

# the green shift:

environmental policies to  
match a changing public  
climate

Edited by Peter Bill

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Edited by Peter Bill

Published by the Smith Institute

ISBN 1 905370 13 X

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## Contents

### Preface

By Wilf Stevenson, Director, Smith Institute 3

### Introduction

Peter Bill, Editor of *Estates Gazette* 4

### Chapter 1. Protecting and improving our environment

Rt Hon Gordon Brown MP, Chancellor of the Exchequer 8

### Chapter 2. Forging an environmental contract

Rt Hon David Miliband MP, Secretary of State for the Environment, Food & Rural Affairs 18

### Chapter 3. Preventing a catastrophe

Professor Sir David King, Chief Scientific Adviser to the UK Government 24

### Chapter 4. Setting credible targets

Dr Dieter Helm, Fellow of New College, University of Oxford, and Member of the Ministerial Task Force on Sustainable Development 30

### Chapter 5. Policies for a low-carbon economy

Dr Alan Whitehead MP, Chair of the Associate Parliamentary Renewable and Sustainable Energy Group 38

### Chapter 6. Showing a political lead

Peter Ainsworth MP, Conservative Shadow Secretary of State for the Environment, Food and Rural Affairs 50

### Chapter 7. Making the green switch

Chris Huhne MP, Liberal Democrat Shadow Environment, Food and Rural Affairs Secretary 60

### Chapter 8. Taking meaningful action

Peter Bill, Editor of *Estates Gazette* 70

### Chapter 9. One planet living

Dr Keith Allott, Head of Climate Change at WWF-UK, and Paul King, Campaigns Director at WWF-UK 84

### Chapter 10. The economic opportunity

Dr Chris Mottershead, Distinguished Adviser on Energy and the Environment for BP plc 92

### Chapter 11. Planning for climate change

Professor Peter Roberts, Chair of the Academy for Sustainable Communities, and Gideon Amos, Chief Executive of the Town & Country Planning Association 102

## Preface

Wilf Stevenson, Director, Smith Institute

The Smith Institute is an independent think tank which has been set up to undertake research and education in issues that flow from the changing relationship between social values and economic imperatives. In recent years the institute has centred its work on the policy implications arising from the interactions of equality, enterprise and equity.

This collection comprises essays by key scientists, economists and politicians, senior civil servants, and experts in the fields of international development, planning and regeneration, and the energy industry. The central thesis running through these contributions is that post-industrial countries are witnessing a change in public opinion in favour of a "green shift". In harnessing and maintaining this momentum, the challenge for government is to ensure that action to tackle climate change becomes a spur to economic growth and stability, rather than being taken at its expense.

The contributors consider the policies and mechanisms that will be necessary if we are to reduce substantially Britain's own contribution to our changing climate. They offer thoughts on how best to capitalise on the economic opportunities for innovation and new technologies; and address the means by which Britain can adopt a major role on the world stage, both through leading by example, and by encouraging and facilitating less-developed economies to engage in low-carbon forms of growth and wealth creation. Taken together, this collection offers new thinking about how environmental responsibility can become better integrated into the activities of individuals, civil society, businesses and government, in order that Britain can take the lead and effect serious and long-lasting change at the global, national, local and community levels.

The Smith Institute thanks Peter Bill (Editor of *Estates Gazette*) for agreeing to edit this collection of essays, and gratefully acknowledges the support of the Academy for Sustainable Communities, British Energy, E.On, Ford Motor Company, Scottish Power, and the Town & Country Planning Association, towards this publication and the associated series of seminars.

## Introduction

Peter Bill, Editor of Estates Gazette

The level of political consensus on climate change is made clear by the fact that leading parliamentarians from all three main parties have contributed to this monograph alongside the Chancellor of the Exchequer and the Secretary of State for the Environment, Food and Rural Affairs. The views of this distinguished group have been augmented by the government's chief scientist, a leading academic, WWF-UK, BP, the Academy for Sustainable Communities and the Town & Country Planning Association.

A unifying theme emerges: there has been a "green shift" in opinion on the gravity of the threat posed by climate change. The issue has moved from the wings of political discourse to centre stage. Carbon emissions must be tackled globally. The developed world has a moral imperative to act. Britain has a historic obligation to march with the vanguard. The report in November by Sir Nicholas Stern shows the path.

That is, no doubt, why the Chancellor has emphasised in his essay one of the Stern report's main conclusions – that a new global agency to "exhort" and incentivise" nations to co-operate on carbon reductions needs to be set up by the UN and the World Bank. If this is brought about "by our actions", says Gordon Brown, "we could in reality realise the ideal of an international community acting for the public good – for the present generation and for generations to come".

The Secretary of State for the Environment echoes these sentiments in his essay when calling for Britain to forge an "environmental contract": a pact founded on both the moral duty to limit carbon emissions and the obvious self-interest in doing so. As David Miliband says, Britain needs new policies that not only give a fair deal for UK business but also empower individuals.

"I do believe that climate change is the biggest single global challenge that we face. If unchecked, it has the potential to be catastrophic," is the warning from Sir David King, the government's chief scientist. "Success or failure in taking the steps necessary to tackle it now, and over the next couple of decades, will have an impact for centuries to come. This is a serious problem, and solving it will not be easy."

That is the message that is driving the change in the political climate. But there are tensions between over-parochial government departments, suggests Dr Dieter Helm, who

calls for credible and measurable self-imposed targets to be set and monitored. From this a consensus can be built towards the goal of a low-carbon economy, suggests Labour MP and Chair of the Associate Parliamentary Renewable and Sustainable Energy Group, Dr Alan Whitehead. He argues that fiscal and planning policies can bring great benefits but that the policies may be distasteful to the public – hence the need for political consensus. This is a view broadly supported by the Conservative Shadow Secretary of State for the Environment, Peter Ainsworth, who calls on the government to publish its climate change bill to help construct a firm policy framework on emissions to give the market long-term certainty.

Liberal Democrat Shadow Environment Secretary Chris Huhne elaborates on the radical policies needed to halt carbon emissions. "A green tax switch" is called for, he says, with transport being hit hardest. Huhne calls for the "taxing of pollution rather than people" and fingers the one big divisive issue: nuclear power. The Liberals are against it. Energy conservation and energy efficiency are the answer, says Huhne.

My own essay on "meaningful action" takes the views of several former environment ministers as well as some senior civil servants and advisers. "Stop talking about what needs to be done and get on with it" is their core message. Individual ministries do not need restructuring to cope with climate change. But a strong central "climate change office" with parliamentary oversight and external monitors is needed – and soon.

This view is supported by WWF-UK. Dr Keith Allott, who is head of climate change at the organisation, and his co-author Paul King rightly say that the list of "solutions" to climate change, from international to local, is now becoming fairly well rehearsed. "Yet by and large the world remains stuck in a business-as-usual mindset." The suggestion is that large energy users need to face higher taxes and that what is now needed is the political will to do so.

Business not as usual is the message from BP in the penultimate essay. Dr Chris Mottershead says a market in low-carbon goods needs to be created by the use of public policy – and "enduring political commitment". To do this, he says, there must be "an enduring partnership" between government, business and consumers. And central to this partnership is the need to establish a carbon "price" by the use of taxation.

The final word in this monograph goes to the Town & Country Planning Association and the Academy of Sustainable Communities. As Professor Peter Roberts from the academy

and his co-author, TCPA chief executive Gideon Amos, suggest, far more needs to be done to "climate proof" new developments. To do this they suggest further upgrades to the building regulations and planning policy to ensure that carbon emissions are minimised. Through these tougher energy regulations will come the creation of a far larger market in the use of solar panels and other energy-saving materials.

## Chapter 1

# Protecting and improving our environment

Rt Hon Gordon Brown MP, Chancellor of the Exchequer

*Now is the time to move from words to a commitment to deliver practical policies that can unite world opinion. To meet and master the scale of the challenges ahead together, the UN and the World Bank must work to create a global environmental presence that exhorts, incentivises, researches and monitors change, and most of all is in a position - alongside the private sector - to invest in change.*

## Protecting and improving our environment

More than 60 years ago, in 1944, the great British economist John Maynard Keynes laid down what he believed were the foundations of economic policy: that it was for government to ensure the twin objectives of high and stable levels of growth and employment.

Today we know that there is a third objective on which our economies must be built, and that is environmental care. Environmental sustainability is not an option: it is a necessity. For economies to flourish, for global poverty to be banished, for the well-being of the world's people to be enhanced – not just in this generation but in succeeding generations – we have a compelling and ever more urgent duty of stewardship to take care of the natural environment and resources on which our economic activity and social fabric depend. So the new synthesis we need is that economic growth, social justice and environmental care advance best when they all advance together. This imperative applies most strongly of all to the greatest of the environmental challenges we face, that of climate change.

### The environmental imperative

It is now clear that, if present trends are left unchecked, the economic costs of climate change will be far greater than previously thought. And yet at the same time it is becoming evident that the means of tackling it are increasingly available and the costs can be affordable, and that tackling it offers real economic benefits and opportunities to developed and developing countries alike. So I argue that it is through the new economics of climate change that a new global consensus for tackling environmental change can be built.

Since the start of the Industrial Revolution global greenhouse gases have risen by 30%. In the past century alone global temperatures have risen by almost 1°C – probably the fastest rate of increase for a thousand years. And the rate of change has been speeding up. The 10 hottest years since records began over 150 years ago have all occurred in the past 12 years.

The consequences of this warming are now evident right across the world. In the past century, almost all of the major ice sheets have started melting – adding 20 billion tonnes of water each year into the oceans. Since 1900, global sea levels have risen by 10–20cm. By the end of this century, sea levels could rise by up to a further 90cm and temperatures could rise by a further 5–6°C. And with rising sea levels and temperatures on this scale,

the consequences for agricultural productivity, for water stress, for ecosystems, for flood defences and for human health will be severe.

By 2050, African cereal production could fall by 10-30%; up to 3 billion people could live in areas of increased water stress; and millions could be at increased risk of malaria and dengue fever. Already we are seeing changing rainfall patterns and increased weather extremes. Using the results from formal economic models, the Stern review estimates that if we do not act, the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year. If a wider range of risks and impacts is taken into account, the estimated damage could rise to 20% of GDP or more.

So climate change is not just an environmental issue. It is most definitely an economic issue. And, as the Stern review shows very clearly, the time lags between greenhouse gas emissions and climatic impacts mean that to affect climate in 30 years' time, we have to act now. It also shows, in the starkest terms, that the risks of climate change will not be evenly spread, but will hit the poorest countries most.

This makes the issue of climate change one of justice as much as economic development: a problem whose causes are led by developed countries, but whose effects will disproportionately fall on developing countries – most recently, drought in the Sahel and the Horn of Africa. And because we are now spending \$6 billion in aid annually simply to respond to this humanitarian crisis, resources are being diverted to tackling the short-term consequences of environmental change and away from dealing with the causes of underdevelopment and environmental neglect.

So it is right that anti-poverty campaigners have taken up the environmental as well as the poverty challenge. Around the world, as they know, it is the poorest – those who depend most upon the natural world for their survival, and those with the fewest resources to buy their way out of unhealthy environments – that suffer the most. "Today, we understand that respect for the environment", Kofi Annan has rightly said, "is one of the main pillars of our fight against poverty," and thus essential for achieving the UN's millennium development goals.

So we must start from profound truths: that economic underdevelopment and environmental neglect go hand in hand, and that future development strategies are going to have to adapt to meet these new twin challenges. This is not to make climate change a priority over poverty reduction. Rather, we must ensure that policies for growth offer

the technological advance and necessary resources to overcome the three problems of poverty, underdevelopment and environmental degradation.

### **Global consensus**

As the Stern report makes clear, climate change is a global problem and therefore requires a global solution. This is not to say that countries do not individually have a responsibility to act. We do. And we will act. But it is to acknowledge the reality that no country can solve this problem on its own. Britain produces only 2% of the world's greenhouse gases; even America – the single largest source – produces less than a quarter. The message that global problems require global solutions underpinned the UN framework convention on climate change agreed at the Earth Summit in Rio nearly 15 years ago. And, whatever its shortcomings, this also underpins the Kyoto Protocol – now ratified by over 160 countries, representing over 60% of the world's emissions.

I believe it is not just more urgent than ever before but also more possible than before to build a global consensus for tackling environmental change. And I believe that this global consensus, which over recent years has often seemed impossible, is now within our grasp – because the pressures we need to meet economic and environmental needs are now converging.

First, higher prices are now requiring countries and businesses to examine their energy costs; in particular, greater efficiency of use and diversification of supply. With the trebling of oil prices over three years, the demand for a supply of energy that is secure, stable and sustainable is more broadly based than ever. As Kofi Annan said recently: "Today's high oil prices make the economic and environmental arguments even more mutually supportive."

But, second, the economic agenda and the environmental agenda are not only now converging: the one now reinforces the other more than ever before. So while of course there will be costs to reducing greenhouse gas emissions, it is now also clear that each one of the challenges of climate change is also an opportunity, not least for Britain: opportunities of new markets; new jobs; new technologies; new exports where British companies, universities and social enterprises can lead; in cleaner, healthier and greener communities, countries and continents; and ultimately the greatest opportunity of all – the prize of securing and safeguarding the planet for our children and generations to come.

Already, we can learn from Britain's recent experience. For in the past decade our economy has grown much faster than in previous decades, and faster than the rest of Europe. Yet in this period of high growth, greenhouse gas emissions in Britain have not risen. So without being complacent about what more we have to do, which we are not, it is correct to note that the carbon intensity of the British economy – carbon emissions per unit of GDP – has fallen by a third.

This is why we strongly support the innovation of carbon trading. It offers us a way to reinforce economic and environmental objectives – not in the old way of rigid regulation, but in the modern way, working with the market, harnessing its power to set a global price for carbon, and incentivising the most efficient and innovative ways of tackling climate change. Carbon trading means that carbon saving can be a way of making money and increasing returns on investment. And it makes the economic opportunities of a climate-friendly energy policy real and tangible.

We first saw the potential of trading in America with sulphur and nitrous oxide trading in the 1990s – reducing acid rain emissions by 1 million tonnes. In Britain, our voluntary carbon scheme, with more than 30 companies, helped reduce carbon emissions by more than 1.6 million tonnes. And the City of London is now a global centre for carbon trading. But now is the time to move towards a global system, as Stern challenges us to do. So the government has set out its proposals to strengthen the EU emissions trading scheme and make it the heart of a global carbon market:

- to set a new Europe-wide emissions reduction target of 30% by 2020 and then at least 60% by 2050, providing greater long-term certainty for business, as we extend the framework for four more decades;
- to expand it to cover more sectors and more emissions, not just carbon dioxide but other greenhouse gases; and
- to extend it beyond Europe across the world – first, by guaranteeing beyond 2012 the clean development mechanism with developing countries, enabling not only financial flows but technology transfer to the world's poorest countries; and second, by enabling similar schemes in developed countries – like those already being developed in Japan, Australia, Switzerland, the North Eastern American states and California – to trade with our European scheme.

In this way, our aim is for the EU emissions trading scheme to become the driver for a deep, liquid and long-term global carbon trading system. Our ultimate goal is a global

carbon market.

Perhaps the most promising development is that new jobs, new industries and new exports come from rising investment in new, low-carbon technologies. In Europe, the environment sector already accounts for 1.3% of employment – 2 million jobs. And in 2010 the global environmental market – clean energy, waste and water – could be worth almost \$700 billion: a sector as big as the aerospace or pharmaceuticals sectors. As the international community begins to build a long-term framework, as the European trading scheme expands into a global carbon market, a new low-carbon global economy will take shape.

### **Britain leads the way**

I am determined that Britain will lead its development and maximise the opportunities of the new low-carbon economy. So, following the publication of the Stern report, I announced the establishment of a new commission to make detailed proposals to do this and secure new jobs for Britain over the next 10 years. We will continue to ensure that Britain is at the cutting edge of discovery and development of environmental innovation – through international agreements, such as that we have with Norway on developing the potential of carbon capture and storage in the North Sea.

That is why in the 2006 Budget I announced proposals for a new National Institute of Energy Technologies, a public-private partnership with the aim of raising finance of £1 billion, to create a new facility at the cutting edge of research and innovation. Its mission is to bring together the best engineers, scientists and companies from around the world – our investment in science and technology going hand in hand with the new market incentives.

And thus with a developing global environment market, the new global consensus I believe to be possible grows into more than a shared understanding of a shared problem, and becomes a set of shared solutions in the shared interest of us all. And it is this that underpins the next driver for consensus: that all of us – countries, consumers and companies – are increasingly recognising our responsibilities for environmental care. So just as a growing sense of personal and social responsibility, more than just enlightened self-interest, paved the way in the past to socially responsible growth, so in the 21st century such personal and social responsibility can be the basis for mutually beneficial environmental and economic progress.

With the scientific evidence now clear, individuals are increasingly aware of what they can do. Encouraged by market solutions, companies are also increasingly aware of their corporate responsibilities. With internal carbon markets, commitments to become carbon-neutral, and energy and resource efficiency initiatives, the world's leading firms are already showing the way forward. Indeed, with many new and smaller far-sighted firms emerging into these markets, the companies that look like leading tomorrow are those that are already investing in a low-carbon economy today. And as the market increasingly pioneers answers to climate change, governments also need to act with imagination and initiative, recognising our responsibility to put in place the right long-term policy frameworks.

Of course, even within a multilateral framework, no two countries will have the same policies for their own specific needs. But the principles are common: ranging from the most basic – that consumers have the information they need to make informed choices about their environmental impact – to introducing fiscal and other incentives for environmentally friendly behaviour; and then to setting, where it is right to do so, standards for environmental protection. In this way, not just the department of environment but every department of government, from transport to foreign affairs, from education to overseas development, becomes a department of the environment.

Central to our approach has been our willingness to take the difficult decision to introduce a climate change levy. By creating an incentive for better energy use, the levy has increased the energy efficiency of British business by more than 2% each year. Alongside the levy there are now 5,000 climate change agreements to increase business energy efficiency, and we have created the Carbon Trust, which has already provided advice and support to more than 3,000 businesses. At the same time we have recycled the revenues from the levy into reductions in businesses' national insurance contributions.

So by targeting the marginal use of energy, the climate change levy has provided real market incentives to energy efficiency, while showing how by taxing "bads" (emissions) we can reduce taxes on "goods" (jobs). Together, in each of the next five years, these climate change measures will cut emissions by more than 6 million tonnes, accounting by 2010 for a third of our total carbon reductions.

Nearly a quarter of carbon emissions come from vehicles. So we are encouraging fuel-efficient cars, with measures that range from variable rates of vehicle duty (starting with no duty at all for the cleanest cars) to support for biofuels. Our new obligation on fuel

companies will increase the share of bio-ethanol and bio-diesel in transport fuels to 5% by 2010. A similar obligation in electricity supply – now underpinned by new support for micro-generation technologies – is increasing the share of renewables to 10%.

The energy used by buildings and the products in them accounts for half of our emissions. So bolder new regulations introduced this year will make new buildings 40% more energy efficient than they were just 10 years ago – showing that alongside exhortation, information and incentives, targeted standards can make a difference, in the same way that new regulations for fridges cut CFCs and ozone damage 20 years ago, and the Clean Air Acts did away with London's infamous smog 50 years ago.

### **Creating a policy framework**

The foundation of our approach is our recognition that the right long-term policy framework must have clear, certain, credible and forward-looking signals. So to provide this, alongside leading efforts internationally, we will now legislate for a climate change bill to enshrine our commitments in legislation:

- putting into law the government's long-term goal to reduce carbon dioxide emissions by 60% by 2050 – we are also considering interim targets;
- establishing an independent body to work with the government on how efforts to reduce emissions should be spread over time and across the economy;
- strengthening monitoring and reporting arrangements to parliament; and
- creating new enabling powers to put in place new emission-reduction measures to help meet our goal.

But Britain, I believe, has a special responsibility to help the developing countries – both to adapt to climate change and to invest in climate-friendly energy production and energy efficiency. Only in this way can we ensure that all the millennium development goals are met; not at the cost of economic growth, but to achieve it.

