The politics of climate change

National responses to the challenge of global warming

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policy network paper

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Contents

Preface

The politics of climate change

Climate change is now a mainstream political issue. However, as yet there is no substantive framework for policy which offers coherence and consistency as to how national governments should cope with the long-term political challenges of climate change.

This paper by the Labour peer and sociologist Anthony Giddens launches a new Policy Network project on the politics of climate change, held in conjunction with the Centre for the Study of Global Governance at the London School of Economics, with the kind support of the Victor Dahdaleh Foundation. Led by the paper's author and the vice chair of Policy Network Roger Liddle, this project will examine how best to develop an effective climate change policy framework through a comparative political analysis of key western democracies. It will provide a forum for the discussion of the complex politics of climate change between national and international policymakers, academics and commentators. The project will conclude with major conferences in London and Brussels.

Our objective is distinctive: to think about the challenges of climate change in a specifically political context.

At present, public discussion of climate change tends to be partial and disparate. Loosely connected debates hinge on the evidence that climate change is occurring and estimates of its potential impact; the prospects for agreeing an international framework for an economic response to, for instance, carbon trading; futurology surrounding the potential for technological innovation that could solve the problem; and, scenario building that tends to emphasise the necessity for dramatic lifestyle changes.

Public discussion of climate change tends to be partial and disparate

But the debate is often limited in scope and is too compartmentalised. To truly come to terms with the increasingly urgent need for mitigation and adaptation requires a broad, policy perspective because the impact of climate change challenges every corner of the 21st century state. This project aims to offer an integrated platform from which to analyse and respond to the political challenges of climate change.

Our primary focus is on pubic policy at the national level. Although an international agreement is a vital aspect of an effective global response to climate change, we cannot rely exclusively on international consensus as an impetus for action. No amount of discussion at an international level will be of any consequence if the countries mainly responsible for causing climate change do not make effective and radical responses to it.

So, it is at the national-level in the developed countries that real progress first has to be made. And it is through decisive national leadership at this level that a global solution can eventually be induced.

Our "best practice" comparisons will concentrate on key western democracies, such as: the United Kingdom; Germany; France; Sweden; Spain; Poland; the United States at the federal level; and, Japan. We will also look at what role the European Union can play in encouraging national action and

offering a framework for regional leadership combating the challenges of climate change.

The aim of the project is to produce something of a complementary volume of study to that of the Stern Review in the form of three publications: an authoritative monograph written by Anthony Giddens, to which this paper is a prelude; a comparative collection of essays from national policy-makers; and, a report from Policy Network synthesising the conclusions of the programme with a set of policy recommendations to governments.

This volume of study will address the following political challenges posed and issues raised by climate change to western democracies:

1. The management of risk—The prevailing scientific consensus on the effects of climate change is periodically questioned by those who want to scale-up and those who want to scale-down the present levels of urgency and severity in its assessment. How in these circumstances can democracies construct a prudent, long term and consistent policy agenda to manage these risks, whilst also building consensus around the agenda? To what extent is this agenda shared with the pursuit of energy security?

2. A return to planning?—Effective national action on climate change requires a return in some form to long-term government planning. What new forms of interventionism would be most expedient, learning from the failures of the past? How can the climate change dimension be built into every relevant aspect of public policy? How can market-orientated approaches be balanced with state-centric ones in coping with vital issues of mitigation and adaptation, such as carbon pricing, the role of regulation, energy efficiency, transport and land use, the promotion of specific technological innovation by government, and lifestyle and behavioural changes?

3. Creating a political and public consensus for action—How can the democratic penchant for partisanship and short-termism, within differing democratic cultures, be replaced by long-termism and a consensus-based policy agenda? How can an ambivalent public opinion, especially at times of economic uncertainty, be convinced of the merits of long-term action on climate change? What can governments do to induce sustained support for combating climate change?

4. The implications for social justice—The social and economic costs of climate change will be large. How can you ensure that the impact of policies to address climate change are perceived as equitable by key groups in society and do not penalise those who are less fortunate? What are the prospects of ensuring that western democracies can be persuaded to carry the economic and political burden of climate change instead of countries in the developing world?

Our goal is to consider the impact of these challenges and issues on western democracies in general and on specific nations in particular. In this process we will assess the national specificities of the politics of climate change: the successes, weaknesses and contradictions of existing policy; and, the links to national energy security agendas. This will allow for a wide-ranging "best practice" comparison.

These are crucial debates that Policy Network looks forward to playing a part in shaping over the coming months.

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Introduction

Climate change has moved to the centre stage of public concern in a remarkable way and in a very short space of time. Scientists have expressed serious concerns about global warming for a quarter of a century or more. Environmental groups have struggled for much of that period to get governments and citizens to take the issue seriously. Yet within the past few years, climate change has assumed a very large presence in discussion and debate, and not just in this or that country but across the world.

It is not entirely clear why. Certainly the science of climate change has moved on. Much of it is summarised in the work of the International Panel on Climate Change (IPCC) of the UN—a highly influential body. The efforts of former US Vice-President Al Gore, famously, have helped elevate public consciousness about the dangers of global warming. Both received a Nobel Prize for their endeavours. The coincidence of several disasters has played a part. No-one can be sure if Hurricane Katrina was connected to global warming. Yet the fact that a city in the richest country in the world could be reduced to ruin overnight was a visible warning that worse could be ahead. In the heat wave in Europe in 2004, 30,000 people died. The Asian tsunami of that year, in which 10 times as many people lost their lives, had nothing at all to do with climate change, but was a violent reminder of the power of nature and our own fragilities.

