

ENERGY POLITICS



AND POVERTY

*A strategy for energy security, climate change,
and development assistance*

UNIVERSITY OF OXFORD
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High-Level Task Force on UK Energy Security, Climate Change
and Development Assistance



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Preface

The High-Level Task Force was convened under the Chairmanship of Lord Patten of Barnes in June 2006 to explore the scope for the UK to overcome contradictions in policies aimed at ensuring energy security, climate change, and development assistance in other parts of the world.

The Task Force members were:

- **Lord Patten of Barnes** (Chair of Taskforce, and Chancellor of University of Oxford)
- **Dr Ngaire Woods** – Co-director of Taskforce (Director of the Global Economic Governance Programme at University College, Oxford)
- **Christopher Allsopp CBE** – Co-director of Taskforce (Director of Oxford Institute for Energy Studies)
- **Professor Tom Burke CBE** (Environmental Policy Adviser to Rio Tinto plc and Visiting Professor at Imperial College London)
- **Professor Paul Collier** (Director of the Centre for African Economies and Professor of Economics at Oxford University)
- **Professor Dieter Helm** (Official Fellow at New College, Oxford specialising in energy and the environment in Britain and Europe)
- **The Hon. Hilde Frafjord Johnson** (Senior Adviser to President of African Development Bank and Former Norwegian Minister for International Development)
- **Lord Kerr of Kinlochard** (former FCO Permanent Under Secretary and UK Ambassador to the USA and to the European Union)
- **Sir Roderic Lyne KBE CMG** (Consultant and Company Director, formerly UK Ambassador to Russia 2000-2004)
- **Professor Roger Owen** (A.J. Meyer Professor of History at Harvard University)
- **Philip Stephens** (Associate Editor of the Financial Times and Senior Commentator)
- **Dr Kevin Watkins** (Director of the UN Human Development Report Office)

The group was convened by the Director of Oxford's Global Economic Governance Programme, Dr Ngaire Woods, and the Director of Oxford's Institute of Energy Studies, Christopher Allsopp. The rapporteur was Robert Wood. The early deliberations of the convenors were assisted by Jennifer Coolidge.

The Task Force convened several times at University College, Oxford and was assisted by a group of scholars in Oxford (see our acknowledgements). In preparing the brief of the taskforce we were greatly assisted by preparatory meetings held in Oxford with scholars as well as preparatory meetings in London held with officials in H.M. Treasury, the Department for International Development, the Department of Trade and Industry, DEFRA, and the Foreign and Commonwealth Office.

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We are grateful to the John Fell Fund for supporting this project and to the following scholars and commentators for their constructive criticisms, comments, and other inputs: Oksana Antonenko (Senior Analyst for Russia and Eurasia, IISS), Thierry Bros (Chief Gas Analyst, French Department of Trade and Industry, Paris), Paul Domjan (Independent Energy Consultant, former political strategist for Shell and Energy Security Specialist for US Army European Command), Bassam Fattouh (Oxford Institute for Energy Studies), Richard Folland (Head of Political Section, Climate Change and Energy, FCO), Valentina Kretschmar (Central Asia Analyst, Wood MacKenzie), Diane Liverman (Environmental Change Unit, Oxford), Neil MacFarlane (Department of Politics and International Relations, Oxford), Phil Mann (Oxford Environmental Change Unit, former DfID), Oliver Miles (Chief Executive of Middle East Consultancy, former UK Ambassador to Libya), Benito Mueller (Oxford Institute for Energy Studies), Keith Myers (Independent Energy Consultant and Research Associate Chatham House), John Roberts (Energy Security Specialist, Platts), Jonathan Stern (Chief Gas Analyst, Oxford Institute for Energy Studies), Laurence Whitehead (Nuffield College, Oxford), Linda Yueh (Pembroke College, Oxford), Alexander Zaslavsky (Russian Oil and Gas Sector Analyst and Author).

Introduction

SECURING ENERGY SUPPLIES is vital in a fast-growing world economy. It evokes, for some, a race among countries to control and plunder energy resources - all the faster to burn them in cars, electricity plants, and their own economic growth. The unfortunate consequence is climate change and worsening poverty in some of the poorest parts of the world.

The UK government has committed itself to a different vision. It hopes to secure energy at the same time as it addresses climate change and global poverty. UK energy policy does not attempt to acquire direct national control over resources. Rather, it focuses on competitive markets to deliver secure and affordable supplies. The UK government is committed to reducing emissions which cause climate change. And alongside these policies, the UK has one of the most ambitious programmes in the world to reduce global poverty.

Can energy security, climate security and reductions in world poverty be achieved simultaneously? This report argues that they can be but that it takes explicit coherence across all three goals. At present UK policy is a hotchpotch of measures unlikely to deliver the government's vision. Different government departments control policies in each area. Energy policy is mostly formulated within the Department of Trade and Industry. Environment policies are mostly fashioned within the Department for Environment, Food and Rural Affairs. Development assistance strategies are planned in the Department for International Development. This report makes recommendations under which the UK could move as a whole towards all three goals.

The report begins by outlining what is at stake. The wrong energy policy, misaligned with goals on climate change and global poverty, risks creating new enemies for Europe, new threats to energy supply, greater damage from climate change, and worse poverty in the poorest parts of the world.

Unfortunately, some present policies are heading in this direction. The UK government has failed to meet its targets on CO₂ emissions which have been rising not falling for the last four years. The UK government has no coherent strategy for replacing the one third of UK electricity generation which is about to be retired (much of it nuclear). Its equivocation on this is deterring necessary policy commitments and investments in renewables and carbon-neutral technologies. There is no well-functioning single market in gas in the European Union, nor a common European policy towards

Russia, yet these are vital to meet the risks emerging as Gazprom purchases downstream energy assets in Europe and Russian policy takes on a geo-political colour. China and India are key players in all three areas of energy security, climate change, and development assistance, but they have yet to be engaged as serious partners in all the key institutions addressing these issues. The UK, in common with other OECD countries, has failed to prioritize the transfer of low-carbon technologies.

In developing a better set of policies, it is clear that the UK, as a medium-sized power, can do little alone. The UK will need to work closely with the European Union to forge a strategy better to meet its priorities. This means a strategy designed to produce policies for energy, climate change, and development which are mutually sustainable.

The key elements of a better strategy include, first, deeper and more effective European energy markets and policies which are linked to climate change goals. Second, there should be a better European approach to neighbouring energy producers. Third, the EU should build a new compact with India and China, which includes the United States, and works towards all three goals of energy security, climate change, and development. Fourth, UK and EU development assistance policies should be shaped to address climate effects already being felt and the new global politics of energy. The best strategy for reducing the impact of climate change on the world's poor is stringent mitigation. However, with developed countries, including the United Kingdom, failing to mitigate, priority must be accorded to helping developing countries to adapt to climate change. Finally, the UK itself needs a better UK energy policy framework. We elaborate each of these in more detail below.

At present UK policy is a hotchpotch of measures unlikely to deliver the government's vision.

What's at stake



1. UK Energy Security

Energy security fluctuates as a public concern in the United Kingdom depending upon the appearance of spectres such as wars in the Middle East causing shortages of oil supplies, terrorists destroying gas pipelines, or Russia turning off the tap to Europe's gas supply.

These perceptions reflect the shift away from the UK's comfortable situation of more than self sufficiency in oil and gas, which characterised the 1980s and 1990s. As North Sea production declines, UK self-sufficiency is diminishing. The UK became a net importer of gas in 2004, and, by 2020, imports could make up about 80 – 90 % of total demand (Figure 1). The UK is also expected to become a net importer of oil by 2010. But does this reliance on imported energy supplies translate into an energy security problem?

The UK's dependence on imports does not necessarily raise concerns over energy security – as is clear in the case of coal which constitutes about 15% of the UK's primary energy supply and which is largely imported. Coal does not raise security concerns mostly because it is widely available from reliable sources at competitive prices. Indeed, the UK could mitigate energy security concerns simply by increasing the use of coal, especially in power generation. However, this would increase UK carbon emissions and put UK climate security in jeopardy.

The UK relies not just on coal but on a mixture of oil, gas, and other forms of power generation. In each of these sectors energy security for the UK is essentially about mitigating the risk of adverse outcomes such as supply disruptions or high and volatile prices. That said, the risks are very different depending on the sector under consideration.