Globally there is an estimated \$60 billion annual shortfall in energy investment in developing countries. So at the G8 meeting in Gleneagles in Scotland last year, Britain proposed a new global energy investment framework. The aim of the framework is to stimulate investment in alternative sources of energy and greater energy efficiency, by developing new financing mechanisms that leverage private and public finance – from both within and outside developing countries. Through this new public-private partnership, led by the World Bank and regional development banks, we can provide a flow of public

and private investment funds for developing countries, which I believe can help bring these countries into the global consensus on climate change.

Indeed, new alternative energy technologies not only offer the possibility of meeting developing countries' growing needs, they have the potential of becoming new exports to the rest of the world. Britain will soon be setting up a joint task force with Brazil, South Africa and Mozambique to promote the development of a sustainable regional biofuels industry in Southern Africa. This task force will bring together key partners working to promote the production and use of biofuels in the region, including the World Bank and local industries, together with leading experts from Brazil, to enhance South-South technology transfer between Brazil and Southern Africa.

### **A chance to rebuild the world**

Great challenges require great acts of statesmanship. And this is the right time to move from words to a commitment to deliver practical policies that can unite world opinion, in a new and broad-based consensus that could bring about change. In facing up to the challenges of their times, the world leaders of 60 years ago created new international institutions – the UN, the International Monetary Fund, the World Bank – and demonstrated by their actions that international co-operation was the best way to solve the economic challenges of the post-war world.

But such path-breaking statesmanship and leadership also brought the Marshall plan of the 1940s. Starting from communist threats in Greece, Turkey and the Balkans, the statesmen of the day quickly realised that there was an even bigger challenge: the political, economic and social reconstruction of Europe. For four years America contributed 1% of its GDP to the rebuilding of Europe. But the greatest contribution was in the transatlantic trade and commerce and the flows of people and ideas between both continents. I believe that today – in the first decade of a new century – international co-operation built on bold, innovative statesmanship is again the best way forward. And by our actions we could in reality realise the ideal of an international community acting for the public good; for the present generation, and for generations to come.

The Stern report concludes that “the world does not need to choose between averting climate change and promoting growth and development”. But this is an endeavour that, because it has not yet been met, challenges us to reach out in dialogue and debate. The visionaries of the 1940s understood also that the global challenges they faced required them not just to have the right policies but also to seek to build a consensus for stability

and change across the world. And I know, from experience of the long, but ultimately successful journey to debt relief for the poorest countries, that to build a consensus for environmental action founded on detailed practical policies for change will take time, but is an essential element for success.

I believe a progressive consensus can be built for sustainable, stable and equitable growth for both developed and developing countries: a new paradigm that sees economic growth, social justice and environmental care advancing together can become the common sense of our age. The scale of the environmental challenge we now face brings home to us that working apart we will fail – but working together we can make progress. And by acting boldly together, it is in our power to achieve for our times what the post-1945 pioneers achieved for theirs. In our generation we can indeed make the world anew.

## Chapter 2

# Forging an environmental contract

Rt Hon David Miliband MP, Secretary of State for the Environment, Food & Rural Affairs

*In developing an environmental contract, there are three areas we need to work through: we must deliver a deal that is equitable globally, a deal that is fair to business, and a deal that is empowering to citizens. There is a strong case for the UK going further. We have a moral duty to do so. However, we as a society must sign up to a new goal: a lifestyle that can be supported, on a global level, by just one planet – not just out of moral duty, but out of self-interest.*

## **Forging an environmental contract**

In the 19th and 20th centuries, progressives forged a new social contract between citizens and the state: progressive values, new developments in social science, and popular concern came together to deliver social justice. In the 21st century, we must find the same combination if we are to address environmental sustainability.

The ingredients are in place. Just as Charles Booth's maps of 19th-century London highlighted abject poverty, today new scientific evidence is bringing home the scale, impact and causes of climate change. The debate is no longer about whether climate change is happening but about how it can be stabilised. As the report by Sir Nicholas Stern sets out, the science, ethics and economics of climate change are pointing to the same conclusions. The political challenge now is to translate the concern and fear that many people feel over the future of our planet into hope and confidence.

If citizens, businesses and nations are to change their behaviour, they must be confident that their actions will be reciprocated. That is why I believe we need to construct an environmental contract – a shared understanding of the rights and responsibilities of citizens, businesses and nations.

The starting point must be government getting its own house in order. That is why we have committed to making the government estate carbon-neutral by 2012, and to using the £150 billion of procurement by the public sector to drive down emissions. Government must play its part directly, but it must also enable others to live within environmental limits. In developing an environmental contract, there are three areas we need to work through: a deal that is equitable globally; a deal that is fair to business; and a deal that is empowering to citizens.

### **Equity between nations**

Last year we set out to get global agreement on the scientific basis for climate change and the urgency of the need to address it. Now the debate has moved on from whether climate change is happening to how it can be arrested, and how quickly.

This year our aim is to promote debate about a goal for stabilising climate change – the fundamental objective of the UN framework convention on climate change, to which almost every nation on Earth is signed up.

In developing a global framework, we face major questions of equity. The more advanced industrialised nations emit far more carbon dioxide per person than the developing world. Historically, they have used up far more of the Earth's resources. The costly adaptation that will now be needed in developing countries – to deal with the climate change that will already be in train – has been caused by the developed world.

We need to look seriously at the balance of responsibility between North and South; between government, the private sector and citizens; and the extent to which we should help developing nations adapt to the now inevitable changes in climate that have resulted from our actions.

Alongside the process of implementing the UN framework convention on climate change, the EU must be engaged in bilateral and sectoral initiatives – practical collaborations that can change the terms of debate outside the formal negotiation process. A good example is the EU-China near-zero emissions coal project. Over the next year, we need to engage with developing and developed countries to show that climate change is not just the most important problem facing the planet, but it is also soluble in a cost-effective way that complements all nations' desire for energy security.

### **A fair deal for UK business**

Whatever the answer we reach over global equity, there is a strong case for the UK going further. We have a moral duty to do so, but it also presents us with opportunities. Commitment nationally strengthens our capacity for leadership and negotiation internationally. Putting ourselves at the forefront of an economy that is much less dependent on carbon will give us first-mover advantages as we develop new industries and business models.

The first priority must be to secure win-wins for business through energy efficiency. The evidence suggests that investment in energy efficiency can bring a double dividend, through lower fuel costs for business and lower environmental emissions. As energy prices rise, all businesses should be looking to improve resource productivity alongside labour productivity.

But we also need to look at where environmental sustainability will incur genuine costs. In the short to medium term, new renewable sources of energy supply will cost more than traditional fossil fuels, imposing a higher cost on society. We must face the fact that in planetary terms, we have not been paying the full cost of the natural resources we are

using. But equally, we must do what we can to mitigate the effects for UK business. If we can act at a European or global level, we keep business on a level playing field and we do not harm competitiveness. Where we are going further as a nation, we must differentiate between the sectors exposed to international competition – particularly energy-intensive companies – and domestic industries. Where we create new policies and incentives, we must keep compliance costs and bureaucracy to a minimum.

Emissions trading will be central to this. The European Union emissions trading scheme is the world's first attempt to place a cap on carbon emissions, and enable companies to buy and sell carbon allowances. The scheme is still in its infancy. It needs to be extended to cover aviation, and we have also asked the European Commission to give serious consideration to including surface transport in future phases. The mechanisms for allocating permits need to be improved. Its long-term future needs to be secured to provide certainty for business investment in low-carbon technologies.

But as set out in the energy review, we should look to go further. Our aim should be to ensure the vast majority of economic activity in this country is covered by emissions trading. That is why we are consulting on a UK emissions trading scheme – the energy performance commitment – that would cover businesses and large public-sector organisations, including most local authorities. It is also why we are examining the potential to bring home-energy suppliers under a cap and trade scheme. This regulatory reform could help to transform our energy companies from organisations that make profit by selling more units of electricity or gas, to organisations that make profit by providing services, like warmth or light.

### **Individual empowerment**

Individuals' electricity, gas and transport decisions make up 44% of total emissions. Our decisions – the home we buy; what we eat and drink; how we travel and where we holiday – can have a major impact. Numerous small measures – from turning your TV off rather than leaving it on standby to turning your heating down a couple of degrees – can have some impact, which if aggregated across a whole population would be significant. But if individuals are to make a major impact on their carbon footprint, they need to focus on a few major changes.

For instance, the average household is directly responsible for producing about 10 tonnes of carbon a year. If they did four major things, they would be able to reduce their carbon footprint by nearly a third. Changing to a hybrid car, installing cavity wall insulation,

erecting a wind turbine and fitting solar panels can save over 3 tonnes of carbon for each household. Each of these investments offers financial returns for the consumer through lower energy bills, as well as environmental returns for society.

The question is how to enable people to change their behaviour. This raises a profound question about the balance between paternalism and individual freedom. People face a mass of complex information and advice that fails to provide the simple rules of thumb that can help guide behaviour. Add this to inertia, inconvenience and the sense that their actions will have only a minor effect unless backed up by others, and you get inaction.

There is a sliding scale of government intervention.

Better information and labelling preserves choice but guides it – from real-time information on energy use to carbon ratings for products.

Changing the burden from having to opt in to sustainable behaviour to having to opt out capitalises on the power of inertia. Instead of being given the option of opting into a scheme that offsets your carbon impact, you could be given the option of opting out.

Financial incentives ally self-interest with public interest. As the Treasury set out in 1997: "Just as work should be encouraged through the tax system, environmental pollution should be discouraged."

Regulating products out of existence also has a role in driving the market. As the Prime Minister has said, our vision must be a society where "consumers can expect that environmental responsibility is as fundamental to the products they buy as health and safety is now".

In the short term, it is likely that a mixture of the above tools will be needed. But in the long term, we need to test our solutions against the scale of the problem, and specifically test them against the most radical options. As set out in the energy review, the government will undertake a study of the role of "community-level" approaches to mobilising individuals, and will examine what new policy options, such as tradable personal carbon allowances, could contribute. This would involve each citizen being given a personal carbon allowance. If they reduce their emissions below their allowance, they could sell their excess allowances to citizens who are exceeding their allocation.

Personal carbon trading is not for the short term, nor is it a silver bullet. Changing behaviour will require the full range of tools to be employed. Major questions would need to be answered about its impact and feasibility in comparison with other measures. But as we develop the policies to tackle climate change, we need to combine ambition and imagination if we are to develop solutions that match the scale of the problem.

### **Conclusion**

The goal for our environmental contract is what the WWF calls one planet living. If all countries consumed the natural resources we do, and emitted our levels of carbon dioxide, we would need three planets to support us. We must sign up to a new goal as a society – a lifestyle that can be supported, on a global level, by just one planet – not just out of moral duty, but out of self-interest. The cost of inaction to human life, to nature, and financially will be far greater than the cost of tackling the problem.

## Chapter 3

# Preventing a catastrophe

Professor Sir David King, Chief Scientific Adviser to the UK Government

*Climate change is the biggest single global challenge that we face. If unchecked, it has the potential to be catastrophic. Our success or failure in taking the steps necessary to tackle it now, and over the next couple of decades, will have an impact for centuries to come. This is a challenge that requires a collective global response. The earlier we start the more options we will have, the lower the risks and costs, and the greater the chance of success.*

## Preventing a catastrophe

Since the Industrial Revolution began in Europe in the middle of the 18th century we have continued to innovate and create new technologies that have radically transformed our way of life. The benefits have been huge, with levels of prosperity and comfort beyond the imagining of our forebears. But, driven by our use of fossil fuels, this has come at a price. During this period, the carbon dioxide concentration in the atmosphere has risen by over 35%, to a level that has been unmatched for at least 650,000 years and probably for 20 million years. Meanwhile the global climate has warmed by an average of 0.7°C, with much of this seen over the past 30 years. The 10 warmest years on record have all occurred since 1994. Further evidence of this global warming has been observed in numerous physical and biological systems: ice sheets are melting, sea levels are rising, glaciers across the world are in retreat, and the behaviour of plants and animals is changing.

The causal link between global warming and increased greenhouse gas emissions from human activities, most notably carbon dioxide, is now established beyond all reasonable doubt. The basic science underpinning this link was established in the 19th century, and a vast portfolio of more recent work has enabled scientists to develop much further our understanding of the mechanisms in play. Although even a year ago climate change was still reported by some as a controversial issue, now new scientific findings have filled in the gaps in our understanding and have countered the last of the sceptics' arguments.

This increased confidence has been accompanied by a growing realisation that the impacts of climate change may already be being seen. For example, the World Health Organisation has estimated that climate change is already causing 150,000 deaths annually. But I fear that what we have seen to date is just a taster of the more severe impacts we can expect, in the absence of more urgent and radical action to decarbonise our fossil fuel addicted economies. There is a strong consensus that, without this radical action, global warming will continue, leading to increases in the range of 1.4°C to 5.8°C above 1990 levels by 2100. The implications for our societies, and indeed for the very lives of people across the planet, will be profound.

As global temperatures rise, we can expect increasing extremes in our weather. Recent experience in Europe, such as the severe floods in 2002 and the heat wave in 2003, shows that extreme weather related events have significant human and economic costs. By the 2040s a hot, 2003-type summer is predicted to be about average. Higher temperatures will have knock-on effects for climate across the globe, influenced strongly by regional

factors, including more intense precipitation events, increased droughts and floods and increased hurricane intensity.

The worst fallout from global warming will be experienced in the world's poorest countries, which are both the most vulnerable and the least able to adapt. Climate change will intensify the effects of poverty in the world's developing regions, through losses of biodiversity and agricultural yield and through progressive sea-level rise, with adverse impacts on health and well-being affecting almost every sector of society. It takes little imagination to appreciate how such impacts may reverberate far beyond the regions most directly affected.

### **A collective global response**

The good news is that we now understand what is happening and why. Yet, this is the greatest problem our civilisation has yet had to face. It requires a collective global response: a massive challenge for our populations, businesses and politicians. The earlier we start the more options we will have, the lower the risks and costs, and the greater the chance of success. A 20-year delay of action could result in required rates of emission reductions being three to nine times greater than if immediate action is taken.

We also know what we must do to tackle the issue. Many of the policy mechanisms are already in place, such as emissions trading, but we will need to ratchet up the level of action in the future. Many of the technologies that we need are also available or in development and there is plenty of scope for further innovation. Importantly, we know that we can tackle climate change while growing our economies. For example, between 1990 and 2002 the UK economy grew by 36%, while greenhouse gas emissions fell by around 15%.

The UK government committed itself to a 60% reduction in carbon dioxide emissions by 2050, while endeavouring to keep energy costs competitive and securing our energy supplies. This year has seen a further energy review, which has proposed options for additional steps to achieve these goals. The UK's wider climate change programme, which sets out our policies and priorities for action on climate change in the UK and internationally, has also recently been published with new and enhanced measures. Another important development is the UK's review of the economics of climate change, led by Sir Nick Stern and published in the autumn.

Governments will always be an important part of the solution as they set the framework

within which citizens and businesses take decisions, and politicians are rightly looked upon to take the lead. But others need to play their full part too. Everybody is, in some way, part of the problem and can and must become part of the solution.

We need to come up with new and innovative ways to address the challenges and seize opportunities, to produce and consume in smarter ways, and to uncover new, more sustainable ways of growing and boosting economic activity while accelerating the changeover to carbon neutrality. We need new and alternative sources of energy, better ways of working with the Earth's resources, more efficient transport of people and of goods and a more inclusive global society.

There is a key role in this for business. Companies must think about how they will make the transition to the future low-carbon economy that we must inevitably achieve. There is much to be gained from helping shape these new markets on the back of this transition. Many forward-thinking chief executives, investors and environmentally aware customers are already showing this leadership. The context for all businesses is set to change radically, yet with immense opportunities available to improve existing business practice and competitiveness, for example by increased energy efficiency. New products and services, from low-carbon technologies to new insurance products, and for new export markets also represent great new business opportunities.

However, to ensure that business can make the most of the opportunities that tackling climate change presents, and to develop effective and efficient policies, it is vital for business leaders to engage with government. In the UK, I have been deeply impressed with the leading role of the Corporate Leaders Group on Climate Change – a group of business leaders from major UK and international companies. They believe that bold leadership on domestic climate change policy has the potential to deliver significant economic benefits and recognise the catch-22 situation whereby governments feel limited in their ability to introduce new climate change policy because they fear business resistance, while companies are unable to scale up investment in low-carbon solutions in the absence of adequate long-term policies. These business leaders are working in partnership with the UK government towards strengthening domestic and international progress on reducing greenhouse gas emissions.

Of course, effective action is not just for government and business – as individuals too we can all make a real difference. Insulating our homes, turning off the lights, walking or cycling instead of getting in the car are just a few examples of the many simple actions

we can take, and they do not require us to reduce our quality of life. The choices we make as consumers also send important signals to business.

I do believe that climate change is the biggest single global challenge that we face. If unchecked, it has the potential to be catastrophic. Our success or failure in taking the steps necessary to tackle it now, and over the next couple of decades, will have an impact for centuries to come. This is a serious problem, and solving it will not be easy. But, with commitment and innovation, it can be done.



## Chapter 4

# Setting credible targets

Dr Dieter Helm, Fellow of New College, University of Oxford, and Member of the Ministerial Task Force on Sustainable Development

*The first task for government is to set credible reduction targets for carbon emissions. The appropriate time frame for these is the medium term, as short-term targets have tended to be unachievable and long-term ones no more than aspirations inadequately linked to policy. Parliament must also set a glide path to meeting these targets, so that progress can be monitored against the glide path and policy instruments adjusted accordingly. Market-based instruments are the most useful.*

## Setting credible targets

### The scale of the challenge

The debate on climate change has moved on from the broad question of whether it will happen to the more pressing questions of how fast, and with what consequences. Though the uncertainties remain large, increasingly they are more about the economics than the science. Some expect the costs of climate change to be very large, while the costs of avoiding emissions moving above the 450–550 ppm threshold are estimated as quite small. This is broadly the message from the Stern review.<sup>1</sup> For others the magnitudes are rather different – moving from a carbon-intensive to a low-carbon economy is argued to involve major programmes of replacement and renewal of energy assets, a radical change in air transport policy and significant personal sacrifices.

These debates are important: they have an impact on the speed of change and they affect the politics. Telling people that a low-carbon economy can be achieved at little cost encourages complacency; they will not need to make sacrifices in their lifestyles, and it will not affect their standards of living. They can go on taking cheap flights, fitting air conditioning, turning up the central heating and using their cars broadly as they do now. This is in marked contrast to the claims of many green groups that only radical changes in lifestyles will meet the threat.

Furthermore, if China and India are to be persuaded to industrialise without a huge increase in coal-burn and without massive car emissions, there will need to be major transfers of funds from the developed West (Europe and the US) to them. This is at least an implicit message from the Stern review. The debate over costs turns on whether climate change is the sort of challenge akin to that of switching from a peacetime to a war economy (as in the 1930s), or just another investment challenge and opportunity, albeit a significant one.

### The leadership argument

The policies required to meet this challenge are necessarily international – climate change is a global public bad. Britain's contribution is comparatively trivial, and even a radical shift in British energy policy would have minimal impact on the global problem. Tackling domestic carbon emissions is largely a *moral* policy: it is designed to show "leadership" to others, as a first step to creating a "coalition of the willing", and ultimately the success of

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<sup>1</sup> Stern, *N Review on the Economics of Climate Change* (HM Treasury, 2006)

British efforts will depend on whether they help to persuade the Chinese, Indians and Americans to change their behaviour.

A necessary step in the leadership argument is to actually achieve the targeted carbon reductions in Britain and to show that this can be done at the claimed low costs in the 2003 white paper *Our Energy Future*. So far, progress has been at best disappointing: the domestic 2010 target of a 20% reduction in carbon from the 1990 levels is likely to be missed by a large margin, and indeed most of the emission reductions since 1990 are a by-product of closing the coal industry. Carbon emissions are actually *rising* now, and with faltering output from the nuclear power stations (and the prospect of their medium-term closure) the British position is one of deterioration, not advancement. If leadership requires a demonstration effect, it is in deep trouble. A step change in performance would therefore be required.