Whatever the underlying reasons, a switch was thrown at some point. Climate change is now everywhere in the media, almost on a daily basis. It is spawning an immense literature produced by scientists, other academics and journalists. Most governments have outlined plans for how they will respond to it.

> At present, we have no effective politics of climate change

The literature on climate change tends to divide into several categories. There are many books written by scientists and others about the phenomenon itself and the dangers it poses. A substantial literature also exists on technologies. Many writers on climate change have their favourite technology, most likely in their view to help resolve the problems we face. For some it is solar power, for others nuclear fission and fusion, hydrogen, thermal energy, "clean coal" technology and so on—for most, a mixture of several or all of these. There are also numerous books and articles on attempts to construct international agreements about limiting the greenhouse gases responsible for global warming—most especially those developed by the international community at Kyoto and, more recently, Bali, plus those worked out within the European Union.

Where books and articles have been written about the "politics of climate change", they tend to be about such international agreements. I want to make the somewhat startling assertion that, at present, we have no effective politics of climate change, especially at a national level where much of the action must happen. That is to say, there is no developed analysis of the political changes we have to make if the aspirations we have to limit climate change are to become real. In what follows, I shall try to sort out some of the questions to be asked and answered, although I make no claim to be comprehensive. Then I will look in more detail at the case of Britain, as an exemplar of the problems and opportunities that face the industrial countries more generally as they try to develop policies that have real bite. First of all, however, it is worth commenting briefly on the state of play with the climate change debate itself.

Climate change: the debate

Very few aspects of the climate change debate are uncontroversial, and the controversies between protagonists are often intense and even bitter. Three different positions can be distinguished. First, there are the climate change sceptics, who claim the case that present-day processes of global warming are produced by human activity is not proven. Fluctuations in climate, they point out, produced by natural causes, have been a constant feature of world history. The current situation, they assert, is no different. Other sceptics accept that climate change is happening and that it is humanly induced, but argue that the threat it poses has been exaggerated. For them, other world problems, such as poverty, Aids, or the possible spread of nuclear weapons, are both more worrying and present more pressing dangers than climate change. The sceptics have dwindled significantly in numbers in recent years as the science of climate change has progressed, but they still get a significant hearing.

Second, there is a mainstream view (or, more accurately, spread of views) about climate change, represented above all by the publications of the IPCC. The IPCC has had an enormous influence over world thinking on climate change—in so far as there is a consensus about its extent and dangers, it has played a large part in building it. Indeed, that is its declared aim—to gather together as much scientific data as possible, subject it to rigorous review, and reach overall conclusions on the state of scientific opinion. In successive publications it has outlined different possible future scenarios, trying to attach probabilities to them. Those who are sceptical about climate change see the IPCC as the enemy of free and proper scientific thinking. For them it has become an establishment, determined to see the world through its own eyes, the guardian of an orthodoxy. The sceptics are prone to think of themselves as independently-minded researchers, daring to challenge the conventional wisdom of the times.

Methane is a much more potent greenhouse gas than carbon dioxide

The battle between the sceptics and the main body of scientific opinion continues, with each tending to rubbish the other's arguments. However, there is a further divergence of opinion today, between the mainstream and authors and researchers who think climate change poses even greater, and more urgent, threats than is ordinarily acknowledged. These, whom I shall call the "radicals", argue that there are threshold effects in climate change, as the naturally-induced climatic fluctuations we know about from the past reveal. Abrupt changes in climate have happened in previous ages, even within as short a period as 10 years. The radicals hold that the same could be true of humanly-induced climate change today. There are several potential "tipping points". They include the possibilities that the ice fields that cover Antarctica and Greenland may disintegrate sooner, and more thoroughly, than is usually believed possible; or that the melting of the frozen peat bogs in western Siberia and in Canada might release large amounts of methane into the air. Methane is a much more potent greenhouse gas than carbon dioxide.

Some radicals—such as the scientist James Lovelock—believe it is already too late to avoid dangerous climate change. We had best concentrate most of our energies preparing to adapt to it and cope as best we can. Others think we can still hold back the more devastating effects, but to do so we must start taking far-reaching action in the here-and-now.

How should we assess these divergent positions? It obviously makes an enormous difference which of the three views is more nearly correct. The sceptics cannot be ignored, if only because what they

say influences the public. Interest groups which contest climate change policies, and ordinary citizens disinclined to change their habits, can just say, "Oh well, none of it's proven, is it?" The sceptics also could be said to play a useful role in holding orthodox opinion to account in case the IPCC-style approach does at some point threaten to become a dogma. The IPCC carries a great deal of authority. Yet the radicals certainly have to be listened to, because if they are right we face a threatening future even in the short-term. Political leaders have an obligation to track the course of the debate and assess new findings on a continuing basis.

In responding to climate change, we must concentrate a good deal of attention on the state. Kyoto and Bali-style agreements, the EU targets, together with carbon markets, the activities of businesses and NGOs will no doubt be extremely important. However, it is indisputable that the state will have a major role in all countries in setting a framework for these endeavours. The part it has to play in the developed societies is especially important, since these countries must be in the vanguard in reducing their emissions.

At a national level, in such societies there is a cluster of problems to be tackled. We could distinguish between institutional and policy issues here. I do not attempt to summarise the very large number of works in these areas, but instead take the opportunity to raise some core issues.

The role of the state: a return to planning?

