically "work carried out to develop or use listed energy sources or technologies: clean coal technology; coal mine methane; biomass; biofuels; fuel cells; photovoltaics; wave and tidal generation; hydrogeneration; microgeneration; geothermal sources, and any other energy source/ technology which may cut carbon emissions." Detail on each is in the table below.

Type of energy source/technology	Action proposed or taken to develop or deploy
Carbon reducing technologies (including coal)	The Carbon Abatement Technologies Strategy (CATS) was published in June 2005. These technologies cover more efficient fossil power generation, co-firing with biomass and ultimately Carbon Capture and Storage which has the potential to reduce emissions by 95%. The CAT Strategy focused on the delivery of a number of outcomes identified in its analysis. These outcomes can be split between technical and regulatory issues. **Technical:** Government support for CATs R&D is seen as a pivotal aspect of support for the development of CAT technologies. A call for proposals was made in the Autumn 2005 round of the Technology Strategy Programme for around £4 million of support. In addition to this, the Government has made £35 million available from April 2006 for four years for demonstrating CATs. Subject to State Aid clearance we expect for call for proposals early in the summer of 2006. To support this work a Technology Route Map is currently being produced which is expected to be published in 2006. **Regulatory:** A number of regulatory issues need to be resolved for the successful geological storage of CO2 beneath the North Sea. These cover management of injection and storage, monitoring and verifying stored

Type of energy source/technology	Action proposed or taken to develop or deploy
	CO2 and earning Carbon Credits under the EU ETS. There is also a need to make changes to the London and OSPAR Conventions to clarify the legality of geological storage beneath the seabed. The DTI continues to work with industry on these issues mainly through the Advisory Committee on Carbon Abatement Technologies (ACCAT). More recently UK Trade and Investment was supportive in the establishment of the Carbon Capture and Storage Association. The DTI is also active internationally in a number of bodies such as the International Energy Agency's Working Party on Fossil Fuels, the Carbon Sequestration Leadership Forum as well as the EU's Energy Technology Platform for Zero Emission Fossil Fuel Power Plants, which aims to develop a European clean fossil power plant before 2020.
Coal Mine Methane	The Coal Authority has developed a scheme for supporting the flaring of methane where this is an environmental hazard. The funding to support this scheme is being sought.
Biomass	The Biomass Task Force (BTF) was established to "assist Government and industry in optimising the contribution of biomass energy to renewable energy targets and to sustainable farming and forestry and rural economy objectives" by recommending measures to stimulate biomass energy development. The Task Force reported on 25th October 2005, with 42 recommendations, many of which were wide ranging, cutting across the responsibilities of several departments. The Government published in April our response to the recommendations and committed to forming a long-term strategy for biomass. As part of the recently published Climate Change Programme a new biomass heat/CHP grant (£10-£15 million over the first two years) and a second round of the Bio-energy Infrastructure Scheme (£3.5 million), to support purchase of capital equipment for biomass fuel supply chains, have been announced.

Type of energy source/technology	Action proposed or taken to develop or deploy
Biofuels	The 2006 Budget contained further detail on the Renewable Transport Fuel Obligation to increase use of biofuels. The Biofuels duty incentive is to be kept at 20ppl in 08/09. It also contained reforms to Vehicle Excise Duty to sharpen environmental incentives – zero rate for least polluting cars, a new top band for most polluting cars.
Fuel cells	Fuel cell collaborative research and development is supported by the DTI Technology Programme, which issues calls for proposals twice a year. Fuel cells were included in both the April 2005 and November 2005 calls. Demonstrations will be supported under a programme which is expected to be launched in 2006 (subject to EC State Aids Approval). The DTI continues to work with organisations including the trade association Fuel Cells UK **www.fuelcellsuk.org** to reduce or eliminate the barriers to the development and commercialisation of fuel cells. The DTI is active internationally through the European Hydrogen and Fuel Cells Technology Platform and the International Energy Agency Advanced Fuel Cells Implementing Agreement.
Photovoltaic (PV)	DTI will co-ordinate cross-Government efforts to implement measures outlined in the microgeneration strategy which includes Photovoltaics.
Hydrogen	The Government's response to the report 'A strategic framework for hydrogen energy in the UK' was published in June 2005 **www.dti.gov.uk/energy/sepn/hydrogen_response.pdf** The announcement included a commitment to establish a £15 million demonstration programme for hydrogen and fuel cell technologies. Hydrogen collaborative research and development was, for the first time, included within a DTI Technology Programme call in April 2005 and again in November 2005. Demonstrations will be supported under a programme which is expected to be launched in 2006 (subject to EC State Aids Approval).