This (depressing) stock-taking on British performance is essential if a serious energy policy is to be developed to tackle climate change, which is the main focus of this paper. A credible energy policy comprises targets and the means to achieve them. It requires an institutional structure that reinforces the targets, and makes them credible. Fortunately, it is not difficult to construct the outlines of such an energy policy. But to implement it would require steps that go considerably beyond the 2003 white paper<sup>2</sup> and the energy review.<sup>3</sup> These have provided no more than mere sketches of what needs to be done.<sup>4</sup>

### Setting the targets

The first task for government is to set credible carbon reduction targets. The striking aspect of the existing energy policy is that there are no credible targets at all. The 2050 ambition to reduce carbon emissions by 60% is an *aspiration*: it is so far in the future that over the period the technologies will change and, on current trends, the economy will have at least doubled in size. There is no obvious relationship between present policies and this aspiration. At the other extreme, the 2010 target for a 20% reduction from 1990 levels is simply not credible: nobody actually thinks it will be achieved, and there is no evidence that policies have been set to achieve it.

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2 *Our Energy Future - Creating a Low Carbon Economy*, white paper CM 5761 (Department of Trade & Industry, 2003)

3 *Energy Review: The Energy Challenge* (Department of Trade & Industry, 2006)

4 For a critique of the energy review, see Helm, D *From Review to Reality: The Search for a Credible Energy Policy* (Social Market Foundation, 2006).

What then would constitute a credible target? Some politicians have suggested that there should be annual legally binding targets. However, a moment's reflection indicates how absurd this idea is: for ministers to be held legally liable for failure would require them to control all the carbon emissions in the economy. Not even Stalin could have done this. A cold weather snap, a technical problem with nuclear power stations, or a movement in the spark spread between coal and gas have immediate short-term effects that the government is largely powerless to avert. Without a comprehensive command-and-control regulatory regime, some flexibility is both inevitable and desirable. Indeed even 2010 is too soon a deadline: it takes time for supply-side changes to come about – whether in installing energy efficiency measures, erecting wind turbines or building nuclear power stations.

The appropriate time frame for carbon targets is therefore the medium term, over which the capital stock has a significant degree of flexibility. A deadline of 2020 or 2025 would meet this requirement. There remain two further components to the framework of such a target: to set its level, and to fill in some description of the glide path from here to there. Setting the level has both an economic and a political dimension. In theory, it should be the result of marrying up the marginal costs and benefits. Such cost-benefit calculations as have been made produce quite low values for carbon reductions, and hence point to weak targets. However, recent evidence of possible "tipping points" to more rapid climate change suggest caution, and there is the added problem that some scientists think that climate change is distinctly non-marginal. But the politics matter too: climate change policy, as a leadership policy, is a moral one, and its content should therefore go beyond narrow self-interest. It is for democratically elected governments to make this judgment – not markets.

On the glide path, the important point here is that although annual targets, or even a 2010 target, are not credible, it does not follow that the space between now and 2020 should be left entirely open and flexible. Rather governments can establish a glide path, setting out how policies are supposed to deliver the carbon reductions that will result in the 2020 target being met. Successes – and failures – can then be monitored against the glide path, and policy instruments set to adjust in the light of performance.

### **Harnessing the market to deliver**

The credibility of the targets depends in large measure upon the instruments selected. The choice is great: from market-based instruments, such as carbon taxes and tradable permits, through to command-and-control measures and technology-specific interven-

tions. The credibility of the targets turns on whether the instruments selected are likely to be able to achieve the targets efficiently (if inefficiently costly, there are likely to be negative reactions) and how vulnerable the instruments are to lobbying and capture by vested interests.

On both counts, there is a general presumption in favour of market-based instruments, harnessing the market to deliver the objective. All interventions have price consequences (even with command-and-control, the costs have to be borne by someone), but market-based instruments limit the information governments need to hold, and avoid picking winners. Moreover, the price (however arrived at) needs to be set over the relevant time period (that is, the investment period for low-carbon technologies). The energy review explicitly recognises this need for a longer-term carbon price, but then singularly fails to provide one.

Of the market mechanisms available, there are two prime candidates: carbon taxes and emissions trading. Carbon taxes have considerable merit: they are comparatively simple, they can be easily adjusted and they make the polluter pay. They give some certainty over costs too, which may be particularly important in the short term. Emissions trading, by contrast, is complex, involving a much-negotiated process of allocating permits. Though it is more efficient to auction these, in practice they tend to be grandfathered. Permits work when there is competition in the permits market, and to have the coverage of the carbon tax there needs to be a fairly comprehensive coverage across the economy.

But whatever the relative theoretical merits, in practice both instruments tend to be used – with the EU emissions trading scheme and the climate change levy as examples. The EU emissions trading scheme has the merit of being at least European rather than domestic, and the quota of permits links in with the overarching Kyoto targets. The climate change levy was designed as an energy, not a carbon, tax, because at the time the government was intent on supporting the coal industry, through the 1998 white paper *Energy Sources*.<sup>5</sup>

Less efficient, and so far of limited significance to reducing emissions, have been technology-based interventions – “picking winners”. These approaches assume that the government knows the costs and opportunities of each of the technologies, and can resist the lobbying that comes with each technology. Unlike market-based instruments,

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5 *Conclusions of the Review of Energy Sources for Power Generation & Government: Response to Fourth & Fifth Reports of the Trade & Industry Committee, CM 4071* (Department of Trade & Industry, 1998)

technology-based policies are wide open to capture: information is asymmetric and the objectives of the poorly informed government and the information-rich vested interests are obviously at considerable variance.<sup>6</sup> In Britain, the renewables obligation excludes nuclear power, and has in effect been a wind policy – at considerable cost, as the National Audit Office has pointed out.<sup>7</sup> Market-based instruments put all the candidate technologies on the same footing, and hence have much greater immunity to capture.

To sum up, the credibility of climate change targets depends on having an efficient set of instruments to advance them. Market-based instruments are superior – not just in conventional economic terms, but also because they have greater resistance to lobbying and capture.

### **Creating credibility**

The history of climate change policy is littered with examples of non-credible policy statements and targets – the most recent of which is the target of 20% reductions from the 1990 levels by 2010. The current political competition to see who can be most ambitious on new targets adds to the worries about credibility. So – in addition to selecting efficient instruments – how can targets be made credible, so that the private sector invests in the expectation that the price of carbon will reward low-carbon projects?

This problem is not new: it is faced in a number of other policy areas, notably monetary policy and competition policy. The solution adopted in these cases has been institutional – to set up a body at arm's length from government charged with monitoring, advising, and, in the two cases above, delivering the policy objectives and targets. But, while each case has a single objective and a single instrument, climate change is somewhat different: there are other goals that need to be achieved simultaneously, notably security of energy supplies. Furthermore the instruments for policy delivery are more diffuse and involve taxation, which the Treasury is unlikely to delegate.

For these reasons, it is not surprising that a simple application of the monetary policy committee model is inappropriate. However, having an independent body charged with publicly monitoring and reporting on the government's progress – and providing published advice on the necessary corrective measures, should there be a deviation from

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6 Helm, D "Regulatory Reform, Capture, and the Regulatory Burden" in *Oxford Review of Economic Policy* 22 (Oxford, 2006), pp169-185

7 *Renewable Energy*, report by the comptroller and auditor-general, HC 210 session 2004-05 (National Audit Office/Department of Trade & Industry, 2005)

the desired course – would make it much harder for politicians to renege on agreed targets and the glide path proposed above. It would be particularly effective if it carried more conventional energy policy responsibilities too, internalising the problem of setting instruments that take account of multiple objectives. Such credibility would be further enhanced if the target and glide path were themselves subject to a vote in the House of Commons, and therefore reinforced with political commitment.

An agency carrying out these functions – an energy agency – would have other advantages. It would build expertise and modelling skills, thereby adding to its reputation and therefore the force of its published statements. It would be focused on the twin goals of climate change and security of supply, and hence get over the hurdles placed by the rather different statutory priorities placed on Ofgem. An energy agency could also cut down on bureaucracy and red tape, by subsuming the myriad bodies that have been set up in an *ad hoc* fashion in the climate change and energy arenas – the Carbon Trust and the Energy Saving Trust are obvious examples.

This institutional reform is not an add-on to a properly formulated climate change and energy policy framework. It is very hard to think of any other mechanism that would make carbon targets credible. Ministerial statements cannot fulfil this function, and legislated targets only bind if there is some direct consequence for failure to deliver. In the event of a hard winter or some other random event that affects the mix of fuels, it is hard to see a minister being prosecuted or resigning.

### **A new policy framework**

The gap between the rhetoric and ambitions on climate change, on the one hand, and the reality of rising emissions on the other can be closed, but to do so will require more than the sort of marginal changes to the policy framework set out in the 2006 energy review. Although the most important issues are international – how to manage the economic growth of China and India in a more benign way, and how to bring the US on board – if there is to be a British example in climate change leadership, the overarching requirement is that there are credible targets. The key word is “credible”: credibility is hard to win and very easy to lose. It requires investment in reputation, and that in turn requires both that it is earned through achieving significant reductions, and that it is reinforced by institutions that can inflict real political damage on politicians and parties that fail to deliver on their promises.

But credibility also requires realism, which in turn demands targets that can be achieved

over a sensible time horizon. Long-term aspirations are just that – aspirations. The 2050 “target” is nothing of the sort. A medium-term target for 2020-25 makes sense: it allows enough time to be achievable, while not being so far in the future as to be subject to revision. A glide path, setting out how we get from here to 2020, has flexibility, but it is also something that can be monitored.

A new climate change bill that incorporated a 2020 target would cement its status, and a glide path with cross-party support would provide the context for focusing policy instruments. The instruments themselves are more credible if they are immune from lobbying and vested interests, and where they leave it to the market to select the technologies. Direct intervention – picking winners – is extremely seductive to politicians, but in the past it has proved an almost hopeless policy approach.

The final part of the policy framework is the institutions, and there can be few who believe that the coexisting Department of Trade & Industry and Department for Environment, Food & Rural Affairs (and the skirmishes between them), Ofgem, and the numerous other bodies (such as the Energy Saving Trust and the Carbon Trust) are efficient or are likely jointly to deliver a substantial reduction in carbon emissions. Compared with the scale of the challenge, they have achieved remarkably little so far on the climate change front. The DTI has protected coal, Ofgem has arguably put a brake on the renewables roll-out, and it is hard to fathom what the impact of the Energy Saving Trust and the Carbon Trust has been, given the very large claims for carbon reductions they have made against the overall trends. An energy agency fills this gap.

Taken together – a 2020/2025 target and a glide path approved by parliament, enhanced market-based instruments and a new energy agency – real sustained progress can be made, and it would be credible to the private sector. Other measures will also of course be necessary, from building regulations to research and development policies. But these should be complementary to the main thrust of the policy framework. The alternative – muddling on as at present – may even be counterproductive. Failure to meet self-imposed targets has hardly advanced the leadership role the government has claimed, even if others would have been willing to be persuaded. Claiming leadership and failing to deliver damages reputation, and makes it all the more imperative to invest in rebuilding credibility.

## Chapter 5

# Policies for a low-carbon economy

Dr Alan Whitehead MP, Chair of the Associate Parliamentary Renewable and Sustainable Energy Group

*The fiscal policy principle that trading within an overall cap produces the best and most sustainable results should lie at the heart of a range of climate change policies, not just emissions trading. The planning system is another useful tool in addressing climate change. However, such measures to achieve a low-carbon economy will usher in a world that may be distasteful to many. Implementation of such controversial policies depends on securing a consensus among not only party elites but also the electorate.*

## Policies for a low-carbon economy

In case we are tempted to think that nothing much has happened in the British economy as far as climate change is concerned, we only have to look at the figures: since 1990 GDP has grown by some 26%, while over the same period carbon dioxide emissions from the business sector fell by about 12%. That represents a substantial decoupling of growth from emissions: the problem for Britain now, however, is that this process needs to be far faster and more far-reaching than anything we have seen hitherto if we are to approach our goal of a sustainable low-carbon economy by 2050.

We have not yet even closely approached the trajectory of carbon use and emissions reduction that will, decade by decade, enable us to arrive at a 60% stable reduction in carbon dioxide emissions from industry, our domestic lives and transport. By the end of each decade, from now until 2050, we will have to succeed in reducing our carbon dioxide emissions by more than we have achieved in the 15 years since 1990, and the drivers to enable this to happen will have to be in place within the next few years.

The publication of the seminal Stern report on the economic costs of climate change, however, changes the terms of that challenge: the question Stern challenges us to ask from now on, as far as the economy is concerned, is not "Why change?" but "Why not?" By putting the economic consequences of doing nothing into such precise terms, the real costs and benefits of moving rapidly forward to establish durable and sustainable frameworks for the operation of a low-carbon economy can be seen clearly.

Stern also emphasises that these frameworks cannot be a matter of eventual decision, perhaps 20 or 30 years hence. If we are to have a real chance of developing an economy that contributes realistically to a global outcome of less than 550 ppm of carbon dioxide then we need to develop the mechanisms we have, and establish new means to ensure guaranteed carbon reductions in our economy within the next 10 to 15 years.

Looked at in this way, the task is daunting, and for government particularly so, since most measures that will work meaningfully and can be sustained depend on the shaping and capping of emissions from economic activity through government action; and there needs to be a viable economy existing when we have got there. At the beginning of the last century, George Bernard Shaw suggested that "should you become a convert to socialism, you will not be committed to any change in your private life, nor indeed will you find yourself able to make any change that would be the smallest use in that

direction”<sup>8</sup>

While Shaw's maxim is perhaps not exactly appropriate to the challenge of living in a low-carbon economy a century later, the challenge of gaining and maintaining long-term public support for the far-reaching changes in how our economy works is that people's lives will need to resemble something like "business as usual", while quite the opposite will be true for the drivers of the economy.

### **The need to secure consensus**

Whether we as a country really do move to a sustainable low-carbon economy by 2050 or thereabouts, as it seems we must, depends on the implementation and maintenance over decades of probably controversial policies that must secure the consensus not only of the party elites, but of the electorate too.

The policies that we will need to adopt will therefore, of necessity, be iterative – that is, they will need to learn from and reinforce each other, so that the sum is progressively greater than the parts. The economic activity and demand created by the development of micro-generation can, for example, be sustained by government energy efficiency policies, and in so doing provide economic growth and a guaranteed change in energy efficiency and carbon emissions. We need to think geometrically and not arithmetically.

It also looks simple to say, but is profound in effect, that policy should determinedly and clear-sightedly “follow the energy”. It is an absolute priority that the amount of energy we use, and the way we use it when we do have it, be cut by quantum amounts, and policy that seems to be “green” but fails to observe this imperative must be resisted. We are already in danger of the pursuit of some policies – in some cases of waste management, for example – where the life analysis of energy use in the pursuit of the policy outweighs the gain that is alleged to arise as a result of its pursuit.

What will the next set of policies look like then, bearing in mind that they will need both to take us through the next decade and frame successfully whatever happens thereafter? The Department of Trade & Industry's 2006 energy review discusses many of these possible policies, and points both in the right direction and away from it.

It is, of course, tempting to pocket the apparent carbon emission gain that a new fleet of

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<sup>8</sup> Shaw, GB *The Intelligent Woman's Guide to Socialism & Capitalism* (1928), p423

nuclear power stations seems to offer, but it is not a renewable technology and at best can be seen as a transitional mode of energy delivery to gain time. However, other transitional technologies, such as systematically ensuring that all replacement big power stations are combined heat and power plants, or indeed investing in big power concepts – such as deeper-sea offshore wind connected by super-grids to the UK and North Sea states – could gain as much, at less cost, and at less risk of discouraging the investment in renewable technologies; which, as the review identifies and supports, is central to the future of energy supply.

Investment in energy efficiency in domestic households and in micro-generation as a domestic and community power source can potentially bring about remarkable changes in the energy landscape. According to the Environmental Change Institute, systematically enhancing passive energy efficiency in homes could result in a saving of some 40% of electricity output by 2050.<sup>9</sup>

A further dimension can be added by the introduction of micro-generation of power within the home and community – an Energy Saving Trust report showed that the adoption of various micro-generating devices with some government support could, in its own right, by 2050, save 15% of 2005 levels of carbon emissions and contribute 40% to the UK's electricity demand.<sup>10</sup> The domestic sector at present accounts for 41.7 MtC, nearly half of the UK's energy use and carbon emissions, and making homes and communal buildings their own power stations could represent a quantum change in energy supply that would make a real and substantial input into cutting emissions, and hence in our approach to climate change.<sup>11</sup>

The energy review also identifies a potentially vital but problematic policy area in seeking to institutionalise the supply of less energy – to reverse, in effect, the assumption of retail energy supply that its purpose is to successfully sell as much energy as it possibly can to its customers. Introducing a regime where energy supply companies become energy service companies (ESCOs) can be a very important contribution to the quest to drive down emissions permanently and sustainably. Energy companies would in effect become

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9 *40% House* is a comprehensive report investigating how the 60% cut in carbon emissions by 2050 can be realised in the residential sector, so that the typical home becomes a "40% house". Research undertaken by Oxford, UMIST and Heriot Watt universities ([www.eci.ox.ac.uk/lowercf/40house.html](http://www.eci.ox.ac.uk/lowercf/40house.html))

10 *Potential for Microgeneration Study Et Analysis*, final report (Energy Saving Trust, 14 November 2005) ([www.est.org.uk/uploads/documents/aboutest/microgen%20exec%20summary.pdf](http://www.est.org.uk/uploads/documents/aboutest/microgen%20exec%20summary.pdf))

11 "Chart 4: CO<sub>2</sub> emissions by end user in the UK, 2004" in *The Energy Challenge* (HM Government, July 2006), p38

targeted towards an income from supplying less and greener energy, and profiting from enabling it to be used far more efficiently.

The tricky bit for government lies in shaping regulation so that this really happens, and on more than a pilot basis. It can be achieved either by providing energy companies with a cap on the amount of power that they can provide, and incentives to use their quota efficiently, or by providing incentives to customers to sign up to energy service contracts that share the savings that result from energy efficiency – or perhaps both.

### **Cap and trade is the best tactic**

In any event, the fiscal policy principle that trading within an overall cap produces the best and most sustainable results should lie at the heart of this and other climate change policies. Capping the quantum of a potential "bad" that the economy produces, and then instigating mechanisms whereby the allowances that have been allocated can be swapped, allows government to keep to a targeted trajectory of reduction. Caps are also not taxes as such: the levies for failing to trade can be seen as quasi-taxes, but the system allows the market – within closely defined boundaries – to do the work that tax might otherwise attempt to do. Tax as such may and can play a role in defying the boundaries of the trading and encourage investment in lower energy use – the climate change levy and the landfill levy are examples of these scene-setting taxes.

The challenge for government is whether it possesses the political will to curve the descent of the cap sufficiently steeply to get to the desired destination, and to allocate allowances within that curve that ensure both equity and economic feasibility. The practical policy imperative is to make the cap fit, as it were, and ensure that the trading that takes place within it actually works. This is the challenge posed by the next stage of the EU emissions trading system, which the UK has championed, pioneered and can benefit greatly from. The cap for the next stage has to be realistically set at a level well below current use – and equally among participating states. The trading within it must provide stable and believably mounting prices for carbon, with the two elements – the cap and the price – interlinked by trigger mechanisms that tighten the cap as the price progresses.

The "cap and trade" system has already ventured out of carbon trading as such and into more specialised areas, such as packaging recovery and landfill allowances for local waste authorities. But how can the principle of capping and trading be further extended? There is certainly the prospect of including progressively more elements within existing carbon-

trading mechanisms – air travel, at present excluded from all forms of taxation on fuel, must be placed within the next stage of the EU emissions trading system, and a longer-term candidate might be tradable vehicle travel allocations.