By their very nature, it could be argued, democratic countries tend to be driven by the immediate concerns of voters at any one time. How do we think long term in societies that tend to be dominated by short-term issues? We surely have to reintroduce planning of some sort, but how and of what kind? In a democratic system, how can binding decisions be made that will override changes of government? There has to be a cross-party consensus about overall climate change policy—no more red-green coalitions, or talk about green being the new red—but what type of consensus, and how is it to be sustained in the face of the tendency of parties always to look for political capital to exploit?

Planning was in vogue for some two or three decades in western countries—especially on the political left—after the second world war and of course was the very basis of the economy in Soviet-type societies. Famously, the Marshall Plan was crucial in the rebuilding of European prosperity. In the post-war period, "planning" normally meant strong central direction by the state in the interests of overall economic prosperity and social justice. In the mixed economies of the west, it signalled substantial nationalisation of industry, especially those industries seen as strategically important, such as the energy industries, communications and the iron and steel industries. Planning of this sort later fell under a cloud, as did "town planning", especially of the sort that created whole new communities almost overnight.

When the counter-revolution set in, involving widespread privatisation, coupled to minimal macro-economic steering, the very word "planning" came under a shadow and until recently has remained there. Yet whenever we think about the future in a systematic way, in the sense of attempting to shape or guide it, planning of some sort is inevitable. The post-war period was one of reconstruction, in which large-scale investments had to be made in order to recover from a situation of immense material damage. The Marshall Plan was in fact a great success—which is why Al Gore makes such play with it. Planning is often associated with a certain utopianism. Just as the political mood turned against planning, so it has turned against utopianism; but if we discarded every utopian impulse there would be no ideals to strive for.

The role of the state (national and local) should be to provide an appropriate regulatory framework

Many forms of planning were in fact carried on by the state through the period during which the idea became regarded as disreputable. States have had to monitor demographic shifts, for instance, in order to plan ahead for future needs in education, health and pensions. They have had to do the same with roads and railways in terms of future projections of use. Contingency plans have to exist in case of possible disasters of one kind or another. While "planned communities" fell out of fashion, urban planning of one sort or another continued. (And planned communities are already coming back, in the shape of eco-towns). Of course, there are lessons to be learned from the successes and failures of these sorts of planning as well as the grander versions.

It is conventional to say of the modern state that it should be an enabling state and this notion certainly applies to the management of climate change policy. A return to planning cannot mean going back to heavy-handed state intervention, with all the problems that it brought in its train. The role of the state (national and local) should be to provide an appropriate regulatory framework that will steer the social and economic forces needed to mobilise action against climate change. I prefer

the concept of the "ensuring state" to that of the "enabling state". The idea of the enabling state suggests that the role of the state is confined to stimulating others to action and then letting them get on with it. The ensuring state is an enabling state, but one that is expected or obligated to make sure such processes achieve certain defined outcomes—in the case of climate change the bottom line is meeting set targets for emissions reductions.

In the context of climate change, what does "a return to planning" mean? It means taking a long-term view of things, with a time horizon stretching over three decades and more into the future. If climate change represents, as the Stern report says, "the biggest example of market failure ever", it is largely because markets have no such view or vision of the future. Market forces can certainly be used to affect long-term processes—as happens in a routine way with pensions or insurance for instance—but they always need a regulatory framework, usually provided by the state, to do so.

Planning also implies bringing environmental concerns into all branches of government—national, regional and local; and ensuring that all departments of government register and react to these concerns. In other words, responding to climate change is not just one task among others, which can be left to a specialised department or agency: it has to be integrated into the activities of government as a whole across the board.

In combination with others, the state will be the key medium for the forging of international agreements (including the setting up of trans-national carbon markets) needed to combat climate change, and also of enforcing them. With the partial exception of the EU in relation to its member states, there is no other agency powerful enough to do so. Since talk of planning in so many contexts could be misunderstood, let me reaffirm that in none of them would the state act alone, and its role would normally be to stimulate others to action and to help provide means for their actions to be effective so far as climate change goals are concerned.

The state has to act primarily as a catalysing force to encourage innovation

How do we plan for a future which is inherently uncertain? How do we limit risks which, since we have no prior experience of them, we cannot assess with complete precision (or cannot do so until it is too late and the anticipated dangers have materialised)? One thing we should not do, clearly, is attempt to force the future into a straightjacket, as the Soviet planners sought to. That is why the state has to act primarily as a catalysing force, to encourage innovation and experimentation in mitigating climate change but with a responsibility to monitor and, where necessary, shape these influences. We can (hopefully) anticipate a tremendous burst of innovation from businesses and third sector groups.

Technology is bound to be of key importance in combating climate change. However, we have learned that technological innovation is difficult to predict—many of the most important innovations that have influenced our lives, such as the internet, came out of the side-field. A key question that has to be faced is how can governments promote innovation without placing "failed bets" on technologies that may turn out to be largely dead ends?

We will need a politics of adaptation, since the effects of climate change are already with us and are likely to deepen even if emissions across the world decline, as greenhouse gases going into the atmosphere mostly stay there for a long period. Every country should have a detailed assessment of vulnerabilities, as well as disaster relief plans in place. However, one of the biggest issues is where

insurance cover will come from. The state is already the insurer of last resort for some such forms of damage. If that role perforce becomes extended, where will the revenue to fund it be found? One of the most visible features of what happened in New Orleans after Hurricane Katrina was that the various levels of government involved in responding to the emergency each sought to load the prime responsibility onto the others. The amount of money spent so far, including that forthcoming from private insurance, is well below what is required to restore the city to what it was before.