In the case of oil, which constitutes about 35% of the UK's energy supply, the main security issues arise at the international level, concerning high and volatile oil prices and broader foreign policy implications which arise from changes occurring in international oil markets.

Oil (including oil from the United Kingdom Continental Shelf) is priced in international markets which are highly developed. Supplies from different sources are easily substitutable. For this reason, even in the face of supply disruptions – e.g. in the Middle East - the main risk for consumer countries is not physical shortages of oil but high and volatile oil prices.

High and volatile oil prices are a serious problem because oil is predominantly used in the transport sector where, short of new technologies, radical reductions in demand for fuel are difficult to achieve. This means that high and volatile oil prices have severe economic effects. For this reason some advocate that the appropriate response to the risk of short term physical disruptions to oil supply is storage, as with the Strategic Petroleum Reserve in the United States.¹

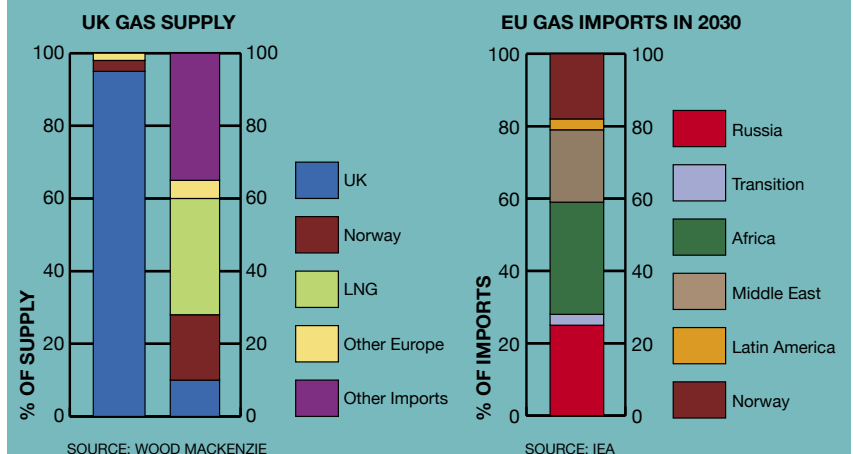
For security more broadly, the shifting world of global oil politics has major implications for the UK. The rise of new national oil companies and increasing demand for oil from emerging economies such as China and India create new and serious

What is energy security for the UK?

¹ If the UK wished to insure against this risk, inventories could be held domestically or the UK could press for larger stocks to be held internationally through the International Energy Agency (the IEA).

Figure 1: UK and EU Gas Imports

Note: these figures are Wood Mackenzie estimates used in the UK Energy Review: July 2006.



The UK's increasing dependence on gas imports raises serious concerns over security

challenges for UK foreign policy and development assistance goals, to which UK energy policy needs to respond.

In sum, energy security concerns and environmental objectives both point towards the need to limit the UK demand for oil. Yet according to the Joint Energy Security of Supply (JESS) working group of the Department of Trade and Industry, UK oil demand will be broadly flat until 2015 when it will begin to rise slowly.²

In the case of gas the situation is rather different. As with oil, the UK is heavily dependant on gas – for domestic and commercial heating, for industry and for power generation. Gas accounts for about 38% of total primary energy supply in the UK with about one third of UK electricity being produced from gas. This situation has arisen as gas has substituted other fuels as it has become relatively cheap compared with the alternatives of oil and coal in space heating and coal in generation. A ‘dash for gas’ occurred in the 1990s as inefficient coal fired generation capacity was replaced with more efficient and cheaper gas fired installations. Since gas produces less carbon emissions than coal and the plant was more efficient, the switch led to a substantial fall in carbon emissions.

The UK's dependence on gas is unlikely to be easily reversed. In space heating and for industrial use a switch back to oil and coal is neither likely nor desirable: the main possibility for energy substitution is electricity. In electricity generation, with high gas prices, a switch to lower priced coal would be beneficial economically and, since coal is in plentiful supply world wide, would be beneficial for security. Such a switch would, however, be completely incompatible with the UK's goals for carbon emission reductions – unless clean coal technologies, and carbon sequestration, can be developed quickly.

The immediate energy security problems associated with gas are different to those of oil – though international concerns over geopolitical risks in producer countries are similar. The main difference is that gas supplies (like electricity) are grid based. Gas is supplied through a network of pipelines (although an international market in Liquefied Natural Gas (LNG) is rapidly developing). A consequence is that gas markets are more localised and heavily dependent on infrastructure.

Switching between suppliers is much more difficult than in the case of oil. This means that the UK's increasing dependence on gas imports raises potentially more serious concerns over the security of supply. Moreover, the gas grid, like the electricity grid, is a natural monopoly – raising issues for competition and regulation.

Gas security is put in jeopardy as a result of both inadequacies of physical infrastructure and imperfectly functioning markets. Hence the recent UK experience of supply shortages and two spikes in gas prices in the winter and spring of 2005/6. UK wholesale gas prices almost quadrupled, costing UK consumers some £1.5 billion. While domestic supply was not disrupted, industrial users did curtail their use and some electricity production was switched from gas to more polluting coal. The problems arose from deficiencies in the UK's infrastructure and particularly from a lack of gas storage. Britain has the lowest level of storage in Europe and is almost completely reliant on a single facility at Rough. One of the factors behind the second spike in gas prices was a fire in the Rough storage facility in February 2006.³

The UK is attempting to improve network flexibility and security by linking into the wider European market via interconnectors, such as the pipeline between Bacton in Norfolk and Zeebrugge in Belgium and a new interconnector to the Netherlands which opened in December 2006. Strengthening gas markets poses a trickier problem. The UK has consistently pushed for a more liberal market in energy across the EU as an aid to flexibility and security and tailored its own policies to that aspiration. However, the reality of EU markets is different. To quote the Competition Commissioner Neelie Kroes, there are “serious problems in EU energy markets” and “indicators of real market distortions”.⁴

One problem for the current policy of the UK is that continental EU gas is tied up in long-term contracts. There is nothing necessarily anti-competitive about long term contracts. However, it does mean that connection to the wider European market may provide little additional flexibility of supply in coping with demand or supply shocks. This was apparent in the winter of 2005/6 when the inter-connector failed to deliver the expected balancing flow, despite the dramatic rise in prices in the UK. In particular, operating companies were unwilling to release gas from storage early in the winter because of future obligations to their own customers.

2. Department of Trade and Industry, *JESS Long-Term Security of Energy Supply* (December 2006 Report), p.61

3. In the past, the flexibility in UK production (especially from the ‘dry’ gas fields in the southern North Sea) provided the swing capacity to meet peak winter demand. Production from these fields is declining and the producers are increasingly unwilling to perform this role for fear of losing output permanently as water floods into idle wells.

4. *Towards an Efficient and Integrated European Energy Market – First Findings and Next Steps* European Commission Conference, Energy Sector Inquiry – Public Presentation of the Preliminary Findings Brussels, Thursday 16th February 2006.

The EU Commission is pushing for greater liberalisation but is facing strong resistance from prominent member states. France and Germany have been particularly cool in responding to proposals for pan-European market liberalisation including unbundling the ownership of transmission systems from supply: Michael Glos, Germany's economy minister, said the move would be "very difficult" and might breach the country's constitutional property rights. Francois Loos, the French industry minister, said bluntly: "Our system works." Indeed, Loos has been actively campaigning against liberalisation as undermining energy security vis-a-vis Russia, arguing that the French "national champions" approach is more likely to be effective.⁵

The proposals by the Commission outlined in 'An Energy Policy for Europe' are promising (see page 14). The European Council supported the proposals in the communiqué issued at their 8-9 March 2007 meeting. However, there is still a long way to go to complete the single European market in energy, and there are still doubts about whether it will happen.

Internationally, there are further risks associated with current UK policies. The most important third party relationship is with Russia – home to over a quarter of the world's known gas reserves and currently provider of nearly 30% of Europe's gas consumption. For the UK, Russia is particularly important via its effects on continental European supplies and prices. With increasing integration, Russian supply policies affect the price of any additional gas the UK might need. Uncertainty about Russia therefore affects energy security in the UK.