In both instances, as in the wider field of energy use, the incentive to reduce use, rather than trading to meet the consequence of excessive use, must be underlined by obligations on supply. The extension of the renewables obligation from its present 6.7%, not just to the next milestone but to a known increasing obligation of up to – say – 50% by 2050, is important. So too is the extension of the renewable fuel obligation from its projected 5% to a level that substantially exceeds the possible substitution of mineral fuel by biofuel in existing engines, and requires widespread adoption of exclusively biofuelled vehicles to meet it.<sup>12, 13</sup>

Capping and trading in the waste and packaging sectors appears to be an early success. The leap in domestic recycling, the proportion of packaging recovered and reused by industry, and the good performance by manufacturing industry in cutting down on waste as an inevitably occurring byproduct of economic growth all tell a good story in recent years, but remain based in general on a policy assumption that the issue is about where to put the waste that is produced, rather than conceiving of waste as a resource and energy issue, and one that is only a little offset from the central policy demand of carbon reduction.

### **A new view of waste**

Waste can be seen, with only a residual need to dispose, as a resource that happens to be in the wrong place, containing within it locked-in energy that has already been expended in its production, and would be replaced by the reproduction of that resource from virgin material. Policy drivers that would then follow would incentive its use in lieu of new and energy-rich material otherwise coming into the industrial system. There are substantial barriers in the present system to such a concept becoming real: the regulations concerning the disposal of waste, for example, do not distinguish between waste that will, according to those regulations, be disposed of in the correct way, and waste that is merely in transit – on its way to becoming a fresh resource.

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12 "The level of the obligation is 6.7% in 2006/2007. Under current policy, it would rise annually to 15.4% in 2015/16, then remain at that level until the obligation ceases in 2027." *Ibid*, p100

13 "The government intends that the target should rise beyond 5 per cent after 2010-11, so long as infrastructural requirements and fuel and vehicle technical standards allow, and subject to the costs being acceptable to the consumer." *Budget 2006 - A Strong & Strengthening Economy: Investing in Britain's Future* (HM Treasury), p166

The energy-efficient use of waste can be enhanced by a variety of government interventions: by adding value to the new resource created, and thereby making it competitive with the input of new material; by taxing "bad" virgin resources and transferring values to "good" reused resources; and by regulating to ease the passage of one mode of resource to another. We could, for example, transfer the already existing tax on new aggregate for construction to add a value to reclaimed aggregate, and introduce a stewardship regulation that certifies its reclamation and reuse. The aggregate and landfill levies can continue to set the taxation scene for the process. Variable charging for waste collection is another scene-setting mechanism that should be added, so that, essentially, failure to recycle is taxed and full recycling is rewarded.

Provided that recycling and reuse continue to progress, we could (and the energy review hints at this) displace very large amounts of imported mineral fuel in our power supply system by processing other, residual, biomass-rich waste into usable (perhaps pelletised) forms of material for co-firing in power stations, using the partial renewable obligation certificates that this would produce as the mechanism to give value to waste used for this purpose.

Are there other areas of the economy into which cap and trade might venture? One that could be fruitful is to apply a cap and trade regime to the energy efficiency of buildings – which are all, according to EU directives, shortly to be given an energy rating analogous to the ratings already in existence for white goods, and which in themselves have predicated a revolution in appliance efficiency.

Business rates could, following such a rating, be payable on a capped aggregate efficiency band: those companies paying business rates on less efficient buildings would have to trade with those that have efficiency credits to spare, or pay a higher rate. A similar domestic property trading regime might be too complex and politically challenging to implement successfully, but relating stamp duty chargeable on sale of existing properties to the properties' energy efficiency would provide a workable proxy.

The advantage of such cap and trade regimes is, of course, that they transform environmental behaviour from "bad" to "good" without altering the central balance of taxation, and achieve the same or better results than tax giveaways as incentives. The role of green taxes, therefore, is to set the marker point: the climate change levy, the landfill levy, taxes on virgin materials – all set a point where behaviour can begin to change by setting the value within which those changes happen. This principle might also be applied to road

pricing; although if we are to go down the apparently intrusive path of introducing complex mechanisms to clock the mileage of every vehicle on the roads and bill motorists for it, we might take the short additional leap of giving motorists mileage allowances each year, verifiable at MOT, and enabling "saved" miles to be traded.

### Using the planning system

The other main marker point capable of governing change over an extended period is, of course, the planning system. Our system has long had beneficial consequences for spatial planning, and for the environment through conservation; for example, by the use of structure plans to encourage or discourage decisions to the advantage of the relationship between the built and the natural environment. But planning does not – yet – widely encourage sustainability. Enormous amounts of energy can be squandered, so long as the buildings that are erected conform to the general plan. Increasingly that becomes the role of building regulations: how and in what way any buildings that are erected, once agreed in principle, function in practice.

The change that more effective building regulations could make to the achievement of 2050 targets is potentially massive. Over each decade, 8-9% of housing stock is represented by new building; regimes for new-build homes laid now will have an accumulating and sustaining effect, not only (bearing George Bernard Shaw's dictum in mind) on the assumed behaviour of householders living in near-zero energy buildings, but on the prospects for industry knowing that a demand for recycled building materials or for micro-generation installations will be there as a guarantee for future investment.<sup>14</sup>

Already changes to part L of the building regulations, which shaped the introduction of condensing boilers and low-emission glazing, have, along with other changes, led to a 40% improvement in energy efficiency in new buildings since 1997; but much more could be achieved.<sup>15</sup> The forthcoming sustainable buildings code points a way forward – *provided* that the timescales by which buildings should achieve particular energy efficiency construction targets are adhered to, and are heralded by the issuing of appropriate regulations at an early stage. Key to this will be the transition from the passive idea of new buildings as lower users of energy to the proactive idea that they should be required

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14 The difference between the increase of housing stock each year and the amount of new stock was calculated from the following sources: [http://www.communities.gov.uk/pub/7/7Table101\\_id1156007.xls](http://www.communities.gov.uk/pub/7/7Table101_id1156007.xls);  
<http://hcl1.hclibrary.parliament.uk/notes/sgss/snsg-02644.pdf>.

15 Gordon Brown, 2006 budget speech (22 March 2006)  
([http://www.hm-treasury.gov.uk/budget/budget\\_06/bud\\_bud06\\_speech.cfm](http://www.hm-treasury.gov.uk/budget/budget_06/bud_bud06_speech.cfm))

to produce – through solar, mini-wind, ground source heat pumps or Stirling engine boilers – a defined and increasing proportion of the energy that they are likely to consume each year.

This principle can be extended to retrofitting in the case of boilers. Condensing boilers rose from 15% of the market to 80% within five years of part L of the building regulations being introduced; a future regulation relating to the fitting of combined heat and power boilers could be anticipated to have a similar trajectory of introduction and acceptance – and would have a synergy to their adoption put in place with the development of widespread energy service company delivery of heat, light and power to domestic households.<sup>16, 17</sup>

But what about the planning system itself? The present debate, in energy terms – and in waste, incidentally – concerns what the system stops or delays. The present planning regime, new towns and all, is a product of post-war legislation; we can argue that town and country/structure planning has been with us in modern form since the late 1940s – in other words, it has taken us 50 years or so to get to our present, reasonably highly planned spatial environment – but we do not have another 50 years to spare to replan our environment so that it contributes to climate sustainability. Delays of even a few years could be very significant.

The South East Regional Assembly recently suggested that in order to achieve the required diversion of waste from landfill, it would be necessary to plan, approve and build one materials recycling facility in the South East every *month* for the next 10 years – something that the present planning system is highly unlikely to facilitate.<sup>18</sup> This spring, too, the important landing station for the power derived from the London Array offshore wind farm was refused planning permission by Swale Borough District Council.

### **Centralised action will be needed**

It has to be faced: planning for strategic energy and waste facilities that will support

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16 *Energy Efficiency: The Government's Plan for Action* (HM Government, April 2004), p104 (<http://www.archive2.official-documents.co.uk/document/cm61/6168/6168.pdf>)

17 Schofield, N *Power from the People*, conference report and submission to the Department of Trade & Industry micro-generation strategy consultation (7 July 2005). The example of condensing boilers – which are now 80% of the market, following the change to building regulations – shows what can be achieved. (<http://www.micropower.co.uk/news/newsrelease04.html>)

18 A total of 85 materials recycling facilities are needed by 2015, which averages around 10 a year from 2006 to 2015. Draft South East Plan (March 2006), section D6, table 1

national sustainability will simply not be resolved by 354 English district and unitary councils acting independently. If politicians promise devolution of all planning to districts and counties, and at the same time claim to be working towards sustainability goals, they are simply willing the ends without the means. Such planning – as the Greater London Authority has shown – has to be based at a regional level, with appropriate consultation but not a veto at district level.

But there are significant ways in which district-led planning can be proactive in reducing energy use and hence emissions. The London Borough of Merton's scheme to require all plans for new commercial buildings to generate a percentage (10%) of energy use has now been adopted by a number of other local authorities; national clear guidelines for all local authorities on how to do this would enable the principle of such a planning regime rapidly to become nationally based. There is merit, too, in the role that planning authorities can play in reforming our topography, over a period of time, into sustainable travel patterns. The Dutch ABC system, giving planning priority to commercial and industrial development at or near travel nodes, and requiring their creation if they do not exist, could add to existing guidance about sustainable planning and build sustainable travel patterns into the landscape – building into our everyday lives some of the changes in out-of-town shopping achieved by planning guidance such as PPG/PPS 6 since the early 1990s.

The fiscal, taxation and planning measures discussed here could have enormous benefits – essentially setting Britain firmly on course to achieve the goal of a sustainable low-carbon economy, and in so doing generating vast areas of new economic activity and world leadership in resource management, in the manufacture and wider application of renewable energy technologies, and in the “invisible” economy bringing forward trading and future markets in carbon and other energy commodities.

But it is also true that they will usher in a world that may look very distasteful to many members of the public, and do so by means of devices that to some look impeccably logical and necessary, but to others seem intolerable intrusions into daily life. It is at this point that the question about the need for political consensus to make progress sustain itself becomes serious. It seems important that consensus sustain progress, but is it achievable?

Even in the space of this short review, some of these contentious issues have been identified. Some consider nuclear power to be an essential transitional energy provider;

others think that we could reach our goal by other means. Some think capping vehicle travel, or at least charging substantial amounts for the facility, is a logical "must"; others think it would represent an intolerable intrusion and curtailment of motorists' freedom to drive where they want to, and would put their faith solely in vehicle efficiency and non-mineral fuels instead.

The crawling stage of the consensus building has already witnessed its first falling-out in the playpen, when the months-old "consensus" between the Liberal Democrats and Conservatives on climate change was terminated by the Liberal Democrats, because they said the Conservatives had no actual policies that would make agreed targets work. The point, though, is that even if policies emerged, they would inevitably clash in the way I have described. There remains an enormous way to go in establishing a range of consensus measures as well as consensus outcomes.

George Bernard Shaw was also reputedly the author of the following exchange:

Person A: "Would you go to bed with me for sixpence?"

Person B: "Of course not. What do you take me for!"

Person A: "Would you go to bed with me for a million pounds?"

Person B: "Well, I might think about it ..."

Person A: "Good. We've agreed the principle. Now it's just a matter of details."

Perhaps we are in a better political position than hitherto: haggling over the details is a better prospect than disputing the principles.



## Chapter 6

# Showing a political lead

Peter Ainsworth MP, Conservative Shadow Secretary of State for the Environment, Food and Rural Affairs

*The UK, along with others in the developed world, must take the lead in demonstrating the growth potential of a greener economy. A climate change bill is needed to establish statutory annual reductions in carbon emissions, along with a long-term framework to change the way that business and consumer decisions are made, but without micro-regulation. The duty for government is to create a policy structure that gives the market long-term certainty about the value of the environment.*

## Showing a political lead

As the powerful Stern report has recently highlighted, climate change is the greatest challenge we have ever faced.

Politicians are prone to making grandiose statements, but scientists are not. Sir David King, the UK's chief scientist, has warned that climate change is a greater threat than terrorism. Sir John Houghton, the head of the Met Office, has called climate change "a weapon of mass destruction". The Royal Society sent an open letter to the G8 warning that "the mounting scientific evidence shows that the consequences of global climate change are the biggest single threat facing the world today".

We don't know exactly how we are affecting the Earth's climate. What we do know is that by burning fossil fuels and clearing forests – thereby destroying carbon sinks at the same time as releasing carbon dioxide into the atmosphere – we have dramatically increased the amount of carbon dioxide in the Earth's atmosphere. Carbon dioxide has risen by 30% since the Industrial Revolution, and methane, another greenhouse gas, by another 145%. As a result, temperatures have increased by around 0.6°C.

It is important to highlight that such temperature rises do not necessarily mean that every country on Earth will get warmer, although the Earth as a whole will. Our climate – that is, the average amount of heat, rain, wind and sunshine in a given season – is driven by heat currents in both the air and the sea. Climate science is immensely complex: we have little idea of how exactly an increase in heat will affect the Earth. However, it is likely that existing regional stresses will be exacerbated. For example, since the Thames Barrier became operational in 1983, it has been raised four times in the 1980s, 37 times in the 1990s and 51 times since the start of the new millennium. The costs of flooding, throughout the UK, have doubled in just five years.

Mankind is undertaking a massive collective gamble with the very climatic systems that sustain, and have always sustained, our way of life. We don't know what all the effects will be, but existing evidence suggests they will not be favourable. I have no doubt that the Earth will adapt to whatever we thrust upon it. The problem is that perhaps mankind won't.

Schopenhauer once argued that a "truth" goes through three stages: first it is ignored; second it is vigorously denied; and finally it is accepted as self-evident. The science of

climate change is now accepted by some as so self-evident that there is little, if anything, we can or should do about it. "Look at China," they say, "spewing out emissions. Developing countries are filthy, and why shouldn't they be? China is getting unprecedented growth out of its filthy economy: we cannot and should not restrict that, even if they would listen to us in the first place. Furthermore, there is no point in the UK doing anything, as we are just 2% of the problem. If climate change is indeed real, we should forget about mitigation and start adapting instead."

The key issue is that we don't know what we are adapting to. There is a good chance that some countries will be unable to adapt: as the high commissioner of Bangladesh warned the Conservative Party conference this year, "For most people in the West, climate change threatens their lifestyles. For the people of Bangladesh, climate change threatens their very lives." There is also a small chance that mankind as a whole will be unable to adapt, which would be the case if we faced runaway global warming (whereby previously helpful phenomena, such as arctic sea ice which reflects back the sun's rays, would become unhelpful, such as when sea ice melts and becomes black sea, absorbing the sun's rays). Adaptation alone is a risk not worth taking.

### **An opportunity as well as an obligation**

I deliberately argued at the outset that climate change was a "challenge", rather than using the word "threat". This is because tackling climate change presents an opportunity as well as an obligation. In other words, even if climate change did not exist, the measures needed to move to a low-carbon economy would still be economically valuable to the UK economy. We have got to make the economic case for cutting emissions: moral certitude alone is far from enough. Fortunately, the economics are on our side.

There are two ways to cut emissions: to move away from carbon-heavy sources of energy, and to cut the amount of energy used in the first place.

The direct economic benefits of the latter are so obvious we need not discuss them here. The benefits of the former are also increasingly obvious, in a year which has seen oil top \$75 a barrel and when wholesale energy prices, according to npower, have jumped 60% in the past year alone – a rise of 250% since 2003.

Fossil fuels are expensive because they are in great demand. Fossil fuel supply and therefore prices are volatile, because existing sources are getting used up, and because such sources are all too often found in politically unstable countries – indeed, in countries

whose stability has been compromised by this very influx of petro-wealth.

Furthermore, as the North Sea fields run out, the UK will soon be dependent on Russia and Algeria for gas, our primary source of fuel. Leaving aside the question of energy security in a political sense – which, with Russia and Algeria, is not a trivial one – the UK is at the end of a very long pipeline. In other words, everyone gets the goods before we do, as was revealed to startling effect this winter. In January 2006, a report by Lex Consulting to the Department of Trade & Industry found that a one-day interruption to the UK's gas supply would cost our economy £58 million. A three-week interruption would cost us £1.2 billion.

These are not trivial costs, and they are costs that will be more likely to hit us as countries such as China and India continue to grow at such a dramatic rate and to command a greater share of world supplies of oil and gas. The power of free trade is that it is not a zero-sum game. However, competition for existing fossil fuels is, at present, precisely that. Indeed, this is the reason why industrialising countries can and will go green.

Cutting emissions would therefore give the UK economy two direct benefits: it would make us more energy efficient; and it would make us more secure, both politically (from dodgy regimes) and economically (from price shocks).

However, there are a host of ancillary benefits that are all too often ignored when it comes to costing out emission-reduction programmes. These include: the opportunity to restructure and liberalise the energy sector (which in Europe is far from free and open); greatly improved air quality (the lack of which kills thousands of people in industrialising countries each year: 400,000 in Chinese cities alone); improved transport links and reduced congestion (which costs the UK economy some £8 billion a year); better waste management (in order to conserve materials); better information flows; and the potential to move into vast new markets. Indeed, these ancillary benefits are what, at present, is driving emission reductions around the world. Japan is a useful case study for this point.

### **Japan shows the way**

After the oil shocks of the 1970s, the Japanese government took a conscious decision to reduce energy demand across all sectors of the economy. They instituted an energy conservation law, which sets energy efficiency standards for everything from cars to home and office appliances. The law also established a "top runner programme" which made the standards of the most energy-efficient goods mandatory for whole sectors. Finally, the government demanded producer responsibility: in many industries, companies must take

back the products they have made and recycle at least 50% of them.

The direct benefit of this approach is Japan's lead in green technology. Japan now leads the world in solar panels (with 50% of the world market) and in hybrid cars (with almost the whole of the world market: the only section of the global car market, incidentally, that is growing).

The Japanese car market also demonstrates the indirect benefits of the government's energy laws. Every part of the process has had to be scrutinised in order to reach the required standards, which meant that, in the 1970s and 1980s, Japanese car manufacturers such as Toyota had a far better idea of the environmental impact of their production processes. This information led to Toyota's idea of *kaizen*, or "continuous small-scale improvement", which played a significant part in the massive Japanese incursion into the US car market in the 1980s.

The necessity of reducing waste led to better use and greater reuse of materials, saving businesses further money. It also led to pioneering processes such as "just in time", reducing business costs by keeping manufacturers' inventories low.

Japan illustrates the economic case for growing green irrespective of the need to cut carbon. This is true all over the world. Delhi has forced its cabs to install LPG (liquefied petroleum gas) not because of climate change but because of air pollution. China is implementing the strictest car emissions standards in the world because it is almost entirely reliant on foreign sources of oil.

Moreover, both China and India are facing large "energy gaps" because they cannot get access to the fossil fuels their burgeoning economies need. India currently needs 8% more energy than global markets are able to provide efficiently. Indeed, large parts of India and China are not on any sort of national grid: billions will need to be spent if they are to have any hope of rolling out energy across their vast populations.

As the World Bank concluded in 2003, a "major one-time opportunity is emerging in Asia to shift efficiently to a path that does not lock-in inefficient resource use. This opportunity arises from the massive investments expected in the next 50 years (in the order of trillions of dollars) to accommodate the urbanization of the population (and the simultaneous reduction of poverty and the backlog of service provision)." The International Energy Agency concludes that \$16 trillion will be needed in the next 30

years to finance global energy infrastructure. This is an unprecedented economic opportunity, and one that we must harness for the common ecological good.

Countries such as China, India and Brazil are all too often seen as the roadblock to low-carbon reform. In reality, they could be its greatest allies because they all lack cheap, readily available domestic sources of energy. Their staggering growth means they are ready, able and willing to invest in a whole new generation of technology, allowing the world to leapfrog into a low-carbon revolution. The so-called "ancillary" benefits of going carbon-free are benefits these countries are keen to enjoy.

### **What's the problem? The prisoner's dilemma and economies of scale**

However, we now come to the crux of the argument. If cutting emissions is an economic good, why are emissions the world over rising? Why are China and India each investing in a new coal-fired power station every five days, instead of a low-carbon alternative?

The problem is not that cutting emissions requires a dramatically different way of life. For example, lighting accounts for 19% of worldwide electricity demand. Energy-efficient bulbs alone could dramatically change our carbon footprint.

Nor is the problem that the technology does not exist: from wave, wind and solar panels through to carbon capture and storage, it most definitely does.