The politics of a return to planning are likely to be very difficult. The planning bill currently going through the British parliament, which is mainly about community planning, has sparked much resistance. It is not clear how its terms relate to the commitment the government has to decentralisation and local democracy. In the context of responding to climate change, however, its driving logic seems correct—there simply will have to be ways found of speeding up planning applications and of driving them through (a whole nest of problems are buried in this statement, though).

Forging and sustaining a cross-party consensus on climate change policy would help a great deal with being able to take a long-term view in policy issues. The All-Party Climate Change Group in parliament has commented very usefully on this question, pointing to many of the dilemmas raised. An adversarial political system is difficult to reconcile with long-term thinking, since where needed climate change policies are unpopular, a party might simply surrender to populism in search of political advantage. Just as critics argue about the IPCC, a consensus could become a form of conventional wisdom, perhaps inhibiting more radical ideas. We have to try to decide what a consensus would actually be about. Colin Challen, the chair of the all-party group, has put forward detailed suggestions about how to resolve these various issues. He suggests setting up a permanent cross-party commission to agree a framework for policy-making, with its discussions being held in public, coupled to a referendum at a certain point to give the whole process legitimacy.

Forging and sustaining a cross-party consensus on climate change policy would help a great deal

Finally, we will need some kind of overall perspective to integrate the above series of questions. What would a political philosophy geared to combating global warming look like? At first blush there seems to be a readily available one, coming from the environmental movement. "Going green" is now the established term for measures that will help limit global warming. Terms from environmental thinking like the precautionary principle enjoy wide currency. But in fact the relationship between the environmental movement and the greening of orthodox politics is a problematic one. Many green groups, for example, have seen themselves as contesting the field of mainstream political activity. Thus the German greens for a long while squabbled about whether they should have clear-cut leaders, whether they should be represented in parliament and so forth. The precautionary principle has been largely dismembered by critics.

Some such groups have their origins in conservationism—in the idea that we have to protect nature from the ravages of humankind. Yet there can be no question of a "return to nature" as the guiding thread of environmental politics. We live in a world that in many respects is "on the other side of nature"—where human intervention into what was the natural world is so profound that there can be no way back. The political and philosophical implications of the retreat of nature are very considerable. They stretch well beyond the area of thinking about climate change but refract back on such thinking in a number of ways. Science is pushing back inner as well as outer nature. Some of these intrusions have become fiercely resisted as they penetrate the body and human reproduction—consider, for example, the heated differences of opinion around embryology today.

I have no quarrel with the idea that we should move progressively towards a green state. In principle, a green state can be simply defined. It is a state that acts in accordance with green values—the key problem is to institutionalise them, and in such a way that they accord with other values (such as social justice). Yet we have to decide what green values actually are. Most green parties and organisations are vague on the issue. The Global Greens is an international network of green parties and political movements. It publishes a charter defining what green values are, derived from its member groups. However as laid out in the charter they range all over the place, from ecological wisdom ("we acknowledge the wisdom of the indigenous peoples of the world…") through to participatory democracy, respect for diversity, sustainability and non-violence. Several of these, such as participatory democracy or non-violence, would seem to have nothing at all to do with green values as such. Even key notions such as sustainability are notoriously difficult to define. A lot more work of clarification is needed here.

A fundamental problem is achieving the lifestyle changes that would lead to lower emissions—an inevitable part of a successful response to climate change. How can governments and other agencies persuade citizens to modify or abandon habits that might be deeply engrained in their lives? Two problems are especially difficult. How can we limit free-riding, given that it is so easy for people to say, "it's someone else's problem"? How do we deal with future discounting—the fact that, as psychologists have shown, people find it hard to accord a reality to the future, compared to their needs and aspirations in the present?

The above-mentioned climate change debate is all about risk and risk-assessment. We can't know what the world will be like 20, 30 or 40 years down the line, so we have to speak (as the IPCC does) of probabilities and of possible scenarios. In my view, the risks the climate change radicals outline are real, but we cannot say so with any certainty—not, at least, until it is too late and some catastrophe has unfolded. But how can an understanding of the subtleties of risk be conveyed to the general public? What role does and should the media play?

It is unlikely that the public can be persuaded to put their weight behind climate change policy if it is based wholly upon negatives—ie upon avoidance of abstract future dangers. Can we develop a more positive set of values around environmental ends? There plainly are overlaps, for example, between environmental ends and health objectives, such as driving less and walking more. But how can these be put together in a way that would be appealing to the electorate?

Towards a green policy approach

A vast range of policy issues are raised by the effort to limit climate change, including perhaps the most basic of them all: how far are growth and sustainability (however that problematic term is defined) compatible? I shall offer a few comments on three areas only: what should be the role of green taxation; how far green taxes are compatible with preserving or enhancing social justice; and what are the implications of the overlap between climate change and energy policy.

What exactly is a green tax? The answer is not as simple as one might imagine.

- We should recognise that existing taxes which have not been devised for green purposes may nevertheless in some part serve them—in that sense they are green taxes, or have a greenish hue to them. For instance, taxes invested in railways can have desirable environmental consequences in spite of the fact that such a concern was not what motivated them originally.

- "Anti-green" taxes are as important when assessing the implications of a given tax structure for environmental taxes, as are green taxes. We should not concentrate on green taxes alone, but also on examining aspects of current fiscal policies that run counter to green ends. Anti-green tax regulation might be fairly obvious, as in the case of airline fuel being exempt from taxes applied to other forms of transport. But it might be more diffuse as, for example, where the siting of supermarkets is left open to market forces, with no thought given to implications for car use.