There are two principal concerns about Russia. The first is about Russia's apparent wish to use natural resources in the pursuit of political ends. Observers highlight that in recent disputes with Ukraine, Georgia, Belarus, and Lithuania, Russia's commercial and political objectives have been intertwined, and that Russia has sought to influence EU member states through the routing of pipelines, and has applied political pressure for the entry of Gazprom into downstream markets in Europe.

There is also uncertainty about future levels of supply from Russia. There is a widening potential gas deficit in the country as growing demand within the Russian economy is not matched by growth in supply. The main existing fields are probably passing their peak. Gazprom has failed to invest sufficiently,

up to now, in new large-scale production. There will be an inevitable delay of several years until the next "super-giant" field can be brought on stream. Meanwhile supplies to Russian power generators have been reduced, and some generating plants have been obliged to switch to more expensive fuels, including fuel oil.

Further reducing Russian supply in the future is the policy of increasing state control over natural resources, which limits flexibility while diminishing and deterring foreign and other private sector investment. Access by independent producers to monopoly-controlled pipelines has been limited, with the result that large volumes of associated gas have been flared – wastefully and with damage to the atmosphere.

Russia has the potential to be a leading actor in the politics of climate change and energy security, and a valuable partner for the European Union. Indeed, until five years ago, the EU hoped that it was developing with Russia "a genuine strategic partnership, founded on common interests and shared values" (EU/Russia Partnership and Cooperation Agreement, 1997). The G7 decided in 2002 to admit Russia to full membership of G8. However, since 2003 hopes for a strategic partnership have faded as Russia's leaders have made clear that they do not want a partnership on the basis currently offered, and previously envisaged in the 1997 Agreement. For the time being, the EU will not be able to rely on Russia as a partner, to assume that commercial issues will be handled under law-based free market principles, or fully to realise the manifest potential for synergies between the European and Russian economies.

Existing UK policies are attempting to overcome these risks in two ways. At the national level, energy security is being improved by the construction of infrastructure, including increased storage, interconnection to the continental gas network, the new Langeled pipeline from Norway and the construction of LNG terminals. At the international level there has been some diversification of gas suppliers with new supply deals with Norway, Qatar and the Netherlands among others. These measures have undoubtedly improved Britain's access to gas and the diversification of potential sources of supply should improve security. However, at both the national and the international level, risks remain.

There is uncertainty about future gas supplies from Russia

5. "France Warns EU on Energy Unbundling Plans" *Financial Times*, Feb 7 2007

Many issues raised about gas arise in the case of power generation by other means: such as the reliability of the infrastructure and the adequacy of generating capacity. However, so far at least, security issues have been less to the fore. Liberalisation of the European market in electricity generation is more advanced than in the case of gas and perhaps more likely to succeed.

A key issue concerns the mix of fuels for future generating capacity, especially as up to one third of present generating capacity is due for replacement

in the next five to ten years. This represents a major opportunity for moving to less carbon-intensive generating capacity.

The future mix of fuels is also the most important factor affecting the likely demand for gas in the UK. Uncertainty over the framework of energy policy, as well as equivocation over nuclear power, risks hindering investment, or, at the least, could lead to sub-optimal responses. A clear and credible framework is necessary if the UK's objectives for energy security and for the abatement of carbon emissions are to be reconciled.

2. Accelerating Climate Change

Over the past five years, albeit belatedly, tackling climate change has steadily become a higher and higher priority for the UK and many other countries' governments and international organisations. The G8 Gleneagles Declaration stated that – "Climate change is a serious and long-term challenge that has the potential to affect every part of the globe ...the world's developed economies have a responsibility to act." The most recent report on climate change, the IPCC's 4th Assessment Report, paints a grim picture of increasing certainty about the human drivers of climate change, and of the likely serious effects of climate change if we fail to curb emissions substantially.

The Intergovernmental Panel on Climate Change 4th Assessment Report: Climate Change 2007

The IPCC was created by the World Meteorological Association and the United Nations to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The latest, 4th, assessment report was released in February 2007⁶, the work of almost 150 of the world's top climatologists, representing the only available consensus on the state of scientific knowledge about climate change.

Key conclusions:

- Atmospheric concentrations of carbon dioxide, methane and nitrous oxide levels have all increased substantially over the last 250 years to levels which are unprecedentedly high.
- Warming of the climate system is now undeniable as is evident from increases in global

air temperature and average sea level. And warming is accelerating.

- Also changing are precipitation patterns, with more intense and longer droughts, and intense tropical cyclone activity, now more frequent over the North Atlantic and some other regions.
- An increased level of certainty that human activity has been a cause of the increase in global average temperatures. Human causality for warming is now "very likely" meaning more than 90% certainty, up from just "likely" in the 3rd assessment report (2001). Human causality for the other elements of climate change, such as changes in wind patterns, is also likely or very likely.
- Warming patterns since IPCC's first report in 1991 have broadly met projections at the time of 0.15-0.3 °C, increasing confidence in projections

• Projections

- For the next two decades, warming of 0.2°C projected.
- The 'low' case best estimate of temperature increases is 1.8°C by 2099.
- The 'central' case best estimate is 2.4°C by 2099.
- The 'high' cases best estimate is 3.4°C by 2099.
- More certainty in projections than before.

Even if emissions were reduced so much that greenhouse gas concentrations were stabilised, climate change effects (warming and sea level rise) would be likely to continue for centuries due to long timescales and feedback

6. *Climate Change 2007: The Physical Science Basis*, IPCC 4th Assessment Report, Working Group I, Feb 5 2007

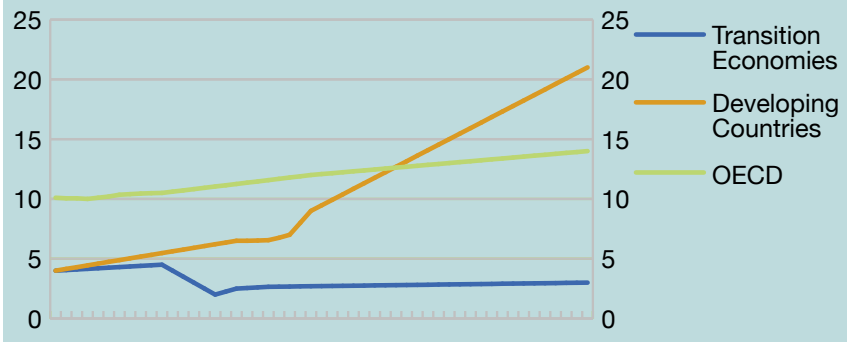
Actions are required to reduce high and rising concentrations of emissions of CO₂, methane and nitrous oxide in the atmosphere. As the Gleneagles Declaration admits, the UK and richer countries have a particular responsibility to take action. The CO₂ stocks in the Earth's atmosphere originated overwhelmingly in the rich world and rich countries still account for the bulk of emissions. Although developing countries are 'catching up' on an aggregate level, they are much further back on a per capita basis. Finally, richer countries are best placed and best resourced to make a difference including through support for technology and changes in policies in developing countries, who will otherwise in the future be the largest emitters (see Figure 2).

For Britain, climate change threatens direct damage through higher sea levels, more extreme weather and disruptions to ocean currents. This is recognized but inadequately addressed in the UK Climate Impacts Programme (UK CIP).

Indirectly Britain will suffer from the overseas effects of climate change, such as increased pressure for migration and increased conflicts over scarce resources. Far more devastating still will be the effects of climate change – some already being felt – on the UK's development partners (and the ambitious goals of the UK's development assistance programme about which we say more below).

Figure 2: Historical and Projected energy-related CO₂ emissions by region (1980-2030)

Source: IEA (2006) World Energy Outlook



The UK government has a publicly stated target to reduce UK emissions by 20% by 2010 and 60% by 2050. The UK is also committed to seeking a new international agreement on a framework for reductions to ensure cooperation beyond Kyoto,⁷ and has been an active supporter of the EU efforts to reduce carbon emissions. In 2005 the government commissioned a report on the economics of climate change by a team headed by Sir Nicholas Stern. The result was a widely publicized statement of the risks posed by climate change and the rationale for taking action now to mitigate it. These are summarized in the box below.

7. UK Energy Review July 2006, Foreword by Tony Blair; "it is vital...that the UK continues to give a lead internationally and to push for a post-2012 framework that includes China, India and the US."