The problem is that such technology is just too expensive. The economies of scale needed to drive prices down are not occurring because carbon is a classic externality: its cost is not considered by the buyer or the seller because it is a future cost which will hit the economy at large, not the parties involved at the time. While reducing carbon overall will improve an economy's performance, an individual business is unwilling to take the risk of investing in low-carbon solutions in case no one else bothers and it is saddled with additional costs.

Cutting emissions is possible because doing so will bring about economic benefits: directly, through energy efficiency and energy security; and indirectly, from first-mover advantages in new technology through to better air quality, better transport links and improved information flows. We don't need to wear a hair shirt or go and live in caves to save the planet.

Moreover, the unprecedented economic growth of China, India, Brazil and the other

emerging economies gives us the chance to leapfrog to a low-carbon economy in just 25 years.

However, the crux of the issue is obtaining economies of scale. Existing technology is just too expensive. Investors won't seek low-cost solutions because they cannot guarantee that carbon will be priced into the business decisions of their competitors.

We are stuck in a classic prisoner's dilemma: all will benefit if everyone moves but no one wants to risk moving alone.

### **Taking the lead**

The developed world therefore needs to take the lead, for two reasons. First, we need to prove that green growth is a practical possibility. There are many things we can already do to reduce emissions which will actively help our economy: we merely need political willpower, as Japan shows. Second, technology from the developed world will lower the cost of subsequent emission reductions for impoverished countries. The future is not written: the cost of solar power in 2030 will be influenced by the policies we choose to adopt now. The UK has a great deal of influence, and we must be prepared to use it.

The UK is directly responsible for only 2.2% of world emissions, but our global influence is far greater. Through the Commonwealth, we have ties with developing and rapidly industrialised countries such as India and Pakistan. Through the City, we channel capital to projects around the world. In the energy world, Shell and BP are world-class players. According to a report commissioned for Henderson Global Investors, UK energy, finance and corporate interests are altogether responsible for at least 15% of global emissions. UK business has a crucial role when it comes to cutting global emissions.

I have already detailed the host of direct and ancillary benefits such action would bring. However, these are obviously "net" benefits. What would be the upfront cost to British business?

The House of Lords' science and technology committee estimated that the cost to the UK of cutting emissions by 60% by 2050 would be between 0.5% and 2% of GDP. If we assume a growth rate of around 2% a year, this means that average British living standards would reach the level they might have reached in January 2050 not in the January but between March and December of the same year.

This analysis, incidentally, ignores any of the benefits I previously mentioned.

The costs, therefore, are manageable, provided they are on a long timescale, and that the regulatory burden imposed by government is not great.

What is essential is that the timescale for investment is as long as possible, which is why we need to start now and which is why the government must give a carbon price signal as far in advance as possible. This gives investors the confidence to spend money on clean technology in advance.

### **Statutory steps**

It is for this reason that the Conservative Party is pushing the government for a climate change bill. This would establish statutory annual emission reductions. The targets would be set and monitored by a climate change commission, made up of scientists, economists, non-governmental organisations, and representatives of industry, commerce and finance. This means that every government would be bound to cutting emissions, whichever party were in power.

Within this framework, governments will need to consider a full programme of carbon reductions. This includes emissions taxes, abatement subsidies, emissions quotas, tradable emissions allowances, and performance standards.

It is crucial that, within this framework, politicians resist the temptation to micro-regulate. The government must find the most efficient way of making the price of carbon key, and then leave it to the market.

The Conservative's Quality of Life policy group, for example, is looking at standards: builders would legally need to meet a certain percentage reduction in energy use, but how they did it would be up to them. This approach would liberate business, not over-regulate it.

Another example is with emissions trading: the government puts scarcity into the market by restricting the amount of carbon available for companies to emit, and then business and consumers themselves decide how much this carbon is worth to them. As the amount of carbon gets less and less and the price starts to rise, people will naturally move to low-carbon solutions.

Of course, unilateral action alone will never be enough. Nevertheless, we need to make the case domestically for tackling emissions; multilateral and finally international action must follow.

The duty for government, therefore, is to make this case by creating a policy framework that gives the market long-term certainty about the value of the environment. At the UK level, we need a climate change bill. At the EU level, we need to make the emissions trading scheme work through greater accountability and improved monitoring systems. Only when the EU emissions trading scheme is proven can we have a hope of expanding it into the international emissions trading scheme the world so desperately needs.

A long-term framework, guaranteeing emission reductions based on the best possible science, will dramatically change the way that business and consumer decisions are made.

It is essential that we keep intact the creativity that makes market solutions so incredibly powerful, but we also must find the political will, both here and abroad, to lead us to a cleaner and more secure world.



## Chapter 7

# Making the green switch

Chris Huhne MP, Liberal Democrat Shadow Environment,  
Food and Rural Affairs Secretary

*Decarbonising the modern economy will require a sustained policy effort over two decades. Pollution, rather than people, should be taxed. The green switch involves some of the toughest political choices - particularly on transport. Green taxes on transport are a litmus test of serious intent, but are merely the start of an effective programme to stop climate change. Energy conservation and energy efficiency, rather than nuclear power, are the keys to reducing the UK's carbon emissions.*

## Making the green switch

The first principle of the Liberal Democrat green tax switch is that we should, as a society, be taxing pollution rather than people, and we should be taxing bad things like carbon emissions rather than work, risk and effort. On that basis, if we were to engineer a change in the structure of taxation towards green taxation by raising £8 billion a year extra in green taxes, we would be able substantially to reduce taxation on incomes.

Together with other revenue-raising measures – cutting relief on capital gains tax, and giving everyone the same tax relief on contributions to their pension fund – we could lift 2 million people out of income tax altogether, abolish the 10p first rate of income tax; cut 2p from the basic rate of income tax, and raise the threshold at which the higher rate applies from £38,000 to £50,000, taking more than 1 million people out of the higher rate of taxation – broadly the number who have been brought into the higher rate during the period of Labour government.

### Mounting evidence of climate change

The motivation for green taxes is the urgency of tackling climate change and global warming. The 10 hottest years on record have occurred since 1990. In Britain alone, this summer was the hottest since records began in 1659; in 2002, we suffered two floods that were supposed to occur only every 30 years; we have had the wettest six months since records began in the 18th century; and the incidence of storm surges, flood damage and droughts is increasing.

Globally, the evidence is also compelling. In the past 10 years alone we have suffered the most powerful el Niño effect ever recorded (in 1997-98); the most devastating hurricane in 200 years (Hurricane Mitch in 1998); the hottest European summer on record, in which 26,000 more people than usual died (in June and July 2003); the first south Atlantic hurricane ever (in 2002); the collapse of the Larsen B ice shelf in Antarctica (in 2002); and Hurricanes Rita and Katrina in the gulf of Mexico and New Orleans (in 2005).

The science has become more alarming, not less so. It is based on ever more diverse evidence: on land temperature measured by thermometers; on temperature measured by balloons and satellites; on ice cover and ice thickness; on melting permafrost; on sea temperature and sea flow; on the height of waves; and on the incidence of storms, cyclones and typhoons. There can no longer be real doubt about the science. As the editor of *Science* – the leading peer-reviewed journal – has said, it is rare that there is

a consensus in science as compelling as there is on climate change.

Yet Labour's record has been disappointing. Under Labour our carbon emissions have increased by more than 3% since 1997, and we are meeting the Kyoto targets to which we have signed up only by accident – because of the reduction in emissions from the electricity-generating sector driven by the switch from coal to gas. (For a given amount of electricity, the use of gas rather than coal cuts carbon emissions by a quarter). We need to do much more if we are to sustain our efforts and establish a position from which we can argue for others also to take action.

Economic instruments are clearly crucial and valuable. In our view, the EU emissions trading scheme is the best system, because the incentives go deep and accumulate as behaviour changes. Companies can make even more by selling allocations when they save carbon emissions, unlike merely saving on paying a tax. However, the scheme covers less than half of total emissions. The EU Commission should be far tougher with those countries that submitted joke national plans with emissions above present levels. We need to add in sectors such as aviation, shipping and freight, and to auction more and allocate less.

But any cap and trade scheme at present is in effect limited to those parts of the economy – such as power generation and heavy industry – dominated by a few big players that can be easily monitored. The reality is that the scheme will not cover the gaping hole in the UK's climate change efforts, which is the transport sector. As the select committee on environmental audit reported in July, transport is the only sector where emissions have consistently increased since 1990. It is the key problem in the government's emissions plan.

Total carbon dioxide emissions from the UK transport sector have increased by 18% since 1990. That is in contrast with every other sector of the economy, including farming, the public sector, business and the domestic sector, where the reductions in carbon emissions from 1990 to 2004 have been respectively 53%, 28%, 12% and 2%.

### **Transport sector a major problem**

Transport stands out, and there is no mystery as to why that is the case. The truth is that the Chancellor beat a retreat in the face of the fuel duty protests and since then green taxes, largely taxes on fossil fuels, as a share of national income have been falling steadily: down from 3.6% of national income in 1999 to 2.9% last year.

The problem is brought into even sharper relief by an analysis of recent trends in the relative costs within the transport sector. The real costs of motoring have declined in the past six years, while the average real cost of airline tickets is around the same as it was in 1996.

There are two potential policy instruments that could in time help to resolve the problem. The first would be road user charging, based both on congestion and on emissions; the second would be personal carbon allowances, recently floated by the Secretary of State for Environment and Rural Affairs. However, both are some way off technologically and the key objective, faced with the urgency of climate change, is to move quickly. We have maybe no more than 10 years to reduce carbon emissions substantially, and an honest policy should be based on existing technologies and policy instruments.

That does not include voluntary agreements. The experience of voluntarism in, for example, the car sector has not been a happy one. The voluntary agreement signed up to by the car makers to reduce average carbon emissions to 140g per kilometre by 2008 is, frankly, for the birds. At the current rate of progress, the UK would not achieve that until 2022. We have broken promises in the vehicle sector from manufacturers, and the case for going beyond voluntarism is a strong one.

That is why we have proposed a change in the rates of vehicle excise duty on new cars, with an eye-catching £2,000 a year on those gas-guzzlers that are emitting more than 225g of carbon per kilometre. The objective of that policy is to change the cars that people buy, so that the stock of cars gradually changes. In addition, the impact of the incentives on manufacturers will be to bring forward lower-carbon vehicles in each category.

The transport select committee pointed out that, in particular, the new band G introduced by the Chancellor is ineffective and the rate charged needs to be much higher. As things stand, the vehicle excise duty paid by the owners of the highest-emitting 4x4s and luxury saloons in band G represents a lower percentage of their sales price than for smaller cars.

The £45 higher rate of the new band G is so feeble a deterrent to the purchase of the average gas guzzler that it typically represents the cost of half a tank of petrol or, in the case of an upmarket 4x4 such as the Porsche Cayenne, one replacement wiper blade.

Our proposal is for a far sharper rise at the top end, to deal with what the Department for Transport identified as the trend towards higher-emitting cars outweighing the technological improvement in fuel efficiency. Otherwise, our proposal is closely modelled on the proposals put forward by the Energy Saving Trust and the Sustainable Development Commission. The DfT itself commissioned some work from opinion polling organisation MORI to check on the likely impact of the different price bands for vehicle excise duty of the sort that we are putting forward. That study suggested that 72% of new car purchasers would alter their behaviour faced with the sort of change in vehicle excise duty bands that we propose. That is a clear set of proposals for dealing with one rapidly growing element of carbon emissions in the transport sector.

### **Favourable treatment for aviation**

On aviation, we have seen extraordinarily rapid growth in carbon emissions. According to the International Civil Aviation Organization, average annual growth over the past 10 years has been 4%. In the UK, the growth in passenger numbers has been even higher: 6% a year over the past 10 years. Aviation emissions are growing so rapidly that, at present growth rates, aviation could use up the entirety of the UK's carbon allocation by 2050, allowing nothing whatsoever for domestic heating, transport by car or bus, or any other use. That is why it is essential to curb aviation growth – not necessarily to cut it back, but merely to slow its pace of growth. If people want to fly rather than carry out other carbon-emitting activities, it is not, in any Liberal Democrat view, the business of government to tell them not to do so. However, people need to take those decisions on the basis of a level playing field.

At present, aviation is highly favoured. It is lightly taxed by comparison with other areas of spending, and it is not clear, given the undoubted damage caused by carbon emissions, why that should be so. There is no kerosene tax and no VAT on airline tickets, although that would be possible both nationally and at an EU level. Aviation is not included in the emissions trading scheme and we are some way off that happening. The reality is that we need to work a little harder at a national level; there are substantial constraints if we are not to make ourselves wholly uncompetitive internationally. However – as we have seen before, when air passenger duty was introduced – we can act nationally.

The existing air passenger duty is an extremely weak reed in the context of this problem. Since 2000, for example, there has been a reduction in the revenue from air passenger duty of 35%, even though there has been an 8% increase in passengers.

The charge of £5 for short-haul and £20 for long-haul travel, at the lowest rate, needs to be replaced by an emissions charge based on the emissions of the aircraft over the flight. Although we aim to tax aviation as a whole more heavily – that is what would limit its growth – the extra burden on passenger flights would be mitigated by the extension of the emissions tax to freight. In each individual case, the charge would depend on the fuel efficiency of the aircraft and on its load factor. It is noticeable, for example, that the budget airlines tend to have younger, more fuel-efficient aircraft in their fleet, and they also fly with substantially higher load factors than the bigger airlines.

Inevitably, those of us of a progressive disposition worry about the impact of indirect taxes on income distribution. Of course, indirect taxes may prove to be regressive if, as is normally the case, expenditure on necessities represents a higher proportion of the income of the poor than that of the well-off. That is why the Liberal Democrats have been careful not to propose the extension of the climate change levy, or a climate tax on households, before we have a far more successful scheme to improve energy efficiency.

The taxes that we propose are not regressive, and one can see that in the case of the vehicle excise duty. Poorer households do not own cars. Some 28% of British households are without access to any car. Moreover, even among those who have a car, it is rare to find families that buy new cars. However, the increased vehicle excise duty rates would apply only to new cars.

On aviation the picture is similar. The average income of leisure travellers from UK airports, which was surveyed recently by the Civil Aviation Authority, was nearly £50,000 a year, or more than double the national average. Nearly 80% of leisure flights are taken by people in the top half of the income distribution curve, with only 20% taken by those in the bottom half.

It is clear, however, as has been suggested, that such a policy might adversely affect those in rural areas if special considerations were not made. That was why the Liberal Democrats proposed during proceedings on the Finance Bill that there should be a 50% discount on a household's first car in sparsely populated rural areas, and why we believe that we should consider reducing excise duty rates on fuel to offset some of the disadvantages of remoteness for rural communities that rely on cars.

Overall, the green tax switch would aim to raise the yield from green taxes back to the share of national income at the peak of 1999, in the space of one parliament. It thus

represents a rise of 0.7% of gross domestic product. It would be a sensible first step, after which we should assess its effects and other measures that might be necessary to achieve the goals. I reiterate that the key promise of the package is that the revenue raised from green taxes should go back to taxpayers in the form of cuts in taxes on good things, such as effort, risk and work.

### **Going beyond the green tax switch**

But guaranteeing a low-carbon future will rely upon more than restructuring the system of taxation. The green tax switch involves some of the toughest political choices, and can alter short-term behaviour – particularly in relation to transport – but in other sectors other policy instruments are more appropriate. The incentives to change are deeper with an emissions trading system that allocates permitted emissions, and allows businesses that emit less than their allocation to sell the surplus. If the business goes on saving carbon, it generates more and more cash, unlike the effect of a tax. Provided that there is a tough allocation of limits that gradually dwindles to sustainable levels, the positive price of carbon can act as a real incentive.

We therefore support the EU emissions trading system for the half of UK emissions that it covers, particularly for electricity generation and other heavy industry. However, such cap and trade schemes are not practical as yet, beyond sectors where there are a relatively small number of players to monitor.

Electricity generation is crucial to climate change control as it contributes about a quarter of total UK emissions, and we believe that there is a key strategic choice to be made between a centralised top-down grid (required by nuclear power) and a decentralised system with micro- and local generation, of the sort already working in the Netherlands. In our view, the decentralised option is the most attractive, both because of its savings in transmission and waste heat, and because it is less prone to system failure. It can also respond quickly to the need to curb carbon.

By contrast, the nuclear power option is unattractive. Given the time delays, nuclear cannot stop us becoming more dependent on gas over the next 10 years. Backing nuclear would close off investment in attractive options like the Severn barrage or lagoon scheme, the Airtricity wind farm in the North Sea and non-stop tidal power in the Pentland Firth. No private-sector investor has built a nuclear power station anywhere in the world without lashings of government subsidy since Chernobyl, because the costs of decommissioning and waste disposal are simply too high.

Energy conservation and energy efficiency, rather than nuclear power, are the keys to reducing the UK's carbon emissions. We must also curb our appetite for power, both at home and in business. There is an increase in electricity demand of 1.5% a year, and a fifth of all electricity generated is wasted in our homes by things like inefficient light bulbs, standby power systems and poor insulation. Saving energy is one of the most cost-effective ways of filling the energy gap, because you do not use it in the first place.

In addition, our current electricity system is so inefficient that two-thirds of the energy in the fuel is wasted through losses in production and transmission, even before it gets used in homes and workplaces. Massive waste is an inherent part of large, centralised, electricity generation, as epitomised by nuclear power. A decentralised approach saves energy and puts generation under the control of local people. At present just 5% of UK energy needs are supplied via micro-generation, because of the wasteful grid system we have in place. This figure is far too small. In the Netherlands some 40% of national electricity is met from micro-generation.

The Liberal Democrats, in line with the suggestions of the Tyndall Centre, have set the ambitious target that 60% of our energy generation should come from renewable sources by 2060. Decentralising energy and embracing the potential of small-scale generation is a crucial component of the structures needed to achieve this. For those who question whether this is a realistic aim, consider that Sweden has committed itself to a nuclear- and fossil fuel-free future within 15 years. Germany has also decided against new nuclear. With some of the most outstanding potential wind and tidal energy resources, we can make much more of these clean and secure sources of energy.

Decarbonising the modern economy will require a sustained policy effort over two decades, involving most of Whitehall: tougher building regulations so that our new homes are no longer 65% less energy-efficient than Sweden's; commercial building requirements that stop heat and light waste; micro-generation in the home and community; energy efficiency packages for our existing housing stock that guarantee savings to the home owner and landlord; tougher regulations on the car industry to deliver the cuts in average carbon emissions to which it is committed; green taxes to shift car purchasing and air travel; government procurement to change its own estate; an emissions trading scheme that provides a positive carbon price and incentives to change; an international agreement, post-Kyoto, in 2012, that delivers similar savings worldwide; and help for those hardest hit in the developing world by the global warming already under way.

The problem that we face is not the failure to recognise the science, the technologies or the policy instruments, but the failure of political will. The time has come to change course, to take our courage in our hands, and to begin to deal with the problem step by step. Green taxes on transport are a litmus test of seriousness, but are merely the start of an effective programme to stop the causes of climate change.



## Chapter 8

# Taking meaningful action

Peter Bill, Editor of *Estates Gazette*

*A survey of the views of Whitehall insiders, including ex-ministers, reveals that the civil service remains uncomfortable about its ability to deal with climate change. It is necessary to set up an authoritative organisation to co-ordinate policy - and perhaps another to ensure that the wishes of the first are put into effect. There needs also to be an annual debate in parliament, triggered by an external guardian of climate change that would set and then police targets.*

## Taking meaningful action

Meaningful action rather than well-meaning words: this is the key signal awaited by a government machine that, although not in perfect shape, is primed to enact climate change policies. This is the single strongest piece of advice from a group that includes former ministers from both main parties, a leading political figure and several senior civil servants and policy advisers. They were interviewed for this research between mid-July and mid-October 2006.

That said, during these three months a discernible shift in mood took place. In July the talk was of the government making its position much clearer. By October it was becoming apparent to interviewees that Labour was putting the pieces in place to do just that by next summer. By early November the seminal report by Sir Nicholas Stern made the government's intentions perfectly clear. Although the credibility gap has narrowed, scepticism that meaningful action will follow remains: resetting the machinery of government in a way that makes it clear that the ecology of the world now matters as much as the economy of Britain will narrow the remaining gap.