Type of energy source/technology	Action proposed or taken to develop or deploy
	DTI has participated in discussions which have led to the formation of the UK Hydrogen Association early in 2006. The Government is committed to working with this trade association and others to reduce or eliminate the barriers to the deployment of hydrogen as an energy vector. The DTI actively participates in a number of international fora including the European Hydrogen and Fuel Cells Technology Platform, the International Energy Agency Hydrogen Implementing Agreement, and the International Partnership for the Hydrogen Economy.
Wave and Tidal	In November 2005 we published the consent process for wave and tidal demonstration projects in England and Wales. We have also ring-fenced elements of the £50 million Marine Renewables Deployment Fund. Up to £2 million will be used for impact monitoring and research funding over the life of the demonstration projects. We have set aside up to £6 million for infrastructure projects. The remaining £42 million will be allocated through a new scheme that will support the first multi-device demonstration projects.
Hydro generation	The DTI has joined with the Environment Agency and the hydropower industry to form the Environment Agency Hydropower Working Group (EAHWG). The purpose of this group is to work together to find the best solution for developers to deploy hydropower while best protecting the environment.
Micro generation	DTI will co-ordinate cross-Government efforts to implement measures outlined in the microgeneration strategy.
Geothermal sources	The Government published in 2002 'Assessment of Technological Options to address Climate Change'. Costs remain a significant barrier to geothermal energy, however, its potential globally is significant and we continue to keep it under consideration.

Science and engineering

6.2 Section 81 of the Energy Act 2004 also requires us to report on "the maintenance of scientific and engineering expertise in the UK for the development of energy sources."

6.3 The Research Councils are currently spending some £40 million a year on energy R&D through a variety of programmes and initiatives – including SuperGen, Towards a Sustainable Energy Economy (TSEC), Carbon Vision (jointly with Carbon Trust) and the Fusion programme.

6.4 Cogent, a Sector Skills Council (SSC) covering the chemicals, nuclear, oil and gas, petroleum and polymer industries, was formally licensed on 2nd March 2004, having been a trailblazer SSC since 2001.

Cogent's objectives are:

- To improve productivity and business performance through skills development;
- To reduce skills gaps and shortages;
- To increase opportunities to boost skills and productivity; and
- To influence skills supply across the spectrum, including apprenticeships, higher education and national occupational standards.

6.5 Cogent will also work closely with the Nuclear Decommissioning Authority (NDA) and its contractors to ensure that necessary skills are available and sustained.

6.6 To fulfil our commitment to ensure the retention of a highly qualified nuclear skills base, we have put measures in place to support and develop the necessary skills. Cogent takes a strategic view of the nuclear sector to ensure that the education and training base can meet the nuclear employers' current and future needs.

6.7 Cogent has established the Nuclear Advisory Council to ensure that it gathers the views of employers and their supply chain. This will enable it to better estimate demand and scope teaching/education supply issues.

6.8 Cogent has completed the research phase in the development of its Sector Skills Agreement. This will be completed later this year and will provide the strategic framework for skills development in the future.

6.9 Cogent is developing plans for a skills academy to cover the nuclear and chemical process sectors.

6.10 The offshore oil and gas industry has its own programme to ensure the sustainability of its ageing workforce. Cogent's oil and gas training arm, CSSL Ltd, is a key player in this process.

6.11 Energy and Utility Skills (EUS), the sector skills council covering the power generation, transmission and distribution, gas distribution and installation, water, and waste management industries, was officially licensed and launched in February 2004. The objectives of EUS are similar to those for Cogent.

6.12 EUS is engaged with key industrial partners to address short- to medium-term needs for craft and technical skills in the power sector, is developing the follow-up to Ambition Energy (a scheme that re-trained 2,500 long-term unemployed to work in the power and gas sectors) and is supporting employers and the IEE on the Power Academy initiative (to provide bursaries for undergraduates to read power engineering).

6.13 EUS is developing its Sector Skills Agreement, which is expected to be in place in 2007. EUS is also developing plans for a skills academy.

6.14 The emerging renewable energy industry oversteps the footprint of several other sector skills councils and a coordinated approach is being developed by Energy and Utility Skills.