The Stern Review into the Economics of Climate Change

In September 2006, Sir Nicholas Stern, Head of the UK Government Economics Service, produced a report on the Economics of Climate Change for the UK Prime Minister and Chancellor.

Stern summarised the best available data on climate science from the IPCC, and used them as the base assumption for his economic modelling.

The headline conclusions of the report were that;

- It is not too late to act to avoid the worst consequences of climate change.
- The cost of action now is high but achievable. By sacrificing 1% of global GDP every year, we should be able to stabilise atmospheric CO₂ levels at a level with a good chance of limiting temperature increases to around 2°C. This entails

a cut in annual emissions of around 80% from current levels.

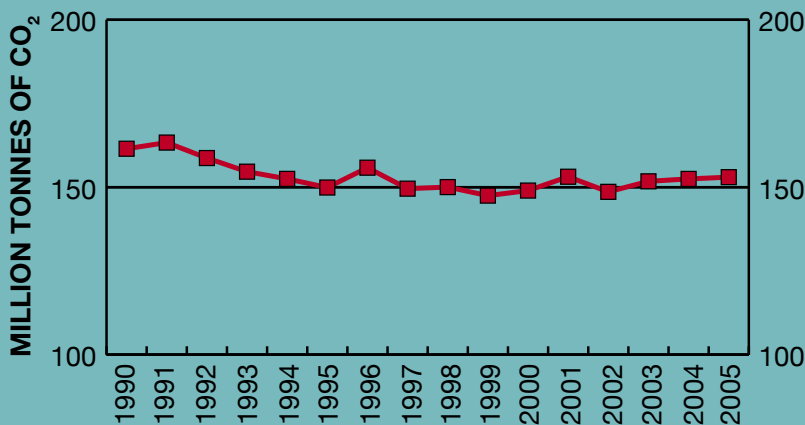
- The cost of inaction is much greater than this cost of action, at least 5% global GDP now and forever, and potentially as much as 20%.
- Controlling climate change is not incompatible with economic growth, in fact it is a long-term pro-growth strategy for rich and poor countries alike.
- Climate change will affect poorer countries economically as well as physically much more than richer countries. Their economies tend to be fragile and have insufficient capital for investment in adaptation, as well as being geographically located in areas where climate change will have most effect.

Recommendations were that;

- While developed countries need to take the most dramatic action, they alone cannot achieve stabilisation of atmospheric CO₂ levels. Developing countries also need to reduce their carbon-intensive path to growth, but developed countries should make a substantial financial contribution to this.
- Non-energy emissions, such as those from deforestation, also need to be cut
- A global emissions trading system is necessary as the centrepiece of a multilateral international response

Figure 3: UK Carbon Outputs since 1990

Source: DEFRA



Strikingly, the UK is failing to meet its own targets. Indeed, even the government concedes that it is now unlikely to meet the target of a 20% cut of 1990 emissions levels by 2010. National performance on climate change has been disappointing, and is out of step with the UK's international profile as a leader in the field. Britain's CO₂ emissions have been rising, not falling, for the last four years, in spite of the commitment to combat climate change (see Figure 3). Britain will probably hit its targets under Kyoto for greenhouse gas emission reductions by 2012, but this owes more to de-industrialisation in the 1990s, the closure of most of the coal industry, and the market-led and commercially-motivated shift to gas power generation, than it does to government policy.

European policies give no greater cause for confidence. The EU Emissions Trading System (ETS), which was designed to ensure the EU met its Kyoto reductions through capping the overall level of carbon output, has proved ineffective in its first phase, admittedly a trial period of three years. In phase 1 too many permits for carbon emissions were issued making the 'capping' largely meaningless and causing the price of carbon to collapse in April 2006. European Commission commitments to subject national action plans (NAPs) to more scrutiny in the second phase are welcome, but represent a major challenge in facing up to powerful national interests. Furthermore, the EU ETS is a limited scheme, which is focused on industrial producers of carbon and does not address the 50% of emissions produced by

The UK is failing to meet its own targets

activities such as domestic heating and transport. The fact that the scheme expires in 2012 weakens its potential for sending long-term signals on CO₂.

Finally, the international regime is also making very slow progress. Politically, the Kyoto Protocol was important as it marked the first step towards a multilateral response to the problem of climate change. However, the level of ambition for cutting CO₂ was set too low, and two OECD countries (the US and Australia) and the major developing countries are outside the scheme. The Kyoto framework has been a relatively ineffective mechanism, and prospects for its extension are so far not encouraging. The United Nations Framework Convention on Climate Change (UNFCCC) meeting in Nairobi in November 2006 could only agree that there needs to be a new agreement before the present Kyoto framework expires in 2012. The failure to agree a formal timetable for negotiation can only erode hopes of serious international action through this route, casting some doubt on the efficacy of universal multilateral solutions.

Looking to the future, it is clear that international efforts to limit climate change will depend heavily on what happens in China and India. As the fastest growing major economies in the world, China and India also have the fastest growing demand for energy resources, as they seek to sustain levels of economic growth needed to tackle poverty. Their struggle to secure their own future energy sources through long-term supply deals will affect international markets (for oil in particular). Faced with the need to power their booming economies, they are choosing coal over the alternatives because of its relative price advantage and the lack of feasible alternatives which meet their needs in the short-term. But this carries serious potential consequences for climate change. In spite of all this, a serious engagement with China and India, beyond or outside the negotiations on climate change at the UNFCCC, is lacking.

3. Exacerbating Global Poverty

The dramatic effects of climate change on developing countries – and in particular Africa, low-lying countries such as Bangladesh and small island states – is not yet fully understood. In some regions – notably southern Africa and eastern Africa – models predict a combination of rising temperature and lower rainfall. This has disastrous implications for crop productivity, with declines in excess of 20% predicted for maize in countries such as Mozambique and Malawi. Countries with large river-basin populations – including Bangladesh, Vietnam, and Egypt – face the prospect of large-scale flooding and displacement. A rise in sea levels of 1 metre could displace up to 250m people. Meanwhile, increasingly violent storms and floods will affect a large group of countries, raising the spectre of more catastrophic events such as the 2005 Mumbai floods and the 2005 hurricane season which devastated countries such as Haiti and Nicaragua (as well as New Orleans).

Climate change outcomes will interact with wider ecological pressures. Many of these pressures will be transmitted through water systems. Warming at around 2.5°C has been estimated to place an additional 1.6bn to 1.9bn people at risk of water stress by 2055.⁸ Glacial melt, reduced rainfall in tropical areas, and rising temperature will add to water stress in many parts of the world. In the short-run, glacial melt will expose people in countries like Nepal to increased risk of flooding. In the long-run, it will reduce the flow of rivers that feed vital irrigation systems in northern India and western China, jeopardizing hundreds of millions of livelihoods. In the Andes, retreating glaciers threaten to cut off water supplies to entire cities such as Lima.

The UK has one of the most ambitious development assistance programmes in the world. It has doubled aid commitments in 10 years, to £7bn per year by 2007, and led international efforts to reach the Millennium Development Goals. Those efforts are already being jeopardized by climate change. Yet (to quote a recent Parliamentary Report) UK development assistance policies lack a coherent approach to climate change.⁹ Similarly, while other bilateral agencies are increasing their aid, most are failing to appraise the impact of climate change on their projects, let alone on wider human development goals. The floods that devastated Mozambique in 2006 and 2007 provide a timely reminder of the risks. Apart from devastating the lives of thousands of people, these floods destroyed a large number of schools and health centres part-funded by UK aid.

We know, from the recent experiences of Kenya,

Malawi and Ethiopia, that droughts not only reduce income, with attendant implications for nutrition, access to health and education; they also wipe out the assets that provide security against future risks. These outcomes set in train long-term cycles of disadvantage that hold back prospects for accelerated human development and progress beyond the MDG target date of 2015. Working to achieve poverty reduction and human development in this environment will be like climbing a downward escalator.

The UK Department for International Development has started to bring climate change adaptation to the centre of the development aid agenda. It has supported work by the Hadley Centre to improve climate monitoring in sub-Saharan Africa – and it has linked up with other agencies to develop the analytical tools required to identify programme level responses. That said, both Britain and the wider multilateral system need more actively to address adaptation problems. The current multilateral aid effort is channelled through the Global Environmental Facility. This suffers both from chronic under-financing (less than \$30m annually) and a cumbersome project-based approach.