That scepticism can best be illustrated by the following example. On 12 May 2006 Downing Street asked the Department for Communities & Local Government to assess the possibility of setting up an office for climate change – and report back by the end of June. Yet an initiative with potential perhaps to become the internal driver for climate change policies was little known or understood. Even those aware of the climate change office proposal seemed unsure of its progress, sceptical of its power and hazy on a likely location.

That was the feeling in July. Four months on, the view is that although serious intent has been shown, meaningful action on this and a host of other issues has yet to be publicly demonstrated.

So, what would constitute meaningful action? What changes to the way government works would convince the public and, as critically, the civil service that the current administration means what it says?

To discover this, interviewees were asked what they thought was wrong with the way green issues were dealt with at local, national and international level. They were then asked to give suggestions on ways that the system of policy formulation, initiation and monitoring could be improved. Selected quotes that summarise their views appear at the

top of each section, under these eight headings:

- Central government  
*Actions now, not words*
- Whitehall  
*No upheaval, just a new central committee*
- Local government  
*Devolve power as well as responsibility*
- Parliament and the watchdogs  
*Hold annual debate to air raised issues*
- Public opinion  
*12% are "responsible ethicals", but beware the rest*
- International opinion  
*Become green adviser to the globe*
- The role of business  
*Encourage the good; compel the bad*
- The role of the NGOs  
*Reinvention looks necessary*

### **Central government**

*Actions now, not words*

*"This is central to the politics of the world for the rest of the century."*

*"A Labour Prime Minister must not only steal Conservative policies, they must leapfrog over the Tories, take the fresh green ground and make it central to the party's next manifesto."*

*"You have to make it as politically sexy as putting a man on the moon." – Bill Clinton in the New Yorker magazine (18 September 2006), on reducing carbon emissions*

The "green shift" is well under way at the political level. The Conservatives have led the debate; Labour is now in the game of catching up and is likely to have done so by next summer. Even over the past three months the momentum has quickened. The Stern report has provided the intellectual springboard for action. The policy options are becoming clearer by the month. And as each month goes by, the political possibility of taking more radical steps becomes easier. Taking it as read that the Whitehall machine will have a

supercharger in the form of some sort of central committee on climate change (as set out in the next section, "Whitehall"), then what?

Set targets, devolve implementation and monitor the results is the consensus. There are variants on how this can be achieved. There are genuine differences of opinion on monitoring (see later). But the feeling is clear that much good work has been quietly done over the past 10-15 years by most departments. There are many policies and programmes and people in place. A white paper may well be necessary to widen and strengthen legislation. The Stern report will push climate change up the priority ladder: but will the subject ever jostle economic prosperity for first place?

For the crux of the issue is of course how to deal with the tension between economic development and climate change. Now economic development nearly always wins: the environment only wins when economic development is not compromised. Only an unequivocal lead from the Prime Minister and the Chancellor will reverse this mindset: a lead that must consist of actions. This is the prerequisite for all that follows.

That lead might consist of the Prime Minister orchestrating the assembly of whatever central framework is put in place to direct climate change policy and the Chancellor announcing a shift towards green taxes in the budget, and both of them committing to make the UK carbon-reduction target the supervening issue should economic growth clash with reducing carbon emissions.

Then three departments should be singled out: those responsible for transport, energy and buildings. To make them take climate change seriously, the issue should have its own dedicated budget line and a single secretary of state responsible for that budget.

The departments of transport, trade and industry (which carries responsibility for energy), and local government and communities should be openly set long-term carbon-reduction targets – and then told to get on and produce their own policies for implementation. This will set a very clear "direction of flight" and make it possible for tough choices to be made more easily.

Right now it remains easy for compromises to be made. Ministers remain good at identifying "not too painful" ideas – like upgrading the building regulations for new homes – but bad at forcing the vast majority in second-hand homes to do anything much at all. Then there is still the lingering view that the old 1980s agenda of productivity and

employment matter more.

The litmus test in transport will be the willingness to curb short-haul flights with high taxes and hypothecate the money into new rail links between north and south. The litmus test for the Department of Trade & Industry is to grasp the "nuclear nettle" and convince the public that atomic power stations are indispensable: or fully commit to renewable energy sources. The litmus test for the Department for Communities & Local Government is to exhume, upgrade and implement legislation that will force owners of second-hand homes to improve their energy performance.

The litmus test for the Treasury is to fully accept that cash raised from specific green taxes should be hypothecated to cut carbon emissions. There are many suggestions on how these taxes could be raised. VAT on greenfield development, a "slot" tax on short-haul flights, and a big increase in road tax for gas guzzlers. Green taxes do now feel legitimate. But there needs to be a direct connection between taxes and the good they do. As one former minister said, "We need hypothecation of green taxes to make them publicly acceptable. Just as we need to make SUVs socially unacceptable, we need to make green taxes socially acceptable." But there may well be a need for an "eco-tax-shift": that is, the reduction of an existing tax and its replacement with a green tax.

## **Whitehall**

*No upheaval, just a new central committee*

*"Unless the Prime Minister and the Chancellor signal their absolute seriousness to this issue by deeds, not words, then the civil service will continue to treat the topic as one where words, not deeds, are all that matter."*

*"You can always tell if any new initiative is serious by whom they get to run it – and where they put it."*

The Prime Minister has signalled serious intent. That means that the actions of ministers and officials to amend the way Whitehall operates will now be taken seriously as well. That much is clear: but what needs amending?

There is little appetite for restructuring Whitehall. Not because all is well: although climate change is being treated with increased seriousness, there remain serious dislocations on green policy, especially between the Department for Transport and the

DCLG. But any redistribution of responsibilities would simply delay implementation of policy by 12-18 months. The prevailing view is that this is time that we can ill afford to waste.

Even now the civil service remains both uncomfortable and sceptical about its ability to deal with climate change, mainly because it is such a hard issue to conceptualise. Each department privately believes it is another department's issue: and the Treasury is only just coming to terms with the idea that it has to treat climate change even half-seriously. The external costs are hard to define. Today most decisions are made on the balance of competing interests. But tomorrow the argument might be: "If it's good for the environment, isn't that good enough?" How is that going to work?

The weaknesses are well understood at a senior level. Therefore there is a general acceptance that to overcome the dislocation and the scepticism it is necessary to set up an authoritative, internally facing organisation to co-ordinate policy – and perhaps another to ensure that the wishes of the first are put into effect: hence perhaps the office for climate change idea. A powerful Cabinet committee with a top-flight secretariat may do just as well, say some. But whatever the name or shape of the new body, it must mean – and be seen to mean – business. For making this organisation work effectively will be an enormous challenge and provoke great tensions within individual ministries.

The group should be like a "mini-cabinet", with promotion or demotion of its ministerial members dependent on getting it right. It must mean business by having the first secretary of state as "managing director" and five or six other secretaries of state, including the Chancellor, as "directors". It can be seen to mean business by having the very best civil servants seconded to run proceedings – with someone at its head who reports directly to the Prime Minister. Someone very good. As one former permanent secretary put it: "You can always tell if any new initiative is serious by whom they get to run it – and where they put it."

Where the new group is sited also does matter. Placing it within any particular ministry will make it look captive of that ministry: except perhaps if it is put within the walls of the Treasury. Then the signal will be clear: this matters. It also matters that permanent secretaries do not have the power of veto of its decisions.

A secondary thought is that some sort of "green gestapo" is necessary: a group located within the Cabinet Office or the Prime Minister's office with the remit of challenging the domestic policies of ministers – and ensuring promises are kept. This group needs to report

to a single Cabinet minister.

The internal test of this group will be if policy starts to emerge that is better, more imaginative and sharper-edged than before: especially in the field of transport. The unit needs to be small and defined. But, as one ex-minister warned, it will need to be staffed with people of experience and tact, armed with the credibility and ability to interact with ministries. "Young folk, however bright, just irritate."

### **Local government**

*Devolve power as well as responsibility*

*"Their potential role could give them a whole new lease of life."*

*"They need much more power, to charge for waste for instance."*

*"The civil service will hate it – they like to tell, not to negotiate."*

Local government appears fairly content with the legal powers it enjoys. These tend to be used as a "springboard by wilful individuals" to take action on recycling. But they are also easy to ignore by those uninterested. What the local authorities would really appreciate is a good deal more money-raising power: that would indeed raise the necessary level of interest. What they want then is to be left alone to meet centrally set carbon-reduction and recycling targets in a way that suits each individual authority. "Don't overprescribe" was the central message. Among the better authorities is a muted excitement that having these powers will see the renaissance of local government.

Local authorities already have to take climate change into account when setting policies. But it is "more of a nudge than a duty", said one local authority expert. A review of local authority functions is being undertaken by the Department for Environment, Food & Rural Affairs. A new performance framework that will set targets is being investigated. There is a strong will for the new framework that is due to be implemented in 2008 to place far more importance on recycling and carbon emissions than ever before.

But there is also frustration in London and other metropolitan authorities that policy on climate change and waste disposal is so Balkanised, leaving the boroughs with too much control. It is felt that so-called "city regions" should be given greater powers over larger areas. "Only then will you get scale, confidence and – most important – the quality of

people to get things going," said one city politician. This will especially help the poorer boroughs, where recycling rates are typically low.

Where there is ambivalence is over charging for waste. Some see this as central to the revival of local authority power – provided they keep the money. Others worry about the national political fallout and quote the "chip in the bin" stories that sporadically appear as a precursor to tales of old ladies going to court for failing to pay. But the prevalent view is that the only way to reduce waste is to charge for disposal.

On carbon emissions, local authorities have no duty beyond reporting figures under the Home Energy Conservation Act. The progressive authorities feel they could play a more central role in controlling carbon emissions. They believe they could become the instruments of change when it comes to upgrading the energy levels of existing buildings. A parliamentary bill to do this, mentioned earlier, was quashed by the Treasury. The intent was to force residents refurbishing their homes to upgrade energy-saving levels. This bill should be reintroduced, said one ex-minister: "I don't think it would be quashed now."

### **Parliament and the watchdogs**

#### *Hold annual debate to air raised issues*

*"This is a moral, not a political issue." – Al Gore*

*"The public will never forgive us if the government and opposition play party politics with this issue. We must have policies that are cross-party and can last from one government to the next – and that includes green taxes."*

*"Politicians instinctively construct programmes around existing problems. That is looking backwards. On climate change we need to look forward a generation and build policies today around problems that won't happen until tomorrow."*

*"We need a Bank of England style body that has perfectly comprehensible targets that are announced to the public."*

There was consensus that parliament needs to stage an annual climate change debate. There was no consensus on the shape or remit of any watchdog after the style of the Bank of England, the National Audit Office or the National Institute for Health & Clinical Excellence to monitor targets externally and provoke debate.

But an annual set-piece debate must take place, it was felt. This could be stimulated in one or two ways: first, perhaps, by having each responsible department report on its progress in meeting carbon-reduction targets; or, second, by a debate on the annual report of whatever kind of external watchdog is set up.

At one extreme the Bank of England model was favoured. This should not be a "finger wagging" model. It would help set the carbon-reduction targets, and, critically, be involved in their measurement – and, even more critically, in producing solutions to get the reduction targets back on track. In this way, a climate change commission perhaps could become the focus for scientific effort. It then might also be used as a platform for the government's chief scientist to produce a progress report and also perhaps form the locus for the green lobby.

Others felt this was too extreme an option. Rather, they suggest, if an office for climate change were set up within government, it could have an outward-facing role bolted on – and so be used in a more limited way than the Bank of England model to trigger the annual debate.

Either way, it is also important that the whole basis for measuring and recording carbon outputs is reviewed. There was much scepticism about the methods and measurement of carbon emissions. "The answers can now be fiddled, because those who give the answers do the measuring," said one former minister. "We have to make sure the public trusts the numbers, or we'll never get away from arguing about them. The targets must also be easy to define and understand. Right now they are far too fuzzy."

Parliament should also be the testing ground for building as much cross-party consensus as possible. The nuclear issue will always be divisive. It is hard to see any party agreeing on the level and scale of green taxes, despite the wishes of some. But there was a clear wish from the ex-ministers of both parties that some sort of parliamentary forum be established to produce consensus on some climate change propositions to prevent debate producing delay.

### **Public opinion**

*12% are "responsible ethicals", but beware the rest*

*"OK, it's fashionable in this benign economic climate to appear green – but I wonder how deeply held this sentiment is."*

*"We have to remember that climate change is still a bit abstract to the man in the Dog & Duck."*

*"We need to frighten them, and then tax them – and make sure they know the taxes are for saving the planet."*

There has been a "green shift" in public opinion in the last 12 months: a mood coloured deeper green by a strange summer of blistering sun, monsoon downpours and Wagnerian electric storms. But there remains scepticism about how tolerant are the electorate – outside the 12% of "concerned ethicals", a group identified by SustainAbility, a management consultancy specialising in green issues. How will the bulk of the population react when their lifestyle is really threatened?

The concern is that society has become egocentric and shallow: everyone wants everyone else to save the planet. The question is how to connect this individualistic society with public policy: how to say that what we are doing is for a just cause; that your punishment is partly for the common good.

Yes, the middle classes, driven by conscience, are already modifying their behaviour. But is their attachment to saving the planet strong enough to hold out against stringent regulation and taxation? The headlines following the Stern report tell their own tale: the broadsheets in favour of saving the planet; the tabloids already raging against green taxes.

There is also a further issue on green taxes on which debate is largely silent at present. After 10 years of economic growth, a healthy economy is now taken as a given: but what if economic growth was to falter or the economy to start shrinking? This may happen, as Stern predicts, due to the effects of climate change. There are a number of unknowns that may slow the economy in the next 10–20 years: it is a fair bet that something will happen.

Only then will the green fiscal policies be truly tested. The point made by one ex-minister is that in this benign economic climate it is easy to appear green. But how deeply held is this sentiment? Will SUV owners remain quiescent paying £2,000 a year in road tax when Dad has lost his job and the other two cars have to be sold? The point made is that any changes to the tax regime must be robust enough to survive a downturn: to be robust enough to do that, they must not be seen as "additional" taxes, but as part of a shift from the traditional taxing of income to the new paradigm of taxing consumption. The only exception to this rule is targeted taxes that are demonstrably hypothecated to pay for

green policies.

Even then, the greatest challenge lies in convincing Labour's traditional voters that the green taxes affecting them are necessary. As one interviewee said: "Climate change is still a bit abstract to the man in the Dog & Duck." Start to raise taxes further on fuel or short-haul holiday flights without explaining why, and their resentment will be ferocious: especially if they see the rich still consuming – as they will. "This will be even tougher than the poll tax," said one adviser, suggesting that unless the majority of the public is wholly convinced that the green tax shift is fair, the minority will take to the streets – especially if the economy falters.

A secondary but no less inflammatory issue of public concern is nuclear power. Parliament is deeply divided on the issue. Each of the main parties is also as divided on this as they were on adopting the euro. The energy review made it perfectly clear that a new generation of nuclear power stations is necessary. The building programme is decades long. So all-party support, however tacit, is necessary before work can begin. One ex-minister advised that, provided all-party support can be gained, the government must "grasp the nettle early" and give the go-ahead.

That will cause a rumpus and alienate the deeper green end of the spectrum of public opinion. But the bigger issue remains that most of the concepts of climate change are concepts that most people still do not understand. They must be made comprehensible. This is a precondition for anything working. Put more brutally, "we need to frighten them, and then tax them – and make sure they know the taxes are for saving the planet," as one former minister said. To do just that, climate change policies must be, above all, "coherent, comprehensive and consistent – and constantly repeated".

## **International opinion**

*Become green adviser to the globe*

*"We have to put far more open pressure on the US."*

*"The Department for International Development should skew its budget towards aiding carbon reductions as there is no contradiction in saving the planet or saving people."*

*"Britain can become the green adviser to the rest of the world."*

International policy is moving strongly in the right direction. Britain must continue to play a leading role in the shaping of opinion and the formulation of policy. Sceptics pointed out that the UK accounts for little more than 2% of global carbon emissions. They were out-voiced by pragmatists who said that unless Britain was fully involved we would have no sway in the resulting carbon-reduction regimes.

But either the US shifts towards Europe, or Europe must shift away from America. There must be more open pressure on the Bush administration to accept that carbon emissions are causing climate change. Co-opting Al Gore is a good idea. But there are indications that President Bush may recant a little in his State of the Union speech in January. If not, the British government must be prepared to move further away from America on this issue. Why? Because the machinery of government will not get fully behind climate change initiatives unless this happens, nor will the EU or the UN take Britain seriously: this, as one ex-minister said, is the litmus test of the Prime Minister's true intent.

At home, the Department for International Development is seen as a likely candidate to assume much more responsibility for the promotion of UK experts in climate change. "DfID should go green" was the view. In other words the aid budget should be skewed – at least somewhat – towards projects that reduce carbon emissions. "We have a great opportunity to become green consultants to the globe," said a former cabinet minister. The objection that this would siphon money away from the poorest on earth was met with the not wholly convincing retort that "the depredation of climate affects the poorest people – look at Hurricane Katrina".

### **The role of business**

#### *Encourage the good; compel the bad*

*"Some bigger firms now realise they need to be green and be seen to be green. It is now to their advantage."*

*"If you think the Treasury always puts the economy before the environment, what the hell chance do you think we have with business putting the planet before profits?"*

*"The top 1,000 companies should be required to report on carbon emissions within the annual report and accounts – and not in some corporate social responsibility brochure."*

Most of the top 100 or so British companies have got it. Hundreds of smaller firms are

seeing the light. But the majority of UK companies have done very little. Only a stiff reporting regime and higher taxes will have any effect on this group. That sums up sentiment towards the business community.

What can be done? The government should provide sector-by-sector five-year carbon-reduction targets for the half-a-dozen industries that matter. These major industry groups should, through a nominated trade association, be required to measure and report on a nominated list of companies: the measuring to be done by accredited independent agencies, the nomination of companies by government.

In addition to this, the top 1,000 industrial companies should be required to report on their carbon impact within their financial report and accounts.

Some of these initiatives have been suggested before. They have all been either watered down or abandoned after pressure from lobby groups. But the feeling is that sentiment has now changed and that such policies could now stand up in a different climate of opinion.

This new climate brings with it a host of opportunities for UK business. A raft of initiatives appears to be springing up quite independently. The new commission suggested by Sir Nicholas Stern will act as a catalyst. But how to encourage large-scale invention seemed to be the issue in July. Tax breaks for R&D and tax punishments for high-carbon products were the suggestion. But there was little appetite for expanding the role of the government agencies that are supposed to promote these initiatives (see next section).

## **Non-governmental organisations**

### *Reinvention looks necessary*

*"[-----] are about as much use as the Better Regulation task force."*

*"We've been trying to do something with [-----] for ages: I'm beginning to lose the will to live."*

*"Don't talk to me about [-----]: pathetic."*

By far the most negative view on climate change issues came when discussing the role of non-governmental organisations with an environmental remit. The feeling is that most of

them were set up in a time when climate change was about as important as road safety – or reducing government paperwork. Comments on some of the smaller bodies set up in response to some particular need can be printed only after excising the name. Many are seen as bureaucratic, unresponsive, holding overlapping responsibilities – and, crucially, producing very little bang for their government bucks.

Negative comments were also made about what should be the most important NGO: the Sustainable Development Commission. The SDC's anti-nuclear stance has of course made it enemies. But there was genuine concern that the SDC had become more of an "outside the tent" campaigning organisation rather than a serious source of advice and influence. As a result, the SDC is seen as having neither the power nor the influence that such a body should have, because of its "outsider" stance. "We need to find a way of getting them into the tent," said one ex-minister, who suggested a more powerful board and direct access to the Prime Minister. One political adviser said: "If meaningful changes are made, it would help the SDC to be taken more seriously."

There was also a general view that there should be a review of all government-funded agencies that have anything to do with climate change, energy and recycling issues. This should be done not so much to shut them down, but rather to ensure that all the "mapped" issues are not being either ignored or duplicated.

"There needs to be a look at the overall coherence and stimulation of NGOs," said a senior adviser. "We need to examine the effectiveness of all these organisations that have grown like Topsy. The current situation is not helpful."