- In the light of these considerations, we should not consider green taxes in isolation from the fiscal system as a whole, as many existing discussions do. The greening of taxation, in other words, is just as important as the introduction of green taxes.

- So far as taxes aimed at changing behaviour are concerned, we should distinguish between tax incentives and punitive taxes, the carrot and the stick. Green taxes should be transparent to citizens or otherwise they are not likely to have the effects intended.

In general we can say that green taxes which are most likely to be successful would combine several of the qualities just noted—if they are: explicitly designed as green taxes; directed at changing behaviour, whether of agencies in society, such as business firms, or of citizens as a whole; where possible are incentives rather than negative taxes, since incentives draw upon positive motivations; where they form part of an overall green fiscal strategy; and where their environmental consequences are openly stated and visible.

The greening of fiscal systems is fraught with problems, especially those of public acceptance. The theory of ecological modernisation holds to some degree. That is to say, jobs can be created and profits made from investments in technology and other areas that serve green aims. However, certainly at present investing to limit climate change entails a significant net cost to the economy, whether that be 1%, 2%, or more. That cost will have to be met by producers and taxpayers. How far members of the public will tolerate green taxes will depend to some considerable degree upon

how far they are persuaded of the case for remedies to be taken in the here and now; and, as surveys show, many in the UK are not so convinced, a finding echoed by similar research in other countries. Green taxes are sure to be a significant part of the struggle against climate change, but their success or otherwise will be intertwined with wider issues of consciousness and action.

Most current discussions of green taxes remain at the level of what "could be achieved"—that is, hypothetical. Such debates nevertheless are important since they explore the parameters within which green taxes could operate in the near future. Tax swaps, for example, have been explored in detail in various national contexts, as a way both of gaining public assent and ensuring that green taxes are not regressive. Thus a study in the US analysed a tax swap in which a tax of $15 per metric ton of carbon would be balanced against a reduction in federal payroll tax on the first $3,660 that workers earn. Payroll tax in the US is a flat-rate tax up to a limit (in 2005) of $90,000 and is a regressive tax, hitting lower earners disproportionately. In fact, for over 60% of households it is the largest single federal tax they pay. The "double dividend" comes into play since taxes on labour supply can discourage workers from increasing their productivity or even from entering the workforce at all.

The authors suggest a tax on the carbon content of fuels at source, set at $55 per metric ton of carbon. Allowing for short-term demand adjustments likely to occur, the tax would have raised $78bn if it had been in effect in 2005, which could lower payroll tax by almost 11%. It would have the greatest benefit for low-paid workers, who would save some three-quarters of their payroll taxes. Those at the top rate of earnings covered by the payroll tax would save about 4%. The carbon tax could be raised at a later point to compensate for its positive effects in reducing emissions and therefore creating falling revenue. Of course, the "double dividend" could be largely lost as producers pass on the extra costs to consumers in the shape of price increases. However, the research shows that poorer households would still gain disproportionately.

People on low incomes may already be inclined to stint on energy use

Since the potential regressive impact of green taxes is a worry to many, it is worth looking more broadly at some of the strategies that have been put forward to mute or overcome it. One piece of research carried out in the UK studied four areas where green taxes either have been established or are under active consideration. These were in energy, water and transport use by households, together with the household generation of waste. The point was to see what ways could be devised to render such taxes at least neutral in respect of their consequences for the less well-off.

The researchers confirmed that in these areas, if nothing else changed, environmental taxes would have a significant impact upon poorer households. People on low incomes may already be inclined to stint on energy use, perhaps even to the detriment of their own health, especially where heating is concerned. Households account for 27% of UK CO2 emissions, a percentage that increased over the 15 years from 1990 to 2005. Carbon emissions from electricity in fact fell by 24% during this time as a result of the shift in power generation from coal to gas.

A reason why the country has not followed the Nordic states and other countries in introducing household carbon or energy taxes is that fuel poverty in Britain reflects the peculiarly inadequate thermal characteristics of the country's housing stock. The study mentioned above shows an enormous variation in energy use even between households within the same income band. Among 10 income bands, some households consume some six times more energy as others. There are also large variations in emissions. The research showed that the poorest households pay significantly

more per unit of energy than the most affluent ones. Hence if a uniform carbon tax were imposed, it would be even more regressive than might appear at first sight. The problem is not easily resolved, the authors demonstrate. For instance, it is possible to reverse this influence for most of the poorer groups by means of tax and benefits packages aimed at the poorer households.

Some among the fuel poor would become actively worse off, which would be likely to sink such proposals politically. Similarly, there are problems with upping existing subsidies to promote effective insulation among poorer households, even though this factor is the main source of fuel poverty. A carbon tax could then be introduced when the fuel poverty barrier had been reduced or overcome. But this strategy would have the major drawback of not acting to reduce emissions in the non-poor households.

However, there is an approach that could work. It involves a combination of incentives and sanctions. By means of incentives, households would be persuaded to implement energy-efficient measures; a "climate change surcharge" would be imposed on all households which, after a certain time, had not done so. A nation-wide energy audit would identify cost-effective measures that would need to be implemented by every household to avoid the climate change surcharge. The scheme would be implemented over a given time-period—say, ten years—beginning with those living in the most affluent homes, as measured by existing property tax categories. Those in the highest tax bands would be obliged to carry out the work first, with others following in sequence, with the poorest left to last. The latter group would be able to get low-cost loans, paid for from the surcharge levied on households that failed to get the necessary improvements done on time. Landlords would pay where rented accommodation was involved.