Alongside the effects of climate change, developing countries are also being hit by high energy prices and the new scramble for resources. For energy-importing countries, higher prices are wiping out recent increases in aid. Poor countries tend to dedicate a higher proportion of their GDP to energy imports (e.g. sub-Saharan African countries spent 14% of their GDP on fuel imports in 2000), to use energy less efficiently, and to be less able to switch to alternatives. As a result, the

The UK has doubled aid commitments in ten years but...

8. Arnell N.W. "Global impacts of abrupt climate change: an initial assessment" Tyndall Working Paper 99 (2006)

9. The Environmental Audit Committee of the UK Parliament: "Trade, Development and the Environment: The Role of DfID", 16 August 2006.

The challenge of energy security and climate change may cancel out the positive effects of new aid

IEA estimates a \$10/barrel increase in the price of oil costs Sub-Saharan African more than 3% of its GDP.¹⁰ And the price has risen by \$40 per barrel in the last four years.

Even for energy-exporting developing countries high energy prices bring risks. In Africa, some fourteen countries are currently enjoying windfalls that are massive relative to any foreseeable aid inflows but the past experience of such revenue windfalls, though highly variable, is on average unfortunate: revenues are often not harnessed for sustained development. Instead, after a short period of time, they tend to increase corruption and even to slow growth.

In recent years, the UK has taken a lead in strengthening governance and pro-poor development in aid-receiving countries. However, the challenges of energy security and climate change may wrong-foot UK development assistance, cancelling out the positive effects of new aid. Pro-poor strategies may fail if stunted by high oil prices and energy poverty. Good governance may collapse in the scramble for energy resources. Development gains may be wiped out by climate change.

10. "Analysis of the Impact of High Oil Prices on the Global Economy", International Energy Agency, May 2004

A better UK response



The Task Force identifies five areas in which UK policies seem particularly fragile and in which more vigorous efforts could better secure UK goals in energy security, climate change, and development, or at least reduce the risks described above. These are:

- (1) stronger European energy markets and linkage to climate change goals;
- (2) a better approach to neighbouring energy producers;
- (3) a new compact with India and China, which includes the United States;
- (4) a better UK energy policy framework;
- (5) development assistance policies shaped to address climate effects already being felt and the new global politics of energy.

1. A Stronger European Framework

Until now, UK support for a pan-European energy policy has been equivocal, and most of Britain's actions have been focused on the domestic infrastructure. The Task Force believes that the UK would better meet its own energy security goals (without damaging its other policy goals)

by working towards a more coherent European energy framework. Furthermore, energy security and climate stability are goals which can only be achieved through acting at the regional and at a global level, and Britain can do that most effectively through the EU.

EU Energy Policy Statement: "Energy for a Changing World"

On 10 January 2007, EU Commission President Jose Manuel Barroso launched a new attempt to shape a common European energy policy. Following the Commission's Green Paper of March 2006, the proposed policy focuses on both energy security and climate security, and on the completion of the single market for energy. As Barroso says "A common European response is necessary to deliver sustainable, secure and competitive energy."

In the case of climate, this means setting the pace for the rest of the world, in the hope that it will lead to an international deal; "The aim is that the European Union leads the world in accelerating the shift to a low carbon economy". The policy aims to:

- reduce CO₂ emissions by 20% by 2020, but if there is an international deal (including US and developing world) this target rises to 30%;
- increase EU energy efficiency by 20% (reaffirming an existing target to make the EU the most energy-efficient market in the world);

- increase the share of renewables in the overall mix;
- increase spending on energy research by 50%.

In terms of energy security, Barroso notes that "The current energy supply crises have highlighted our dependence on external sources of energy". He proposes that the EU should:

- speak with one voice to third party suppliers;
- build on the early warning system of 'correspondents' in surrounding countries to develop "effective solidarity" mechanisms in a crisis.

Finally, Barroso sought the completion of the EU single market for energy, with:

- unbundling of energy supply from energy production; and
- complete liberalisation of gas and electricity markets by 2009.

The statement was endorsed by the European Council on 8-9 March 2007. Key parts of the plan were accepted. Binding targets for emission reduction were agreed, along with energy efficiency targets, and a 20% target for renewables as a component of the energy mix was specified for the first time. But how the single market for energy was to be achieved was far from clear, with Barroso's ambition for unbundling ownership of supply and production from networks reduced to a commitment to independence of networks and separate regulation. The Commission has been invited to produce formal proposals in a number of key areas for the June 2007 meeting of Energy ministers.

Britain should take the opportunity provided by Commission President Barroso's initiative to develop a new European energy policy. However, it must be careful not to encourage the kind of energy policy which the EU has proposed in the past, one which emphasizes centralised control. Instead, the policy should be one which institutionalises co-operation on energy policy and focuses on networks, infrastructure and on the active application to the energy sector of existing EU competition rules.

The expiry of the current EU Emissions Trading Scheme in 2012 creates risks and opportunities. The risk is that the EU members states will fail to agree to a longer-term, more robust regime. The opportunity is to bind ETS quotas directly to the quantitative reduction targets agreed among EU members (see page 14).

We would highlight the following priorities for the UK, working with the EU, to reduce the risks we have identified.

First, the completion of the physical European grid for gas and electricity.

Second, common carrier obligations (where owners of transit infrastructure are required to provide it for use equally to all suppliers) need to be established for all EU states, ensuring that individual European states do not seek to guarantee energy security for themselves at the expense of others.

Third, the single market for energy should be completed, including unbundling networks and enforcing competition law and control of state aids against "national champions".

A fourth need is for effective EU arrangements for sharing storage in times of crisis, and for other mutual assistance agreements.

Fifth, a major EU initiative should be launched to provide centralised support for energy research and development focused on viable technologies especially renewables, and carbon capture and sequestration, for which public funding for demonstration projects is a matter of priority.

Finally, the EU should expand its role in standard-setting, building on recent achievements such as the agreement on car emissions by extending the same approach to fields such as energy efficiency.

Crucially, if the emissions reductions targets proclaimed by the European Council are to be met, the EU's carbon trading scheme must be reformed. Quotas must be realigned with the "20% by 2020" target, and set at levels sufficiently demanding to ensure that the target is met. Under the initial

scheme, carbon capture and sequestration earns no credits; this defect should be corrected, to encourage investment in CCS technology (e.g. linked to power generation).

Recommendations

The United Kingdom should more vigorously push for the following outcomes in the European Union:

1. Completion of the physical European grid for gas and electricity with common carrier obligations for all EU states, ensuring that individual European states do not seek to guarantee energy security for themselves at the expense of others;
2. Reforming the EU Emissions Trading Scheme, as a mechanism to deliver the "20% by 2020" target reduction;
3. Completion of the single market for energy, including unbundling of networks and enforcement of existing competition law against national champions;
4. Improved EU arrangements for sharing storage in times of crisis, and other mutual assistance agreements;
5. More support for energy research and development focused on viable technologies especially renewables, and carbon capture and sequestration, for which publicly-funded demonstration projects are a matter of priority to be able to reach the ambitious targets set by the EU;
6. Expanded scope of EU minimum standards for energy efficiency.

2. Energy Producing Neighbours

Changes in EU external relations with both Russia and North Africa are key to improving the energy security of the continent. The EU's handling of Russia over the past few years has been muddled and incoherent. This is not least because although Russia provides around 40% of overall EU gas imports, different parts of Europe are more directly reliant than others – Britain for example gets just 2% of its gas from Russia; Southern Europe is more reliant on North African suppliers; but Eastern European members get more than 75% of theirs from Russia.

The EU needs a much more clear-sighted and united approach. Completion of an EU single market in energy and physical networks, as proposed above, would make this easier.

Efforts to persuade the Russian Government to accept the Transit Protocol to the European Energy charter appear to have failed. A new basis for negotiation is needed. Given Gazprom's dependence on profits from exports to the EU, Russia has a strong incentive to continue supplies. EU Governments and companies should be encouraged to cooperate in the development of Russia's energy potential, but not on terms which allow Russia to manipulate prices or dictate to the market. There are serious risks that if companies such as Gazprom are permitted to purchase downstream energy assets in Europe before an EU-wide single market has been created, they will subsequently use their position to manipulate prices.