Meaningful change was also called for at the environment agencies of England and Scotland: organisations that some felt could form the platform for the monitoring of carbon-emission targets. But "they are dreadful, badly run and not delivering the goods," was the view of a former environment minister. He suggests the two are merged, climate change added to the remit, and the current waste and pollution remit rewritten to force the new agency to "contractorise" the auditing to relevant professional and trade associations in both countries. The current budget could then be spent on being "auditor of the auditors" on both climate change and pollution.

## Chapter 9

# One planet living

Dr Keith Allott, Head of Climate Change at WWF-UK, and  
Paul King, Campaigns Director at WWF-UK

*The list of "solutions" to climate change is now fairly well rehearsed, yet by and large the world remains stuck in a business-as-usual mindset. The major barriers to change are not technological or economic, but a lack of political will to drive forward these solutions with the required urgency. Political will is required to show that we mean business in moving towards one planet living - instead of living in a way that would require three planets if everyone adopted a UK lifestyle.*

## One planet living

WWF has shown that if everyone around the world consumed natural resources and emitted carbon dioxide at the same rate that we do in the UK today, we would need three planets to support us. Globally our ecological footprint is exceeding the planet's capacity by 25% annually. This is because we are using the Earth's resources faster than they can be replenished, and producing pollution faster than it can be absorbed. In other words, we are no longer living off the Earth's interest, we are eating into its natural capital. This is one of the headline messages of WWF's biennial *Living Planet Report*, the latest edition of which was published in October 2006.

Our ecological footprint is made up of a number of impacts arising from our everyday lifestyles, including the food we eat, the materials we use to build our homes, the waste we produce, and the energy we use to keep warm or power the technology on which we increasingly depend. We need to find ways of reducing each segment of our footprint, if we are to move from "three planet living" to "one planet living". One Planet Living™ is a joint initiative of WWF and BioRegional, and our vision is: "a world in which people everywhere can enjoy healthy, happy lives within their fair share of the Earth's resources".

Our starting point is that people do not intentionally set out to degrade the environment, but that all too often the defaults of our daily lives are set to decisions that have harmful consequences. That is why One Planet Living is about actually making sustainable living easy, affordable and attractive, by removing the barriers that stand in the way. We work with the designers of policies and products to provide people with sustainable choices, as a matter of course. Nowhere is this more challenging – or more urgent – than in finding ways to meet our real energy needs in ways that dramatically reduce our carbon dioxide emissions, the biggest segment of our total ecological footprint.

Climate change is the most obvious symptom of how human activities are grossly exceeding the Earth's carrying capacity. Over the past few years, a huge and compelling body of evidence has built up to show that unabated climate change will have devastating impacts on biodiversity and on the lives of the world's poorest people. The Stern review on the economics of climate change provides another vital part of the picture – confirming that the economic case for urgent and sustained global action to reduce greenhouse gas emissions is also overwhelming.

What is the carbon-carrying capacity of the planet? In simple terms, we have already gone

too far. Global average temperatures have already increased by more than 0.7°C above pre-industrial levels – and around the world we are already seeing significant changes in weather patterns and adverse impacts on biodiversity. According to the World Health Organisation, climate change has already killed 150,000 people since the 1970s. The issue is now one of damage limitation – meeting the objective set out in the UN framework convention on climate change to avoid “dangerous anthropogenic interference” with the climate system.

### **The need to keep the rise to less than 2°C**

WWF is clear that to avoid dangerous climate change, it is vital that average global temperatures should not rise by more than 2°C above pre-industrial levels. We are not alone in this – indeed, the EU has adopted 2°C as an objective, and the UK government restated its commitment to this goal in its 2006 energy review.

There are very good reasons to regard 2°C as a threshold that should not be crossed. Even at 2°C warming, the world is facing very severe impacts. Up to 3 billion more people could be at risk of water shortage, and up to 200 million more people will be at risk of malaria. Ecosystems face major disruption – most of the world’s coral reefs will be devastated, summer sea ice in the Arctic will be reduced by 60%, and a quarter of species could be lost from their current range. Above 2°C warming, these and many other impacts become much worse. Moreover, the risk of catastrophic impacts increases dramatically – ranging from irreversible melting of the Greenland ice sheet and Antarctic ice shelves to potential collapse of the Amazon rainforest and weakening of the Atlantic thermohaline circulation. We also run the risk of runaway climate change as soil and vegetation shift from being carbon sinks to being major sources of carbon.

But what does the world need to do to stay below 2°C? Because of the uncertainties in the world’s climate system there is no simple answer – and the discussion must revolve around acceptable levels of risk. The Stern review proposed a range of objectives for the stabilisation of greenhouse gas concentrations in the atmosphere. The high end of this range was put at 550 ppm of carbon dioxide equivalent – a level at which average global temperatures would probably rise by 3°C, and with a significant risk of a rise of more than 4°C. Sir Nick Stern rightly concluded that this “would be a dangerous place to be, with substantial risks of very unpleasant outcomes”. WWF is convinced that 450 ppm of carbon dioxide equivalent, the lower end of the stabilisation range proposed by Stern, is the maximum concentration that we should be contemplating. Even at this level, there is a 50:50 risk of exceeding 2°C and a significant chance of exceeding 3°C, with all the

severe impacts that that entails.

Clearly, stabilising concentrations at 450 ppm or below is a challenging task. Emissions are currently rising steeply, and on current trends the world's energy needs are projected to triple by 2050. WWF is conducting a major study into the world's energy systems, which aims to explore how the world's growing need for energy services can be satisfied while keeping a good chance of staying below 2°C.

This project is not yet complete, but interim conclusions give us cause for optimism. WWF sees massive potential for energy efficiency and renewable energy technologies as vital parts of the global solution. We see a potentially significant role for carbon capture and storage, provided this emerging technology is well-regulated, and also for the use of gas as a short-term bridging fuel to reduce reliance on coal. It is already clear that the major barriers are not technological or economic. Lack of political will to drive forward these solutions with the required urgency is the key missing ingredient.

WWF agrees with the government and the Stern review that reaching agreement on a long-term climate stabilisation goal must be a key objective for the current round of international climate change negotiations. It is vital that urgent progress is made in driving forward these discussions – with the aim of reaching a new agreement by 2008 to ensure that there is no gap after 2012, when the existing Kyoto commitment period expires. WWF is convinced that the world must rally around an ambitious long-term goal of 450 ppm of carbon dioxide or less.

A concentration goal is in fact another way of expressing the total carbon emissions that the world can tolerate over the next century – in other words, a global carbon budget.

### **A global carbon budget**

The concept of a carbon budget also, we believe, has great value as a tool to ensure delivery of ambitious emission-reduction targets in developed countries such as the UK and others in the EU. WWF supports the call, expressed by the Chancellor at the launch of the Stern review, for the EU to adopt emission-reduction targets of 30% by 2020 and at least 60% by 2050. A carbon budget at EU level would complement these milestone targets and make them operational by setting a clear trajectory for emissions. For example, a budget would play a key role in shaping the envelope for allocations in future phases of the EU emissions trading scheme, thus ensuring that business is given the certainty and long-term signals to invest with confidence in low-carbon and renewable

energy technologies.

In the UK, WWF and other groups in the Stop Climate Chaos coalition are convinced that a carbon budget offers a vital tool to ensure that we deliver emission reductions of at least 75% by 2050 (equivalent to year-on-year cuts of at least 3%). Only by making such deep cuts in emissions at home will we have the moral authority to work with countries like India and China, and use innovative ways to help steer these rapidly growing economies on to low-carbon pathways.

The carbon budget would also translate the overall reduction into targets for all sectors of the economy. As such, it would play an important role in educating business and individuals about the need to save energy and cut emissions. Only if we think of carbon emissions in the same way that we spend money (that is to say: there are limits, and there are choices to be made in order to balance our budget) will we be in a position to tackle really tough, and sometimes politically unpalatable, options that affect people's everyday lives, for example our love affair with cars, or low-cost aviation.

Behaviour change has to be encouraged, and choices "edited" by the designers of government policies that can help shape the products we consume. Innovative approaches such as the development of fiscal incentives should be used to encourage people to use public transport more than their car, fly less, use energy less and more efficiently, and choose goods and services with a small carbon footprint.

### **Reducing the domestic carbon footprint**

WWF's current focus in the UK is on ways in which the energy footprint of our homes and communities can be reduced. The bottom line is that we should be making it easy for people to use a lot less energy, with super energy-efficient homes heated and powered by low-carbon and renewable energy sources such as wind, solar and biomass. And instead of a supply-driven power sector selling as much energy to as many people as possible, we need an energy services sector focused on meeting people's real energy needs and cutting their carbon dioxide emissions through loft and wall insulation, energy-efficient boilers, lights and appliances.

The proposals for a demand-reduction obligation on energy suppliers floated in the energy review are a good start. WWF believes that this approach offers great potential to radically transform the business models of the energy companies to ensure that their core business is the provision of energy services – and that successful implementation of such

a policy in the UK offers great potential to show the world how liberalised energy markets can be harnessed to deliver environmental objectives.

We are also urging the Department for Communities & Local Government to publish a strong "Code for Sustainable Homes", requiring mandatory assessment of all new homes, and to introduce fiscal incentives for new developments to be zero-carbon. We believe the government should use the code to signal a commitment to make all new housing development zero-carbon in less than 10 years, with publicly funded schemes leading the way within five years. The code should also be extended as soon as possible to cover existing homes, complementing the energy performance certificates to be introduced in June 2007.

WWF also sees great potential in the government's proposals for a new, mandatory UK domestic trading scheme – the energy performance commitment – covering large energy users such as hotel chains and supermarkets. Again, this policy fits well with a carbon budget approach – which would help to ensure that the targets set under this proposed new scheme are sufficiently robust.

One other very significant benefit of a carbon budget is one of transparency and accountability. The current approach of long-term indicative targets is prone to failure – for many years the targets appear too remote to guide policy decisions, so that they then appear too difficult as the deadline approaches. This year, for example, WWF was dismayed to see the government in effect abandoning its long-standing target for a 20% cut in the UK's carbon dioxide emissions by 2010. A carbon budget would offer a much more structured and focused approach – with some similarities to the Chancellor's bold and successful decision in monetary policy to make the Bank of England independent. A carbon budget would also ensure that future governments could not lightly walk away from climate change targets – surely the least we can expect, given the global imperative of tackling global warming.

While we in the UK consume the equivalent of three times our fair share of the world's resources, many developing countries struggle to access enough resources to give their people an adequate standard of living. Within countries, and particularly the newly emerging economies such as China and India, there is growing inequity between the poorest and the wealthy, with climate change and environmental degradation hitting hardest the poorest communities who emit by far the least carbon.

The UK – through its government, non-governmental organisations and private sector – must act now to become a global leader on tackling the impacts as well as the causes of climate change. Adaptation to climate change is a critical issue for sustaining the lives and livelihoods of the world's poorest people, and the natural environment on which they depend. It is clear that climate change will impact on almost every aspect of aid and development in coming years, and adaptation strategies will be essential.

The Stern review has also thrown into stark relief the question of how both the developed and the developing world should grow their economies in the light of climate change. The clear message from Stern is that we must invest now, and urgently, in avoiding extreme climate change, or we will pay much more later. This means we must find ways to support emerging countries, such as India, China and Brazil, towards low-carbon economies – and to make low-carbon growth a low-risk development strategy for developing countries. This means ensuring that all development assistance minimises climate- and disaster-related risks. The UK government should work with the World Bank and with other IFI and G8 countries to promote much more ambitious investment targets for renewable energy and to support sustainable and socially responsible businesses in emerging economies. The UK must support the emergence of trade and markets for sustainable goods and services from developing countries and emerging economies.

The list of “solutions” to climate change, from international to local, is now becoming fairly well rehearsed. And the Stern review has shown that the costs of tackling climate change will be relatively small compared with the costs of not acting. Yet by and large the world remains stuck in a business-as-usual mindset. What is needed is political will: a will to show we mean business in moving towards one planet living, and living within our ultimate planetary means.



## Chapter 10

# The economic opportunity

Dr Chris Mottershead, Distinguished Adviser on Energy and the Environment for BP plc

*Taking action on climate change is the economically rational thing to do. A market in low-carbon goods must be created by the use of public policy, giving the necessary political signals that will stimulate business to deliver new, low-carbon products and services. Using the market to address climate change is good for business and the environment: the alternative is the collective negotiation of regulation, where movement is at the pace of the slowest, and economic risks are minimised rather than creatively changed into opportunities.*

## The economic opportunity

Sufficient scientific evidence exists to link manmade greenhouse gas emissions with the world's changing climate that action is needed. Some of these changes will be beneficial, but many will be damaging, particularly for those who have least capacity to adapt.

Fortunately, within every risk there are opportunities. This is not to downplay the dangers, or to claim that all necessary actions can be rearticulated as economically beneficial opportunities, but many can. History demonstrates that once a problem is clearly articulated and the necessary resources allocated, then human ingenuity can deliver results beyond expectations.

Despite repeated Malthusian predictions of gloom, there is enough food in the world potentially to feed everybody, man has walked upon the moon, and billions enjoy leisure activities beyond the imaginings of previous generations. There is still much to do, and many competing priorities, to which managing the risks associated with climate change is a recent addition. While ideal solutions are rare, economic development and social progress since the 18th century have been remarkable, and there is no reason to believe this will not continue.

Addressing climate change is about choice. It is about how we choose to live our lives and what we choose to invest in for growth. It is not about pretending we can predict, plan and manage the future. Repeated attempts to do this in the past have led to painful failure. It is about providing people with options, and empowering them to build better lives for themselves, their families and the communities within which they live.

The role of business is to use its creativity, resources and focus to create the best possible range of options. Competition between these options will drive product innovation and reduce production costs, creating growth for those businesses that have the foresight and ability to deliver.

### What needs to be done?

There is increasing agreement that if the most serious impacts of climate change are to be avoided then the average global temperature rise needs to be limited to around 2°C.

Current science would suggest that this means the greenhouse gas concentrations in the atmosphere need to be stabilised somewhere between 450 and 550 ppm, measured in

equivalent units of carbon dioxide.

A simple model developed by the Princeton academics Rob Socolow and Steve Pacala suggested that emissions from fossil fuels would grow by 100% over the next 50 years, based on past experience, but that stabilisation at 500 ppm would require that emissions were held flat for the next 50 years, and then decrease. Basically this would require the creation, over the next 50 years, of a new energy sector, which would be equal in size to the current one and from which there would be no greenhouse gas emissions. They demonstrated that the technology to achieve this already exists.

The Intergovernmental Panel on Climate Change's most recent report suggested that this level of stabilisation could be achieved with a reduction in global GDP of between 1% and 4% by the year 2050, depending on the stringency of the target and scenario chosen. More recent research by Ottmar Edenhofer and others on capturing the economic benefit of induced technological change has reduced these estimated costs. The recent Stern review suggests that the cost is as little as 1% of global GDP per year, while the cost of inaction is at least 5% of annual GDP, and could be as high as 20%.

There is no lack of technology, and taking action is the economically rational thing to do.

What is missing is the collective political will to take action and the creation by business of low-carbon products and services. A new form of public-private partnership is needed. Business will not deliver the new products and services without credible political signals, politicians rightly will not provide leadership without the necessary solutions existing, and both require customer/voter support. Consumers can individually choose to purchase low-carbon products or services, or through the political process can collectively agree that the cost of the climate externality is included in the purchase price of all goods and services within an economy.

### **What is a low-carbon market?**

While economic history has shown that using market competition has a primary role in delivering products and services at lowest cost, it needs to be recognised that climate security does not create a conventional market. Consumers buy goods and services for their inherent utility, which is to say that they want the heat, light and mobility that energy can provide. Taking the carbon out of the energy does not change this, nor does a carbon market of itself delight and reward the consumer. In most cases it is an artificial market created by collective political agreement. Although there are examples of

voluntary carbon markets, these will probably always remain modest compared with the scale of the task.

What is needed is material low-carbon goods and services created by public policy and sustained by enduring political commitment. The purchase of any product or service, such as light, heat or transport, needs to have the cost of the climate externality included within it. The inclusion of this cost is by collective political agreement, and can be achieved through taxation, emissions trading and indirectly through regulation. Competition within the market will be between conventional products and services, from conventional businesses, but with the cost of greenhouse gas mitigation included.

Whether a television, train journey or house purchase, every product or service needs to include the cost of greenhouse gas emission reduction in its price. We will all continue to seek greatest personal utility at lowest possible price, but now including the cost of associated greenhouse gas reductions. The successful businesses will be those that consistently achieve this for their customers.

The much spoken-about carbon market is not the principal focus; it is just one particular tool that allows business flexibility in achieving the lowest-cost transition path to a low-carbon economy. It is neither a product that a customer gets utility from, nor does it of itself reduce emissions.

The growth of the low-carbon economy will occur because the cost of avoiding greenhouse gas emissions is included in the price of manufactured goods or delivery of services. The carbon market ensures that the cost of climate security is minimised through making reductions where the greenhouse gas mitigation costs are lowest.

### **What type of public policy is required?**

Public policy should include the cost of the greenhouse gas externality as its primary tool, by taxation, emissions trading or indirectly through regulation. However, this may not be sufficient; there are existing market failures and issues of urgency.

Some market failures are caused by institutional structures, such as in the use of energy within buildings, where the separation of development, ownership and occupancy of many commercial buildings already hinders economically rational energy savings.

Other market failures are caused by behaviours. For example, many industrial users of

energy have only recently discovered that they have many opportunities for using less energy and saving money. While these options always existed, it is only through the use of policy to support behavioural changes within organisations that these profitable options are now being identified, for example through the energy-saving support programmes for business run by the Carbon Trust and those for consumers run by the Energy Saving Trust.

The right behaviours can be encouraged through regulation and energy-saving campaigns, but doing only this will miss many of the more innovative solutions. It is only through long-term attitude changes that most people, most of the time, will start to seek their own low-carbon solutions. Campaigns can promote the right behaviours, for example encouraging the use of low-energy light bulbs. However, the best answer is to change attitudes so that people choose to buy low-carbon electricity, ensure it is used efficiently and, most importantly, switch lights, heating and appliances off when not required.

Public policy is also needed to deal with the issue of climate urgency, particularly in the case of major infrastructure, where the lengthy capital stock turnover means that we are investing today in infrastructure that will still be operating in 40 or more years. To avoid the need for early retirement of carbon-intensive investments being made today it is legitimate to use public policy to accelerate the shift towards low-carbon solutions.

Cost reductions will be achieved fastest in competitive markets, where policy does not pick winners but supports a variety of competing solutions, each capable of ultimately delivering greenhouse gas reductions, while recognising that these solutions may be in different stages of development. For example, renewable energy is not a homogenous market: wind energy needs less financial support than solar photovoltaic today, and both require different types of institutional reform. Wind will need new transmission capacity between windy regions and the major consuming markets, while photovoltaic energy needs effective integration into local electricity distribution systems.

The guiding principles for this type of policy intervention should be materiality and focus, through comparative measures of reduction potential and the potential for cost reductions. Policy needs to encourage focus and discipline, focusing the limited available resources, particularly scarce human resources, on a portfolio of solutions with the potential to have a material impact.

The cost-reduction potential needs to be benchmarked against the potential for cost

reductions from alternative products and services, as well as substitutes. In most cases the product or service will compete with not only similar low-carbon and higher-carbon alternatives, but also with substitutes, for example train transport as a substitute for short-haul air transport.

### **Politics or policy?**

There needs to be a short-term and long-term framework. This should include short-term policy targets for optimising today's decisions, for example whether to dispatch power from coal- or gas-fired generation. Long-term political goals are also needed to change strategic choices, such as whether to invest in a new fleet of coal-fired power stations.

The rate of development of low-carbon products and services will depend on some level of certainty. Policy should not be used to provide explicit price certainty; that should be provided by the market. The objective should be the creation of market competition to reduce costs.

The political process should provide a credible signal that greenhouse gas emissions will be regulated with increasing stringency in the future, through the setting of a long-term stabilisation goal and a framework agreed to by key stakeholders within the economy as being a necessary boundary condition to long-term growth.

What business needs is the political certainty that climate is not political.

### **What is the scarcest resource?**

The low-carbon products and services that business can develop are dependent on having customers for their products, a regulatory framework within which to undertake business, and most of all the necessary human and financial resources.