6.15 The energy sector is also supported by large numbers of workers who are the responsibility of other sector skills councils – such as manufacturers' staff who service equipment on site. There are important overlaps with SEMTA and with the Engineering Construction Industry Training Board – a statutory training organisation covering the workforce responsible for the construction and maintenance of capital facilities, such as refineries and power stations. Energy workers also operate outside of the sector, for example on construction sites. The two energy SSCs are working with their counterparts to develop a coordinated approach for cross-sector workers.

Nuclear Fission Research and Development

6.16 As part of the Government's commitment to keeping the nuclear option open, we recognise that research plays an important role in maintaining a high degree of nuclear competence and knowledge.

6.17 The Engineering and Physical Sciences Research Council have the responsibility for the funding of fusion research. The UKAEA based at Culham received funding of £19.5 million in 2004/05 for the UK's own national research programme and for the UK's contribution to the operation of the Joint European Torus (JET).

Energy Efficiency

Section 81 of the Energy Act 2004 requires the Government to report on progress towards achieving its energy efficiency aims.

Commitments

- The 2004 Energy Efficiency Action Plan included a residential energy efficiency aim, as required by the Sustainable Energy Act 2003, to save 3.5 million tonnes of carbon from homes in England through energy efficiency measures by 2010. The Energy Act 2004 contains a requirement for the Secretary of State to report annually on progress towards this aim;

- A second target for household energy efficiency was set in the Housing Act 2004, requiring the Secretary of State to take reasonable steps to improve residential energy efficiency by at least 20% by 2010 from a year 2000 baseline; and

- Energy Efficiency is a core element of helping deliver our Kyoto commitment *to reduce greenhouse gas emissions to 12.5% below 1990 levels and our domestic goal to move towards a 20% reduction in carbon dioxide emissions below 1990 levels by 2010*.

In detail

6.18 Since 1997, the UK has put in place a good package of policies and measures, aimed at increasing the contribution of energy efficiency towards all three pillars of sustainable development – reduced carbon emissions, improved competitiveness and tackling fuel poverty. These were brought together in the 2003 Energy White Paper and our 2004 Energy Efficiency Action Plan to deliver about half of our needed carbon savings to 2010. Energy efficiency is also expected to continue to play

a major role beyond 2010, potentially contributing around half the additional carbon savings we are likely to need by 2020.

6.19 Recognising that the pace of progress has been slower than needed, over the last year we have, therefore, been looking through the Climate Change Programme review to identify new and strengthened cost-effective energy efficiency policies and measures which can help bring forward further carbon savings by 2010.

6.20 As a key element of this work, and as a contribution to the Energy Review, we have completed jointly with Treasury a comprehensive Energy Efficiency Innovation Review. The Review set out to examine how a step change in energy efficiency could be delivered cost-effectively, and how energy efficiency improvement could be embedded into decision-making across the economy. A summary of the conclusions can be found here: **www.defraweb/environment/energy/eeir**

6.21 The Review identified a significant potential for cost-effective opportunities for UK carbon saving, based on existing and new technologies. The key challenge for generating a step change in energy efficiency came down to how we get millions of individuals, households and organisations to change their behaviour and make more energy efficient investment decisions. This work has provided a substantial contribution to the Climate Change Programme Review considerations and continues to provide a valuable evidence base to the Energy Review and Comprehensive Spending Review 07 considerations.

Action taken this year includes:

- Energy efficiency indicators for the UK household sector were developed and published in July 2005. It is still too early to say how we are progressing against our residential energy efficiency targets; We will now be able to illustrate how consumption and carbon emissions depend on the demand for the various services that require energy, and the efficiency with which these services are delivered;

- Concluded the first three year phase of the Energy Efficiency Commitment (EEC) – an obligation on energy suppliers to promote improvements in energy efficiency. Analysis shows that around 10 million British households (six million of which are on low incomes) benefited from energy saving measures;

- The second three year phase of EEC commenced at broadly double the level of activity of the first phase. The current phase of EEC is expected to save up to 0.7 million tonnes of carbon a year by 2010 and to stimulate around £1 billion of investment which will deliver net savings to customers in excess of £4 billion over the lifetime of the measures;

- Building Regulations, amended with effect from April 2005, raised the standard of reasonable provision for replacement boilers to the levels achieved by high efficiency condensing boilers. This has been a resounding success, with the market penetration of condensing domestic boilers now at around 90% up from around 20% at the time the Energy White Paper was published;