Diversification of energy supply is another key

part of a sound European strategy. Pipelines from North Africa and Liquid Natural Gas (LNG) imports from further afield provide the most likely options. Algeria is already a major source of gas imports for the EU, and new findings in North Africa are promising and should be capitalised upon. It is important to note that LNG is an energy source that potentially is more flexible. The development of partnerships with suppliers of LNG, not least in North Africa, is thus important.

Energy relations with North Africa should be further developed using the Barcelona Process or Euro-Mediterranean Partnership (which promotes trade and political co-operation between the EU Member States and the Maghreb and Mashreq countries on the southern littoral of the Mediterranean, and already has a focus on energy). Alongside trade and gas supply deals, EU development assistance for energy projects in the Mediterranean region should be enhanced. Europe's development programmes for the Mediterranean (principally MEDA) are already being used to support energy initiatives, though at a low level of financial commitment. More significantly, the European Investment Bank's loan facility for the Mediterranean region has been used to considerable effect principally for energy infrastructure. So far 15 loans have been advanced (including one to Turkey) for a total amount of almost 2 billion euros. This financial activity should be extended especially to cover clean technologies and natural gas supply. Indeed this should be part of the EU initiative for fast-tracking the use of carbon neutral technologies referred to above.

The European Investment Bank (EIB) could play a more significant role in the future in increasing gas supplies for example, from Egypt, (both LNG and linking the so called Arab gas pipeline that joins that country, Jordan, Syria and Turkey through Greece and the Balkans to the rest of Europe) and from Algeria and Libya, both of which countries are aiming to double supply. In the first place supply could be via offshore direct pipelines to Spain and Italy and subsequently directly to Italy. Many of the further significant developments elsewhere in the region will depend on politics and security, but in time there is great potential for supplying gas from both Iraq and Iran through Turkey.

A clear-sighted and united approach to Russia is needed

Recommendations

The UK should push for the EU to develop:

7. Strong conditionalities to prevent price manipulation by vertically integrated suppliers;
8. Access to other energy sources such as from North Africa and LNG imports from further afield; invigorating the Barcelona Process or Euro-Mediterranean Partnership to secure energy supplies from North Africa while strengthening EU development assistance for energy initiatives in the Mediterranean and beyond; including extending loans from the European Investment Bank to cover renewable energy projects, clean technologies and natural gas supply, and gas supply from or through Egypt, Algeria and Libya

3. A New Compact

The energy needs of China and India are large, and however much they expand their own generation capacity by renewables and nuclear, most of their energy demand will have to be met by conventional sources. In electricity generation their dependence on coal increases the risks to climate stability. In 2004 the International Energy Agency (IEA) estimated that 1400 1GW coal-fired power stations would be built before 2030, with 600 of these being built in China.¹¹ The climate effect of such a programme (using current technology) would be disastrous (see Figure 4). The dependence of these economies on oil for transportation is also fast-growing with additional consequences of international oil markets.

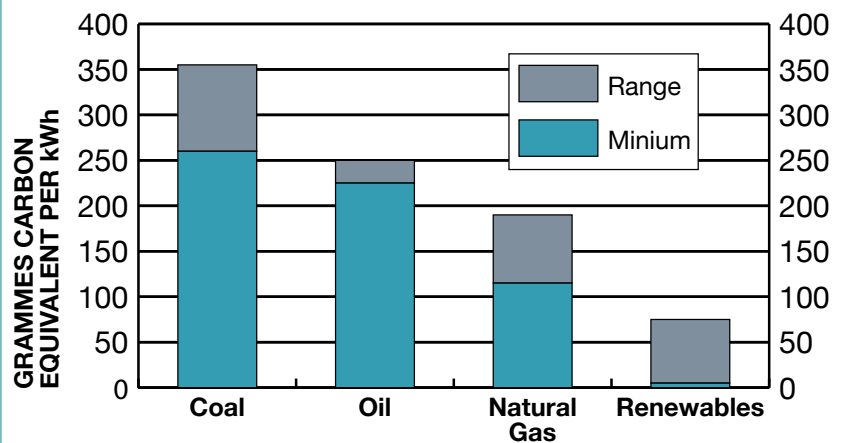
China is increasingly concerned – for its own national environmental and health reasons – to clean up its energy sector. The US and the EU have clear interests in an energy partnership with India and China, building on recent APEC energy activities and in US energy technology initiatives on hydrogen and fuel cells, carbon capture and storage, nuclear, and bio-fuels.

As yet neither China nor India are members of the International Energy Agency. Their engagement in this and other international forums dealing with these issues strikes us as a vital first step. Beyond this we propose a “new compact” between the EU, US, China and India to drive lower-carbon energy use in all these countries, and to support mutual energy security. Such a compact would recognise that climate change and energy security are shared dilemmas which both the developed and developing worlds have an interest in resolving.

The new compact should encompass joint development of energy technology, focusing on clean coal, carbon capture and sequestration, and renewables. These technologies are still new and are not sufficiently invested in by public or private sources, given their potential for contributing to both energy security and climate stability. There should also be agreement on common technology standards for energy production e.g. making clean coal¹² and perhaps even carbon-neutral coal (through Carbon Capture and Storage or CCS, see figure 6).¹³ Many of the technologies have been successful in demonstration projects. The challenge is to reduce the timeframe for facilitating their entry to market.

Enabling China and India to ‘leapfrog’ to more

Figure 4: Relative Carbon Intensities of Electricity Generation Technologies *Source: OECD*



advanced clean coal technologies is critical. Potentially, this is scenario with benefits for everyone. While the capital costs of super-critical coal power plants are higher, the efficiency gains are considerable. Users in China and India would benefit from these gains – and the world would benefit from reduced carbon emissions. Given the global nature of the benefits, there is a powerful case for a multilateral financing mechanism to facilitate technological upgrading – and Britain should play a leading role in brokering such an agreement. Alongside technological investments and standards, financial transfers will be required to support implementation of technologies which are less efficient and more expensive than existing alternatives (see Figures 4 and 5 overleaf).

We see the US as an important partner, relations with whom need to be handled very carefully. Dramatic changes are occurring in US energy policy. Energy security has quickly become a high priority issue attracting bipartisan attention. The Bush administration’s initial policy of denial on climate change is being eroded. Although until now the Bush administration has largely de-coupled climate change and energy security issues, this may also be changing.

Energy security has been the heart of the President’s last two State of the Union addresses. In 2006 the President spoke of the country’s

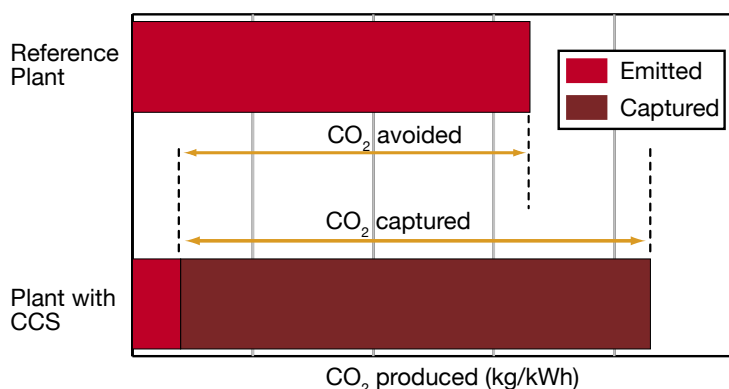
Developing technology for carbon capture and sequestration is crucial

11. From IEA World Energy Outlook 2004

12. Clean coal is a processed form of coal which has been chemically washed to remove impurities such as sulphur.

13. Carbon Capture and Storage is a process by which the carbon dioxide produced from an industrial process is captured before it reaches the atmosphere and stored in underground cavities, often disused oil or gas fields.

Figure 5: Carbon capture and storage *Extract from IPCC "Special Report on Carbon Dioxide Capture and Storage" – September 2005*



Available technology captures about 85–95% of the CO₂ processed in a capture plant. A power plant equipped with a CCS system (with access to geological or ocean storage) would need roughly 10–40% more energy than a plant of equivalent output without CCS, of which most is for capture and compression. For secure storage, the net result is that a power plant with CCS could reduce CO₂ emissions to the atmosphere by approximately 80–90% compared to a plant without CCS.