The researchers argue that a minimum of 10% of household CO2 emissions would be saved over the 10-year period. While they would cost householders £6.4bn, they would be saved a net of £19.4bn. The average return to householders would be 23 %, with the poorest gaining more than the affluent, resulting in a sharp drop in fuel poverty. They conclude that "the fact that such a scheme currently seems not to be considered suggests the public and political will to mitigate climate change is not yet very powerful" (Ekins & Dresner 2004, Green taxes and charges, p.14).

It is concluded that similar results can be achieved in each of the other areas: household water use, transport and waste management. So far as the first of these is concerned, the study showed that water metering under any scenario would have positive results for poorer households than the current situation, where households pay a bill partly based on a standing charge and partly on the value of their properties. Taxes on fuel for cars are not regressive, since over 30% of households do not own a car, and the large majority consists of poorer ones. Ways can be found of compensating low-income motorists for fuel duties, for example by abolishing the licence duty that all drivers have to pay.

Finally, the recycling of waste can be increased while not adversely affecting the poor. At the moment, the poor pay more for waste collection in relative terms than the more affluent. It is funded by a property tax (council tax) and the charge is proportionately higher for those from more deprived households. The researchers suggest reducing council tax by the same amount for all households, and a weight-based charge introduced for waste disposal. The charge would vary according to how far waste material was recyclable.

The study is an important one, because it goes some way to providing a green fiscal audit, at least in the areas covered; it both takes into account existing fiscal instruments and tries to spot unintended

consequences of potential environmental tax reforms. All the proposed strategies are fairly complex, suggesting that it is difficult to reach the holy grail of reconciling green taxes with greater tax simplicity, while still protecting the underprivileged. There seems to be no country at present that has attempted a full-scale green audit of its tax system, but such appraisals are surely necessary if ad hoc environmental taxes are introduced, since virtually all will have knock-on consequences.

Do we actually need green taxes at all if oil and gas prices stay high, or increase further? Won't they act like green taxes anyway? Won't poorer people have to be given subsidies as the price of energy to the consumer rises? These questions do not admit of straightforward answers. They will act as the equivalent of taxes, when compared to previous price levels, and undoubtedly will prompt changes in behaviour in the direction of greater frugality and efficiency in energy use, as well as adding a powerful stimulus to the development of new energy technologies.

A crucial difference from green taxes is that they create no stream of revenue to the state, but instead create large new costs, and hence major inflationary consequences that somehow have to be absorbed; moreover, oil and gas prices are essentially unpredictable. And there is the danger that they will cause a return to the use of coal. So we will need green taxes anyway, but in which areas, and how far they take the form of incentives rather than punitive taxes, will certainly be very strongly influenced by whatever happens in world energy markets.

It is vital to relate the climate change debate to that over energy security

It is certainly vital to relate the climate change debate to that over energy security, where again the state has a prime part to play. The underlying factors are to some degree the same. For instance, the rapid economic growth being achieved by some developing nations, especially China, is contributing significantly to greenhouse gas emissions, but also putting strain on available energy sources. How long it will be before world oil and gas supplies peak—in other words, before half of them will be used up—is a matter of fierce debate. Until recently the conventional point of view is that, even when the needs of the newly industrialising countries are taken into account, there is plenty to go around for the next three or four decades or more.

A growing number of critics—one might call them the "energy radicals"—dispute this assessment. According to them, the "uncomfortable truth" is that oil, natural gas—and perhaps even coal, usually thought to exist in abundance—are approaching their peaks in the near future. Entering a period of more restricted energy supplies and steeply increasing energy prices might seem at first blush a positive factor so far as dealing with climate change is concerned. High prices for oil and gas, after all, make the costs of investing in renewable fuels more competitive; there is further motivation for governments to push to expand such investment and also convince citizens to cut back on energy use.

However, a situation where world energy supplies peak relatively soon could be disastrous for world stability and for hopes of containing climate change. Modern industrial civilisation is very heavily based upon oil and gas, not just so far as energy (especially transport) is concerned, but also because they figure as components in a massive diversity of manufactured goods upon which our everyday lives depend. Over 95% of the goods in the shops involve the use of oil in one way or another. There simply is no way of breaking this dependence in the short-term, however successful we might be in reducing it. A serious and prolonged shortage of oil might lead to economic chaos not only in the countries or areas of the world directly affected by it, but in the world economy as a whole.

The case of the UK: innovation or contradiction?

The above list of issues and problems is a formidable one. It applies to every country seeking to respond to climate change. With the notable exceptions of the US on the federal level, all the industrial countries have stated their commitment to reducing emissions and have developed policy programmes to help pursue that end. One of the most ambitious, in fact, in terms of stated policy, is the UK, a country that is one of the few which looks mostly in line to achieve its Kyoto targets—modest although they are in relation to the swingeing cuts in emissions that most now agree will be necessary to hold climate change to acceptable levels. Hence the UK is a useful country to look at as a test case of what the possibilities and problems of climate change policy on a national level are.