- Beacon status for sustainable energy was awarded to six individual local authorities and to one joint application of eight authorities in March 2005. The Beacon Scheme was introduced in 1999 to identify centres of excellence in local government from which others can learn. Working with the Improvement and Development Agency (IDeA), these authorities have been disseminating their knowledge, expertise and excellence across other Local Authorities,

supported by officials in DEFRA and DTI. DEFRA and DCLG have jointly committed £4 million over three years to support a programme of performance improvement and delivery that aims to develop their existing Beacon activities;

- £5 million in grant funding was provided by the Community Energy programme, which acts to promote community heating schemes across the UK. This money has been drawn down into 61 Development Grants and 50 Capital Grant schemes;

- A new £12 million climate change communications initiative was launched on 1st December. The three-year campaign 'Tomorrow's Climate, Today's Challenge' aims to raise awareness about the threat of climate change and comprises a package of new communications materials that highlight the need for collective action to tackle the problems which climate change poses. The communications initiative includes a £6 million fund for the next two financial years to support local projects in England;

- The Chancellor announced in the Pre-budget Report a new £35 million in funding to allow the Carbon Trust to significantly expand its proven pilot scheme, providing interest-free loans for energy efficient measures to SMEs, as well as to build on this model and establish a revolving loan scheme to encourage investment in the public sector;

- Under our EU Presidency, the Energy End Use Efficiency and Energy Services Directive was agreed and adopted on 13th December. It will set energy saving targets for all Member States of 9% over nine years with the public sector expected to provide an exemplary role in achieving these targets. In addition, obligations will be placed on suppliers in providing energy efficiency improvement measures; and

- The Eco-Design for Energy Using Products (EUP) Framework Directive, which was adopted in July 2005, provides a streamlined and effective mechanism for establishing product standards (and therefore, for removing the most inefficient products from the market). EUP permits Member States and the EU to signal to industry its product innovation priorities, to negotiate and, if necessary, to set mandatory energy and other eco-design requirements for energy-using products which are placed on the EU market. The Commission estimates that this measure alone could reduce EU energy consumption by around 10%.

Looking forward to 2006-07

6.22 Much more needs to be done. Activity expected over the coming year includes:

- Work to implement new and strengthened energy efficiency policies emerging from the revised Climate Change Programme;

- Work to further consider the long-term potential for energy efficiency measures under the Energy Policy Review;

- The strengthened Code for Sustainable Homes will be developed over the coming months. As an interim measure, all new homes funded by Government or its Agencies, including through relevant public-private partnerships, will meet the requirements of the new Ecohomes Very Good 2006 standard from 1st April 2006 which is broadly equivalent to Code Level 3;

- DCLG is leading a cross-government review of the sustainability of existing buildings, which includes an assessment of possible measures to improve the energy efficiency, and reduce the carbon emissions, of existing buildings. New buildings account for only about 1% of the building stock in any given year, so the existing stock offers significant potential for carbon emission reductions;

- Winning bids for the Climate Change Fund and the 'Climate Change Champions' to be announced;
- We will undertake a review of the Home Energy Conservation Act;
- We will begin to transpose the Energy End Use Efficiency and Energy Services Directive into UK law;
- We will work with the European Commission and other Member States to develop an ambitious long term EU Action Plan on Energy Efficiency; and
- We will continue to push for real international action on energy efficiency, building on our international energy efficiency conference.

Joint Working Group on Energy and the Environment

DTI, DEFRA and OFGEM established the Joint Working Group on Energy and the Environment in 2003, fulfilling a commitment in the Energy White Paper.

This group has discussed a very wide range of environmental issues relating to the electricity and gas industries. The group includes DTI, DEFRA, OFGEM, the Environment Agency, HM Treasury and the devolved administrations.

Issues discussed by the Group during the last 12 months include innovation in billing and metering, particularly in the domestic sector, OFGEM's sustainability duty, the role of trading in delivering energy efficiency objectives and issues relating to the evolution of EU ETS. The Group also discussed the review of the Climate Change Programme, now published, and the Energy Review.

A full set of the Group's recent papers and discussions are available at: **www.dti.gov.uk/energy/environment/jwgee/page19873.html** This website also reports on the development of indicators of the environmental impacts of the electricity and gas industries developed by the Sub-Group on Indicators.

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