“addiction to oil” and in 2007 of the need to reduce gasoline usage by 20% over the next 10 years. The planned reduction will come from raising vehicle emissions standards for the first time since 1992, and by setting aggressive national targets for the use of alternative fuels and especially ethanol. The 2007 address also included plans to double the strategic oil reserve to 1.5bn barrels by 2027.

While US policy-makers are beginning to focus more on climate change, energy security solutions are threatening to dominate at the expense of climate change concerns. US policy on biofuels and ethanol is a case in point. The US is committed to producing as much as possible to reduce reliance on fuel imports with the President having recently set a target of 35 billion gallons per year by 2017. The consequences for climate change are not good. Using current corn-based technologies,

Recommendations

9. Include China and India in the IEA and other international energy forums;
10. A new compact with India and China, which includes the United States, comprising:
 - Joint development of clean energy technologies;
 - Agreement on common technology standards for energy production;
 - Financial transfers to support the implementation of clean technologies;
 - Agreement on co-ordination of oil storage arrangements;
 - A link to development-friendly investment in energy-rich poor countries (as outlined below).

to grow 1.3 units of energy from ethanol takes 1 unit of fossil fuels. A more economic option would be to import ethanol from Brazil, where it is produced from sugarcane, but heavy tariffs have been imposed to prevent this and will stay in place until 2009 in spite of the new US-Brazil strategic partnership on biofuels concluded in March 2007. A more far-sighted option would be to encourage research in second generation, cellulosic biofuels.

US policy on ethanol and biofuels may also have adverse consequences for development goals, driving up global corn prices, and adversely affecting food-importing developing countries. Use of cellulose would, by contrast, support, rather than conflict with, farming for food.

On climate change, movement has been slower than on energy security, but perceptible change is occurring at the centre. The 2007 State of the Union address was the first time President Bush has used the term “climate change”, although he is unwilling to engage in setting targets for reducing greenhouse gas emissions, or international efforts so to do. The new Democratic Congress are putting more pressure on the Executive branch to act, and across the US, a growing coalition is calling for more specific action on climate change.

Individual states and cities have taken measures to address climate change. California has been among the leaders, in August 2006 voting for a state-wide cap and trade system for greenhouse gas emissions from major industries and targeting a 25% reduction by 2020. California also led on raising vehicle emissions standards and mandating the use of renewable energy, moves which have been replicated across the nation. Action by states has also galvanised business leaders, who are concerned about a complex web of state regulations emerging due to the lack of federal leadership.

The US Climate Action Partnership is calling for a cap and trade system for carbon emissions. Consisting of 10 of America’s largest companies and environmental groups, the Partnership issued a report on 22 January calling for binding targets of 30% reductions in the next 15 years backed by a trading scheme.

Building on the policy shifts occurring in the United States, it will be imperative to include the US in international efforts to secure both energy and the global climate. A deal which included the US, EU, India and China would not exclude the rest of the world, but would instead focus first on where the problems are greatest.

4. A Better UK Energy Policy

At the national level the UK needs to demonstrate its own resolve to deliver cleaner energy. While in general the Task Force does not advocate ‘technology picking’, the UK should invest substantially in Carbon Capture and Sequestration (CCS) as a matter of urgency. For Britain, employing CCS would reduce the carbon emitted by the next generation of power stations. More importantly, however, with China and India committed to massive coal power station building programmes, low-carbon technology transfer is likely to be a major part of the solution to climate change. Current UK performance in energy investment is slow, cautious and out of step with the urgency of the problem. Britain should encourage EU investment in this technology and allow CCS to earn carbon credits in the ETS, as noted above. UK funding for research should be a high priority.

Renewables could contribute to both increased energy security and climate stability. Private sector investment is not being sufficiently mobilised in these areas. The government should increase investment in renewable energy-related research and development.

Improved energy efficiency is an obvious way of contributing to both energy security and emission reductions for the UK. In particular, efficiency may be the best way to address emissions from domestic heating, a source which accounts for three-quarters of gas usage, and which is difficult to reduce through technological solutions. The private sector is failing to act, despite the obvious incentives, and in any case these incentives will only last as long as high energy prices do. The government needs to intervene with measures to encourage energy efficiency. These could include R&D interventions or regulatory reform.

Policies of infrastructure development and diversification of suppliers are welcome, but should be focused on the EU level. As part of EU policy, improved inter-connectors and storage should be supported. Domestically, the government should continue to encourage LNG terminals.

In the liberalised market, the decisions made by the energy industry are crucial to national level outcomes. But the industry needs clear leadership from the government about the future shape of the regulatory environment. In this context, the energy industry needs the government to take decisions now on the regime which will cover the

next generation of power plants. Failure to provide this will most likely lead to another dash for gas with negative energy security consequences, and some new coal, with negative climate stability consequences. In particular, clarity is needed on nuclear: whether the UK is going to replace the first generation nuclear power-stations as they come to the end of their working life over the next 12 years; and whether the government will provide support for a nuclear rebuild, and on what basis. The pursuit of a new nuclear build would demand standardisation of technology, support for planning applications, and clarity over treatment of nuclear in overall climate change policy and targets.

Overall, the UK needs to demonstrate it has the policies to back-up the ambition shown in setting national targets in the Climate Change Bill.

While some members of the Task Force are opposed to nuclear power,¹⁴ others see nuclear generation as an important part of the long-term solution in reconciling climate change and energy security. Nuclear energy is relatively low carbon¹⁵ and it could help to diversify away from reliance on pipeline gas.

To date the UK government has equivocated on whether existing nuclear stations will be rebuilt or new stations commissioned. The lack of decision either way has been costly. The economic case for nuclear power is hard to assess without a clear regulatory framework. This includes clarifications from the UK government as to whether it will support planning applications, decommissioning costs, and the like. If existing nuclear stations are to be replaced or new nuclear stations are to be built, steps should already be underway to ensure they are efficiently built in a timely way. One important step would be for the UK government to work towards common licensing and the standardising of technology within the European Union. Globally, the UK needs to work towards a nuclear energy regime which robustly regulates the provision, transportation, storage, and reprocessing of nuclear fuels.

It is clear to the Task Force that if there were to be no nuclear rebuild, then a large scale investment in alternative low-carbon technologies would be needed. These alternatives, whether they involve a massive renewables programme or other ways of meeting climate change objectives, are likely to be costly and difficult to achieve.

Britain and the EU should be investing much more in low-carbon technologies

14. Hilde Johnson and Tom Burke.

15. Nuclear generation is not carbon free. Constructing the plant, mining and transporting uranium, and the carbon impact of decommissioning and waste management and reprocessing all have a carbon impact. That said, the Sustainable Development Commission in the UK considered these uncertainties concluded in 2006 that “nuclear power can currently be considered a low carbon technology”.

Recommendations

11. Invest substantially in Carbon Capture and Sequestration (CCS) as a matter of urgency;
12. Increase investment in renewable energy-related research and development, with national application of the targets recently set by the EU;
13. Encourage energy efficiency through government support for research and development and/or through regulatory reform;
14. Better situate policies of infrastructure development and diversification of suppliers in an EU framework which includes the development of inter-connectors and storage;
15. Make a clear decision on nuclear energy and if nuclear capacity is to be replaced, act now to ensure standardisation of technology, support for planning applications, and clarity over treatment of nuclear in climate change targets and policy. If nuclear is not to be replaced, commence a massive investment in low-carbon alternatives such as renewables.

5. Development Assistance

Poor countries already hit by climate change need help adapting

There is a risk that climate change and the new energy politics will each wreak havoc in the poorest parts of the world, negating the aspirations of governments in rich and poor countries alike to combat poverty.

Development assistance to poor countries should be committed to supporting adaptation in those areas most likely to be hit by climate change. There is no blueprint for successful adaptation. However, two broad principles should guide policy design.

First, a far greater emphasis must be placed on reducing risk and vulnerability. The development of social safety net programmes designed to protect health, nutrition, and education during periods of stress is a priority. So, too, is the development of policies – such as the provision of seeds, fertilizers and other productive assets – that prevent short-term shocks being converted into long-term poverty.