The climate change bill is passing through parliament at the time of writing, together with a new energy bill. The climate change bill marks a new level of ambition for the Labour government, which previously had only a modest record on environmental issues in general, and combating global warming in particular. It introduces statutory targets for emissions reductions (in part reflecting EU policy). Emissions are to be reduced by at least 60% by 2050 over a 1990 baseline, with an intermediate target of 26% to 32% by 2020. A UK risk report will be published every five years and reviewed by parliament, as well as the ongoing results of an adaptation programme. A carbon budget will be established to cover each five yearly period.

The climate change bill marks a new level of ambition for the Labour government

A committee on climate change has been initiated to advise the government on the level of the carbon budgets and therefore on the optimal path towards emission reduction targets. One of the first tasks of the committee is to assess whether the 2050 CO2 reduction target should be increased, and it is widely anticipated that it will be revised upwards to an 80% reduction. The committee will also consider and advise on issues such as how international aviation and shipping should be included in the targets and the balance of reductions to be achieved domestically as compared to the use of international trading schemes. The bill requires that emissions from international passenger travel and imports or exports of goods must be included in the targets within five years of the time at which the bill became law. The committee will also consider whether other greenhouse gases, estimated to account for 15% of the UK's overall impact on climate change, should be incorporated within the targets.

The legislation includes provision for "banking" and "borrowing" between carbon budget periods. Banking is the capacity to carry over unused quotas from one budget period to a future one; borrowing allows the government to count future anticipated reductions against the current five-year period, such borrowing to be limited to 1% of the following carbon budget. Banking is supposed to provide an incentive to "over-perform" during a given period and at least remove disincentives that might kick in if a given budget were achieved early. It is accepted that reducing carbon output has costs and, other things being equal, will affect energy prices (and therefore other prices). The European Emissions Trading Scheme is already having such an effect in the UK because power generators can pass on extra costs to consumers. However it is suggested that the cost will not be large for households, while it might act as an incentive to saving. Of course, if the price of oil and gas prove not to be a bubble and remain very high, the effect will be cancelled out.

The energy bill is of direct relevance for climate change policy for obvious reasons. North Sea oil and gas have supplied most of the UK's energy needs for the past 20 years, but stocks are declining. Most

of Britain's nuclear and some of its coal-fired power stations will reach the end of their lives around 2020—fully one-third of the country's electricity generation system will have to be replaced by this point. Currently over 30% of CO2 emissions comes from electricity generation. The UK has a huge task if it is to meet the target set for it by the EU, which is that 15% of its energy (including electricity, transport fuels and heating) must come from renewable sources by 2020. If the country is to meet the target about 40% of its electricity will have to come from renewable sources—an increase of 800% over present-day levels. The government has decided that nuclear power has to be part of the mix, and introduced plans in the bill to build a new generation of nuclear plants. The remainder is to come from a strengthening of the "renewables obligation", according to which electricity suppliers have to ensure that a certain percentage of the power they supply comes from renewable sources. The bill also includes provisions to stimulate the development of carbon capture and storage.

What are we to make of these efforts? On the good side, the bills are far-reaching and demonstrate a much higher degree of determination to tackle the twin problems of climate change and energy security than would have been conceivable even a few years earlier. They have also received a substantial degree of cross-party support while passing through parliament. Although some climate change sceptics used the opportunity to air their views during the debates about them, during the course of the parliamentary debates their main clauses were strengthened rather than weakened.

However they are more about the "what" of responding to climate change than the "how". The climate change bill sets out a number of ambitious targets, but provides little insight into how they will be met. Indeed, the "how" seems to be left largely to the climate change committee to set out, although its recommendations will have no binding force. The energy bill fills in some of the gaps, but is open to considerable criticism, as we shall see. There are plenty of problematic areas:

1. The climate change bill seeks to provide legal backing for medium- and long-term decisions made about controlling emissions. This initiative is an important one, because it recognises one of the core problems that democratic countries face—how to construct plans that survive successive changes of government. Yet how strong will the climate change committee be? It has to hold the government to account, but its role is explicitly set as an advisory one. A core problem of climate change policies is that existing or new governments might be tempted to sacrifice longer-term goals in favour of political expediency.

2. The government has not hesitated to politicise the climate change and energy bills, in spite of the fact that the existing cross-party consensus will have to be sustained if they are to have long-term effects. The Conservative leader, David Cameron, it is said in an official Labour document, "is more concerned with his image and PR than the long-term decisions needed to meet the challenge of tackling climate change". The Conservatives are held up to ridicule. Cameron, the document continues, travelled to the Arctic "to be photographed with huskies"; attached a wind turbine to his house only having to take it down later because he didn't have planning permission; and cycled to work while being followed by a (large) car carrying his shoes and his briefcase.

3. Nuclear power forms an important part of the government's package, and with good reason since a diversification of energy sources seems crucial to reducing emissions. However, even setting aside the objections of those who see no place for nuclear power at all, there are formidable difficulties in the way. The government says a new generation of nuclear power stations can be built without any form of government subsidy. However there are serious doubts about whether such a strategy is realistic. The government under-wrote all the debts of British Energy when it was on the verge of bankruptcy in 2001, at very substantial cost. In the meantime, the cost of cleaning up Britain's existing

nuclear legacy has been calculated at £73bn, not a good augury for the future.