The limit is probably not financial but human capital. Do we know how to do what is required, and is that knowledge shared sufficiently to create a workforce capable of delivery? The UK has a well-educated and flexible workforce, well used to competing successfully in a global economy. It retains a robust and responsive manufacturing sector in those areas where it has a competitive advantage.

There is increasing international competition, not simply from countries with vast low-cost workforces, but from economies that are investing in creating the human capital required to compete successfully in the 21st century.

A low-carbon economy will need to be internationally competitive. This will require strategic rigour: chasing all options will dilute resources; picking winners is equally unwise. A new way needs to be found, based on determining a robust portfolio of options where there is the possibility of a sustainable competitive advantage.

This advantage will rely on accessing global markets with products people want to buy. This is dependent on having the right people, with the right skills, in the right place, at the right time. Building this human capital will require co-ordination by government and business.

### **What is the size of the business opportunity?**

The Stern review estimated the size of the global low-carbon sector to be \$500 billion by 2050, broadly similar in size to the world's primary energy industry today. However, this might not be the most effective window on the opportunity. All products and services will need to be competitive, including the cost of greenhouse gas reductions. The necessary economy-wide climate policy will affect every product and service; those who make the transition, making their products and services climate-friendly, will prosper and grow, and those who do not will decline.

This is no different, albeit on a much more modest scale, from the evolution of the music business over the last 20 years from vinyl record, to tape, to CD, and then the MP3 revolution – an early example of decarbonisation. Some businesses disappeared, others innovated and survived, and a few created new possibilities, such when Apple developed the iPod. The iPod was an innovation that not only replaced old technology but also redefined the product, changing attitudes and behaviours. This is the type of exciting innovation required in a low-carbon economy.

### **Why is using the market good for business and the environment?**

There are those who believe that the necessary changes can be made by imposing stringent limitations on consumption and through regulation of business. This approach will slow progress, as regulators and business do battle over the size, cost and pace of reductions. Intelligent policy drives differentiation between companies, creating competition. A level playing field does not mean all businesses are equal; it means all businesses have equal opportunity to prosper and grow: some will, and some will fail. Some businesses have advantageous human capital, insight and a willingness to take risks. It is right that these companies should be rewarded, and by their doing so not only will they themselves become successful, but so too will the economies they serve.

The alternative is the necessarily slow collective negotiation of regulation, where movement is at the pace of the slowest, and economic risks are minimised rather than creatively changed into opportunities. Climate may be an environmental issue, but its solution is about competitive growth and economic success.

There is no golden bullet, but a portfolio of solutions, each of which has been proven somewhere at scale today. In order to encourage their adoption there needs to be the right policy partnership between governments, business and consumers. The next decade will lay the foundation for a low-carbon future, and in particular for resolving the apparent contradiction between continued energy growth and the real constraint on carbon – which is its increased atmospheric concentrations, not scarcity of fossil reserves. There is considerable uncertainty and complexity, but solutions do exist; all that is required is the necessary commitment to take action.

### **What is the portfolio of public policy needed for a low-carbon economy?**

Increasingly, governments will need to use a broad suite of policy measures to meet their climate objectives. Just as there is no single silver bullet in terms of the technology, so there is no single policy instrument that by itself is adequate. However, policies that use the market to promote growth and responsible behaviours among consumers and businesses are most likely to be successful.

Such policy measures include the following:

- *Establish a carbon price* by taxation, emissions trading or regulation to drive efficiency into existing major infrastructure.

Emissions cap and trade systems drive efficiency into existing major infrastructure, reducing emissions per unit of output. They are an economically efficient way of regulating emissions from current plant and equipment. While the focus at present is on large emitters, potentially it would be possible to create aggregation processes allowing broader use of the system, potentially including the retail consumer.

Cap and trade systems offer an enduring, market-based mechanism to internalise the climate externality. They are likely to develop regionally, so emphasis needs to be placed on ensuring that exchange mechanisms exist between these regional systems. There is no need for a single carbon currency, no more than there is a need for a single global monetary currency. International trade in carbon can occur without a single unifying

system, but there does need to be a strong benchmark currency, and for carbon this currently appears to be the one created by the EU emissions trading scheme.

- *Transition incentives* to encourage the commercial deployment of near-to-market technologies such as renewables and carbon capture and storage.

Price signals from cap and trade systems are not sufficient to promote all the potential low-carbon investments, particularly in their early stages of deployment. Nor would it be wise to introduce across the whole of the economy a carbon price on all goods and services sufficient to incentivise the growth of these low-carbon solutions. Governments should avoid imposing unreasonable costs upon business and creating competitive disadvantage.

The cost needs to be commensurate with the environmental benefit, both now and in the future. Significant cost reductions will be possible in the future from many technologies; history would put these in the range of 2-5% per year. Paced deployment is necessary; moving too quickly will lock in unnecessary costs, while delaying investment may mean that the necessary emission reductions are not achieved.

- *Investment criteria* to ensure that all new infrastructure is competitive against best-in-class cost and emissions benchmarks.

The International Energy Agency estimates that \$17 trillion dollars will be spent on new energy infrastructure over the next 30 years, almost half of which will be in developing countries. While investment in OECD countries will increasingly become influenced by active climate policy, it is critical that the new investment in non-OECD countries is as economically and environmentally efficient as possible.

A process analogous to the Equator Principles (a set of voluntary environmental and social guidelines for project finance) may be helpful, involving commercial banks, export credit agencies and business investors in a voluntary agreement to invest only in projects that are top-quartile in terms of cost performance and emissions intensity.

While these three generic policies focus on the critical areas of market incentives for operational efficiency and strategic investment by business, three additional enabling policies are critical, and should receive attention from governments. Their implementation will also create opportunities for business, creating new products and markets.

- *Public awareness* to create support for the necessary public policy and increase awareness of what individuals can do to mitigate their impacts: shifting attitudes, behaviours and decisions.
- *Regulation* where there is a clear market failure, for example energy efficiency in buildings.
- *Tax and trade consistency* to remove inconsistencies and barriers, for example to allow the creation of an open global market for biofuels.

To these three should probably be added adaptation, although the role of business has yet to be properly explored in this area.

### **Conclusions**

The UK can benefit from action to mitigate and adapt to climate change, both for itself and through helping others. While predicting the future is always fraught with difficulty and should be done only with caution, the array of options we have with which to tackle climate change should make us cautiously optimistic.

The limitation is not technology or finance, but human capital – having the people to imagine, create and deliver a low-carbon economy. This will require a new partnership between business and government. Business will compete to deliver new low-carbon products at lowest cost, but it needs the right policy framework.

Unlike with other markets that government regulates, in the case of climate protection government also has a key role in creating the commodity. In effect it purchases directly, or mandates consumers to purchase, climate protection on behalf of society, as it does for defence, education or healthcare.

Short-term carbon regulation will optimise current decision making. But only an enduring political commitment to procuring climate security will ensure that business invests its financial and human capital to build a low-carbon economy.

## Chapter 11

# Planning for climate change

Professor Peter Roberts, Chair of the Academy for Sustainable Communities, and Gideon Amos, Chief Executive of the Town & Country Planning Association

*Alongside mitigation of further climate change, we must adapt to the changes in climate that have already begun to occur and that will continue, despite our best efforts. The skills of town planners are central to this response. Rising temperatures mean that we must increase the amount of green cover within our cities and towns, but the real challenge is to see new buildings properly “climate proofed”.*

## Planning for climate change

Addressing climate change is one of the most important issues on the present and future planning agenda. But the response cannot come from planning alone. It is a challenge that requires a response from a range of policy areas and from communities and individuals themselves. The necessary transition to a zero-carbon society is a relatively new issue for the planning community. However, some creative, ambitious planners are already tackling some of the most high-profile and pressing issues we face today, including energy conservation, climate change, and the need for environmentally sound and affordable housing.

As planning and planners deal with climate change issues, it is essential to recognise the importance of both organisation and structure, on the one hand, and context and substance, on the other. A planning strategy for dealing with climate change requires good policy and management, but also requires excellent implementation. This chapter deals with both these dimensions of planning for climate change, and also considers both policy and implementation questions. In addition it points to the need for planning to play a leading role in the wider sustainable communities partnership, involving both professionals and members of communities.

It is now widely accepted that the need to tackle climate change is one of the biggest issues we face as a society in the coming decades. A recent report by the Tyndall Centre shows that global warming is happening sooner and faster than previously predicted, increasing the risk of irreversible, runaway climate change. The latest estimates calculate that we will need to cut our carbon emissions by 87% in the UK by 2030, if we are to stand a chance of bringing this crisis under control. This is no longer an environmental issue; it is a global imperative with consequences for the British economy and social security.

We know the world is heating up, and the summer of 2003 was one of the hottest on record in Europe. This led to a health crisis as well as considerable damage to crops. According to *New Scientist*, more than 35,000 people died as a direct result. The record for the hottest day ever in Britain was broken in August 2003, as temperatures soared to 38.1°C (100.6°F) in Gravesend, Kent. The heat also brought violent thunderstorms, heavy rain and lightning across northern England and the Midlands. More than 20 people were injured after being struck by lightning. The Met Office warned that summers this hot or hotter may even become fairly "routine" within 50 or 70 years. The costs of not acting are immense, as we will have to learn to adapt to harmful impacts such as flood risk, drought

and heat waves.

At the heart of any discussion about climate change is the need for personal change in the way we live our lives. Tackling this means difficult personal decisions, such as walking or cycling instead of using the car or perhaps buying more locally sourced food. Energy efficiency starts at home; investing in better home insulation saves on both energy and cost. Climate change is not just a collective problem but requires individual changes to reduce its effect.

### **Climate change and planning**

Climate change has a daily effect on planning. The built environment contributes around 50% of our total carbon dioxide emissions, so reducing emissions for both public and private housing stock must be part of the solution. On average we replace around 1% of the housing stock each year, and 3% of commercial buildings. So clearly, while raising standards in new-build is important, we must find better ways of reducing emissions from our existing buildings.

But the wider challenge for planning is about delivering more than individual buildings. In fact, planning is a key place-making activity – in terms of creating and maintaining sustainable communities, at all levels from the neighbourhood to the nation state. Therefore good planning, by creating sustainable communities, can enable us to adopt more environmentally conscious lifestyles. Planning is also well placed to take on the challenge of climate change. It is a crucial civic activity that continues to enjoy high levels of public participation.

Planning interacts continually with a range of other policy frameworks and delivery organisations. Building on existing good practice it would be possible to extend the scope of arrangements for joint preparation and assessment of regional spatial strategies and regional economic strategies. At present, models for agreeing common objectives and strategic environmental assessment and sustainable development appraisal are in use in some regions. Such joint exercises could be extended to a range of climate change issues – for example, to ensure that future journeys to work are made predominately by public transport rather than private car. Possible implications for a regional spatial strategy include changes in the choice of future housing areas, and it could also favour economic activity linked to good public transport, clearly affecting regional economic strategies.

## Content

There are many possible responses to these challenges for both policy and delivery organisations. Such responses provide the basis for reviewing planning policy and its implementation. Most of the matters requiring amendment are already elements in policy, and are the subject of recent guidance statements. A clear pattern has emerged in recent years, with new or recent guidance emphasising the importance of dealing with climate change issues alongside other environmental and social imperatives.

One example is provided by the revision of guidance on renewable energy; another is the strengthening of guidance on out-of-town shopping. Building on this established trend of providing stronger guidance on environmental matters, the future provision of planning guidance could "climate-proof" policy areas as they become due for review. In addition, the proposed planning policy statement on climate change will be most welcome.

Equally, the content of regional and local plans could be revised in order to emphasise the importance of building in climate change issues as core matters of strategy. A future revision of planning policy statements 11 and 12 could provide appropriate guidance to regional planning bodies and local authorities. Such guidance must build on established best practice and should seek to promote the interchange of knowledge between public, private and voluntary sectors.

With the emergence of energy-hungry economies in India and China, the nature of the debate has moved from simple prevention to adaptation to a changing climate. Frances Cairncross, president of the British Academy for the Advancement of Science, emphasised this clearly in her recent call for governments to develop an adaptation strategy for climate change without delay:

*Almost all the discussion of climate change up to now has been about mitigation – in other words, how to prevent it [climate change] from happening. But prevention, although important, is not enough. Climate change is going to happen, and we need to think more about adapting to it.*<sup>19</sup>

Nowhere is the need to adapt as apparent as in our urban areas. The urban heat island effect means that by the middle of the century, maximum city-centre temperatures could be more than five degrees Celsius above where they are today. Evidence suggests these

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<sup>19</sup> *The Independent* (5 September 2006)

differences will become starker, with huge implications for both human comfort and the delivery of sustainable mixed communities.

Increasing temperatures mean that we must increase the amount of green cover within our cities and towns. The natural cooling effects of tree cover adjacent to even fairly large buildings are sufficient to make air-conditioning unnecessary, even in southern Mediterranean-style temperatures (which are increasingly found in southern England). Green cover or "softscaping" not only reduces ground temperatures, but also absorbs rainwater where it falls.

Green cover will be an important comfort in future, helping to reduce the impacts of rising temperatures, heavy rainfall and the pressures on biodiversity. Simultaneously moderating high temperatures and reducing the effects of hardscaping (which does not absorb rainfall and has high embodied energy) provides an opportunity for species adaptation programmes and reduces flood risk, as well as absorbing carbon emissions. The increasing importance of green cover should perhaps rank as the single most important design and development feature in the context of climate change.

We are very lucky in the UK that green cover was part of the vision of early planners. London was designed as a green city, and today Sheffield is thought to have more trees per person than any city in Europe,<sup>20</sup> but not every urban centre is as lucky. Further research should audit green cover from a sample of local authorities to assess its extent and value.

## **Skills**

At times skills issues can get lost in wider debates on climate change. The question is: how best can we adapt and apply our skills to meet these new challenges?

Carbon consumption is, of course, a worldwide issue, with many still pointing to the UK's relatively small total percentage of carbon emissions among world players as a whole (around 3%). However, this misses the point, as the UK stands at an advantage since the skills of its planners – and associated professions, including engineering and architecture – are in demand all over the world; particularly in China and India, which are the most rapidly advancing emitters of carbon. We cannot stand idly by while carbon continues to burn, given our international responsibility to help reduce emissions.

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20 Sheffield City Council website, <http://www.sheffield.gov.uk/out--about/parks-woodlands--countryside/trees--woodlands>

The world is watching as the first eco-city in Dongtan, Shanghai, takes shape. We should not forget that much of the expertise helping to develop this overseas exemplar city is home-grown, here in the UK. No doubt we have as much to learn from China on climate change as China has from the UK. But the importance of the international market in service-sector skills across the development industry professions should not be underestimated.

While British planners are among the best trained in the world, there remain serious recruitment problems and the need for further skills development. Sir John Egan's review, *Skills for Sustainable Communities*,<sup>21</sup> identified town planning as a core occupation in delivering sustainable communities. Egan argued in favour of enhancing generic skills, behaviour and knowledge that will make the difference between successful delivery and failure for sustainable communities.

Ensuring that planners are educated and trained with the appropriate knowledge, skills and behaviours is at the heart of the work of the Academy of Sustainable Communities. Established to deliver the Egan review and responsible to the Department of Communities & Local Government, the academy is working with planning and associated professions to ensure that they have the skills to respond to the challenges of climate change.

But the skills challenge does not fall solely on the shoulders of planners. For example, assessing the carbon emissions and the energy characteristics of new developments is a task shared with other built environment professionals, such as developers, surveyors or architects. This skill set is increasingly vital for all involved in development.

In reality, planning is as much an activity of the market as it is of the state. Good planning interacts between the two and is an ideal way of influencing long-term and short-term change. There is an important lesson here about the need to engage the private sector in planning reform, as much as central or local government.

### **Planning at a crossroads**

Many serious thinkers in the climate change field have compared today's situation with that of the 1940s. Some commentators have warned that the threat we face today should remind us of the emergency experienced in wartime. Such a call to action suggests a similar sense of urgency as we adapt to the changing climate with different building

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21 Egan, J *Skills for Sustainable Communities* (ODPM, 2004)

forms and layouts.

A century ago, the Town & Country Planning Association gave birth to the garden cities movement. This was in direct response to the slum dwellings of the late 19th century, which impoverished the health and well-being of the population. Today we should be no less certain that appropriate planning and development can do much to create a similar, and necessary, transformation of our communities.

Energy consumption and supply is central to this agenda. The UK's centralised energy system dates from the last century and the challenges for the system were well summarised by the Secretary of State for Environment, Food and Rural Affairs, the Rt Hon David Miliband MP, in his speech to the Local Government Association:

Since the opening of the world's first thermal power station in London in 1882 by Thomas Edison, the trend over the past century has been towards increasingly centralised power generation. Scale economies have driven the construction of large power stations and the transmission of energy through a national grid.

*But in some countries, with the emergence of new technologies we are increasingly seeing more decentralised and distributed power generation – from biomass-fuelled combined heat and power stations serving a community, to individual citizens producing energy through solar or wind power and selling their energy back onto the grid. In the next 30 years, we could see the same transformation in energy production that we have seen in computers over the past generation – with a growing reliance on small computers connected via a network rather than a traditional mainframe. For instance, a large proportion of energy in Denmark and the Netherlands is produced on a decentralised basis – a transition that took around 20 years.<sup>22</sup>*

As we debate how to move from a fossil fuel-based energy system, we have a once-in-a-lifetime opportunity to rebalance the system in favour of a more efficient decentralised energy network, together with greater social welfare. This means generating low- and zero-carbon energy locally (and regionally), ensuring efficiency and providing security of supply. New community-based renewable energy companies are springing up in towns and cities across the UK, including Woking, Kirklees and Merton. These energy service companies are developing solutions to incentivise energy efficiency among consumers as

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<sup>22</sup> "Power Devolved is Energy Released", speech at the Local Government Association annual conference, Bournemouth (4 July 2006)

well as generate a significant energy supply from local renewable solar and wind sources. Combined heat and power plants, which are so far used much more widely in the Netherlands, also have great potential for the UK.

In all this, it is essential to ensure greater social justice, in terms of access to sufficient energy at an affordable price for low-income groups, who spend a higher proportion of their limited income on energy.<sup>23</sup> This might be achieved through, for example, social energy allocations or the introduction of reformed price models.

Major investment is needed, but who is going to pay for it? It is clear that with huge demands already on planning gain revenues (mainly to fund social housing), there is little room for major investment in redesigning existing developments to meet the demands of a changing climate. To bridge this gap new technology must be made more accessible, and we need to create a wider market for low-cost measures that reduce energy use in buildings and help adapt them to a changing climate.

Recent upgrades to the building regulations have achieved this, in terms of generating a range of building products unheard of only a few years ago. Trickle vents in windows were once a new and expensive innovation for coping with higher levels of insulation and therefore condensation; they are now provided as standard. Government must build upon its previous achievements in continuously upgrading building regulations.

Such a trajectory for the future of building regulations, incorporating reasonable response times for manufacturing, is vital if British industry is to remain at the forefront of low-carbon technology. Changes of this kind could do huge amounts in terms of creating a market for cheaper and more widespread solar panels and other budding renewable technologies.

New planning policies, such as the forthcoming planning policy statement on climate change, should help overcome this problem. A recent Town & Country Planning Association/Friends of the Earth discussion document, *A Planning Policy Statement on Planning for Climate Change*, argued that new regional and local development plans must be "climate proofed", with binding carbon dioxide reduction targets and adaptation measures to help communities withstand extreme climate impacts, including flood risk.

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23 Roberts, P and Jackson, T *Environmental Taxation* (Local Government Association, 1999)

**Conclusion**

Changing the pattern of construction and development in England is a long-term process. While new planning policies are vital, government policy can never be enough. The real prize, and therefore the real challenge, is to see actual developments properly "climate proofed" in both new sustainable communities and regeneration schemes. This demands a renaissance in planning as well as new development aspirations, skills, behaviours and abilities. It also demands real change on the ground.

## **The Smith Institute**

The Smith Institute is an independent think tank that has been set up to look at issues which flow from the changing relationship between social values and economic imperatives.

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