Second, successful adaptation policies cannot be ‘bolted-on’ to wider public policies. Nor can they be developed on a separate policy track: governments that are bad at planning for poverty reduction are unlikely to prove effective in adaptation. The challenge is to ensure the effective integration of adaptation policies into broader poverty reduction exercises. In this context, we are concerned that adaptation does not figure as a core activity in dialogue between donors and aid recipients over Poverty Reduction Strategy papers (PRSPs) and Country Assistance Strategies (CAS). On this issue the UK government should use its voice as a major shareholder in the World Bank and the IMF to address the gap.

As an immediate priority Britain should work to ensure that adaptation is put alongside mitigation as a core element in the G7/G8 response to climate change. Ensuring that the increases in aid agreed at Gleneagles are delivered and directed

to areas of greatest vulnerability is a starting point. Looking to the future Britain could work with EU partners to explore innovative financing options, such as the use of revenues from carbon permit auctions to support adaptation activity. The UK could also take a lead in developing the capacity of countries in sub-Saharan Africa to carry out the meteorological monitoring needed to anticipate the threats posed by climate change. Currently, sub-Saharan Africa – the region most at risk – has the lowest coverage rate by meteorological stations of any developing region.

Alongside climate change, energy politics also creates significant risks for development goals. The present high global prices for many of the extractive commodities create both opportunities and risks for their exporters. As mentioned earlier, past experience suggests that windfall revenues from commodities have often failed to translate into growth or human development. To address this problem requires a two pronged approach of supporting better resource management policies, backed by initiatives to improve transparency such as the extractive Industries Transparency Initiative (EITI). To date the UK, in its bilateral activities through DfID, has been focused on promoting EITI but has not given sufficient attention to providing wider support to help countries manage their natural resources in a sustainable way, nor assisting countries in making most of their resource windfalls through transparent revenue-management.

An enhanced EITI would help by setting global standards for both corporate and government behaviour that would guard against the most manifest pitfalls. Five elements are important. The first concerns how extraction rights are awarded: past practices of secretly negotiated deals should be replaced by a requirement for auctions conducted to specified standards. The second concerns how price risk is spread between companies and governments. Past practices have shifted excessive risk onto governments, increasing the volatility of revenues. The third concerns transparency in payments, this being the focus of the original EITI. The fourth concerns transparency in investment spending: the creation of twin hurdles scrutinizing both the honesty and the efficiency of proposed projects. The final component concerns sensible rules for smoothing expenditures in the face of volatile revenues. While the Norwegian model of a “future generations fund” is not appropriate for many low-income countries,

simple rules for medium-term savings are essential to reasonable management of windfalls.

Clearly a major new challenge in pushing for this EITI-plus proposal lies in gaining international support for it. It is unlikely to have an impact on any parties without participation by China and other new investors in global energy resources. To this end the UK needs to embed its efforts on development assistance in a wider compact with China and India, as described above.

A serious gap in current policy concerns relations with the new and re-emerging donors more broadly, including China, India and the Arab countries. It is important that this should be genuinely co-operative and not an attempt to patronise these donors or corral them into policies with which they may not agree. As first steps, these donors should be included in information and policy sharing mechanisms such as the OECD Development Assistance Committee, and co-financing should be explored to reduce cultural barriers between the development communities. More broadly climate change and development goals should be pursued within the Compact described above.

Global standards can guard against secretive, unfair, and corrupt extractive industry deals with governments

Recommendations

16. UK should work to put adaptation at the heart of development assistance programming, ensuring that aid and climate change policies seriously appraise and respond to existing risks and changes in environment, water supply, and agriculture, in the poorest countries of the world;
17. Britain and the EU should take the lead in developing the capacity of countries in sub-Saharan Africa to carry out the meteorological monitoring needed to anticipate threats posed by climate change;
18. The UK and EU should push for an EITI-plus embedded in a New Compact with China, India as partner-donors. This would focus on support to resource-rich developing countries for improved implementation, not least with bilateral programmes at the country level.

Appendix

The Task Force Letter to the *Financial Times* (published 6 March 2007)

Wrong energy policy could create new enemies for Europe

From members of the Oxford University High-Level Taskforce on Energy Security, Climate Change and Development.

Sir,

When Europe's leaders meet in Brussels on Thursday and Friday they will need to consider far-reaching steps to integrate Europe's energy and climate change policy. There are urgent reasons why. The wrong energy policy could create new enemies for Europe and new risks to energy supply. It could accelerate climate change and deepen poverty across the poorest parts of the world.

Climate change poses serious and imminent risks. Europe's self-interest in insuring against these risks is buttressed by its obligation to developing countries to address these threats in a credible way. The European Commission is right to propose a 20 per cent cut in emissions by 2020. However, to translate the proposal into progress will require at least two further steps.

First, Europe's carbon trading scheme needs to be reformed. Quotas must be aligned with the 20 per cent target on emissions and set at levels sufficiently demanding to ensure the target is reached. Credits for carbon capture and storage, eg, from power stations, should be awarded. And tougher European Union energy efficiency standards will be required, to encourage conservation. Second, a new broad compact is needed fully to engage China, India and the US (where opinion is rapidly changing) in an effective global set of rules. Joint investments in technological research, demonstration and implementation provide one way in which to introduce clear incentives for compliance. Obviously, Europe's credibility in this will depend upon the strength of measures it adopts within its domestic market.

Energy security is rightly a matter of rising public concern. Europe cannot rely on increased imports of gas from Russia to meet its rising requirements over the next two decades. There are doubts over Russia's potential to increase production; it has declared and demonstrated its intention to use energy as a political instrument; it is tightening state control and opposing market liberalisation; and it has no inclination to sign the transit protocol to the Energy Charter. In the short term it is imperative for the EU to develop a coherent and cohesive strategy towards Russia, with strict conditions to deal with some of the problems listed above, and for member states to stop undercutting each other.

Europe's companies could (if the Russian government permits) play an important part in developing Russia's energy potential. Likewise, Russian companies could engage in the European market providing they do so on the same basis as other non-EU companies and to the extent that they can be relied on to conform to the rules and practices of a competitive market.

In the longer term, Europe's best strategy, as the Commission has recognised, is to strengthen its energy market by completing Europe's gas and electricity grids, improving strategic storage of gas, encouraging the full application of EU competition policy to prevent price manipulation by vertically integrated suppliers, and developing renewables as a viable alternative.

Finally, Europe's commitments to reduce global poverty are directly at risk. The scramble for energy resources in fragile and unstable parts of the world risks destabilising these areas further, fuelling conflicts, terrorism and regional collapse. High energy prices are proving disastrous for poor countries which import energy. Even in energy-exporting countries which are currently enjoying windfall profits, the risk is that these windfalls are sowing the seeds of the resource curse and yet more serious poverty and corruption in a few years' time.

European governments have already championed the Extractive Industries Transparency Initiative which sets standards for the verification and full publication of company payments and government revenues from oil, gas, and mining. Now Europe needs to engage new investors such as China and India in a broader set of standards including on how extraction rights are awarded, how price risk is spread between companies and governments, on transparency in investment spending, and on sensible public finance rules for smoothing expenditures in the face of volatile revenues.

Climate change poses yet wider risks to developing countries. Crop production is likely to collapse in parts of Africa and water scarcity to reach unprecedented levels. Europe's development assistance needs urgently to help poor countries adapt to increasingly unpredictable and hostile climatic conditions.

Two challenges face Europe which transcend national interests and will define, not only the continent's future, but the world within which Europe exists in the 21st century: security, and the reconciling of energy, climate change and economic development goals. To an increasing degree these challenges will interact - for example, in Europe's policies towards the Middle East and the Mediterranean, Africa and south Asia, and in the EU's relations with China and Russia. For this reason, we urge Europe's leaders to seize the opportunity to ensure the EU applies its collective weight and influence to push a bold, coherent and strategic approach to energy security.

Lord Patten of Barnes (Chair)
Christopher Allsopp
Prof Tom Burke
Prof Paul Collier
Prof Dieter Helm
The Hon Hilde Frafjord Johnson
Lord Kerr of Kinlochard
Sir Roderic Lyne
Prof Roger Owen
Philip Stephens
Dr Kevin Watkins
Dr Ngaire Woods