4. The main "green tax" set up by the government (well before the climate change bill was introduced) was the "climate change levy"—a tax on the use of energy in industry, commerce and the public sector. But the effectiveness of the levy was undermined because the revenue was not earmarked for spending on environmental causes, but went straight into overall Treasury revenues. The same problem occurs with fuel duty which, although it has green benefits, is not seen by the public as a green tax at all, but simply as "just another tax" with which the government has chosen to burden the public. In a recent poll, seven out of 10 voters said they believed fuel levies to be just a smokescreen for raising taxes. In late May 2008 hundreds of truck drivers converged on London to blockade roads as a protest against rising fuel prices. Partly as a result, the government at the point of writing is considering whether to back down on further proposed increases in fuel duty. This is in spite of the fact that the price of fuel is lower in real terms than it was five years ago. Similar protests have been organised in a number of Continental countries by hauliers. Ports have also been blockaded by fishermen protesting against high fuel prices.

5. It is not at all clear how the stated objectives of the climate change bill can be reconciled with other aspects of government policy. The government has endorsed proposals to build a third runway at Heathrow airport in London. An earlier commitment that flights to and from the airport would be capped at 480,000 a year has been discarded. With the building of a new runway, they are likely to rise to 700,000 a year. The government anticipates that the number of passengers passing through airports in Britain will go up from 230 million in 2006 to 465 million by 2030. It is argued that such expansion is of key importance to the economy; and that if it is not catered for in Britain, it will simply move elsewhere. A report published by the Sustainable Development Commission, set up a few years before by the government, stated that the data used to justify expansion were so inadequate and disputed that the airport strategy should be put on hold while a full-scale enquiry is carried out. A spokesman rejected the report, saying that the government "fundamentally disagreed" with its findings. Further deferral of a decision, he said, was not an option. But if the considered findings of a government-supported agency are to be dismissed so lightly, what hope can there be for the influence of the committee on climate change?

6. Little attempt has been made to expand the national railway network or to encourage electrification. 33% of the network runs off electricity, one of the smallest proportions in the EU. Trains powered in such a way emit substantially lower levels of CO_2 than do diesel locomotives. A report published by the government in July 2007 argued that the long-term benefits of systematic electrification are "currently uncertain and … do not reflect today's priorities".

7. Oil and gas prices may stay high indefinitely, but even if they don't, at some point they will inevitably resume their rise. How far will such a likelihood compromise projections that the government has made, which are based on the assumption that oil will not average more than $70 a barrel for the period up to 2020? What implications are there, for example, for the possible growth of the airline industry especially if the era of cheap flights is drawing to a close?

8. Only marginal attention seems to have been given to how the proposals in the two bills will impact upon issues of social justice. Rising carbon and fuel prices will have their greatest effects upon the poor, other things being equal. Such effects are bound to happen as an intrinsic part of any scheme to reduce emissions, but will be compounded by the elevated price of oil and gas. As of mid-2008, average fuel bills in the UK have increased by some 40% over the previous year. The consequences are likely to be particularly severe for over 65s living below the poverty line—some two million people

in Britain. Specific redistributive measures will need to be introduced to counter such consequences, larger than the minor ones currently in place.

9. It could be argued that the clauses in the energy bill fall well short of providing the stimulus that will be needed for the UK to reach its climate change targets. The renewables obligation does not look strong enough to lever the country away from its poor performance in terms of the percentage of energy delivered by renewables. Critics have argued that feed-in tariffs, which support the micro-production of renewables, should be introduced—as has been done with some measure of success in Germany and other countries. Feed-in tariffs have the great advantage, moreover, that they can be adjusted in terms of fluctuations in the price of oil and gas. The government also raised the hackles of environmentalists when it announced a plan to build the first new coal-fired power station in Britain for 35 years. It defended the decision by arguing that the energy bill includes some items designed to stimulate the development of carbon capture and storage technology, but critics point out that such technology is a long way from commercial deployment.

10. Conscious of these difficulties, the government has introduced a new and more far-reaching blueprint for increased energy supply from renewable sources. It depends upon a big expansion of the use of wind-power, on-shore and off-shore, bio-mass from wood and sewerage, bio-fuels, micro-generation from homes, plus a rise in home insulation. There would be a contribution to the economy from the new technology industries, plus the creation of "green-collar" jobs. Tax breaks, tax credits, grants and one-off subsidies are among the ways in which it is proposed to stimulate the needed changes. However, the government accepts that there will be a significant net cost to the country, put at £6bn a year by 2020, and that the policies will add further to energy prices. It is a bold programme, although still only at the formative stage.

One should not underestimate the capacity of social and economic insitutions to innovate

11. Britain's level of emissions of greenhouse gases rose by 2.2% in 2007 as compared with the previous year—well above the overall increase in the EU countries, which was .068%. Over the decade from 1997 to 2007, the number of cars owned by households rose by a net total of five million. The mileage covered on average by cars rose by some 2% each year. Air passenger numbers increased by 54 million over the five years from 2002 to 2007. It perhaps isn't surprising that many critics argue that the UK at present has only a low chance of getting close to the goals it has set itself.

The size of the task is indicated by the results of an opinion poll published on June 22nd of this year. The influence of the climate change sceptics is very visible. The poll showed that 60% of people agreed with the statement that "many scientific experts still question if humans are contributing to climate change"; 40% agreed that the effects of climate change "might not be as bad as people say". Two-thirds say they are "concerned" about global warming, but only a minority were willing to contemplate changing their lifestyles. About the same number say that the government uses green issues as a way of raising taxes in general. Most of the issues noted above will be faced in one form or another by every country that sets itself demanding climate change targets, although a few may be in a better position than the UK in terms of their starting point. Mission impossible therefore? Not inevitably, because one should not underestimate the capacity of social and economic institutions to respond and to innovate. After all, the whole point of the term "mission impossible" in the TV series of that name was that it turns out not to be impossible after all.