

Executive summary

Introduction

The Government wants to cut carbon dioxide emissions by 60 per cent from 1990 levels by 2050. This aspiration is supported by a number of interim goals, including a cut in carbon dioxide emissions by 20 per cent from 1990 levels by 2010 contained in the Government's Climate Change Programme. Progress in meeting this interim target is essential if the 2050 aspiration is to be achieved.

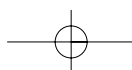
However, carbon dioxide emissions have tended to rise rather than fall in the last few years, indicating that the Government's programme is already off track, and this may well worsen. The latest energy projections forecast only a 15.2 per cent reduction in carbon dioxide emissions by 2010.

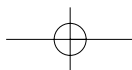
Other targets, including those for renewable energy and combined heat and power (CHP), also look likely to be missed. In addition, the Government has watered down other targets which were part of the strategy for achieving the 20 per cent cut, such as for domestic energy efficiency and in the UK's National Allocation Plan for the EU Emissions Trading Scheme. Each year the Government fails to keep its plans on track makes the task of ultimately achieving its goals more difficult.

The Government set out its energy policy in March 2003. From evidence gathered over a two year consultation process it concluded that the basis of its energy policy should be renewables, energy efficiency and CHP. The current energy system is responsible for 95 per cent of carbon dioxide emissions. Reducing this by 60 per cent will require a new energy system and this will not happen without clear, focused political will to promote investor confidence.

However, while the 2003 White Paper was strong on evidence and vision, it was less strong on substantive policies to ensure delivery. A key recommendation of this report is that Government must tackle the perception of political risk within energy policy. Government has to bring its policies closer together within a strong institutional and political framework, both by increasing support to renewables, energy efficiency and CHP, but also by strong, clear political statements in support of the White Paper's aims.

Progress on the Climate Change Programme is currently being reviewed, and a revised programme is expected in spring 2005. If the Government continues to be serious about its 2010 target and 2050 aspiration, the review should address the slippage already seen in the Programme and take decisive action to put the UK back on track. This report reviews the progress so far in implementing the main components of the Climate Change Programme.





Government targets

Chapter 1 sets out in detail the Government's targets on cutting carbon dioxide emissions, as agreed under the Kyoto Protocol and articulated in the Government's own Climate Change Programme (2000) and Energy White Paper (2003).

Under the Kyoto Protocol, the UK has taken on a binding commitment to reduce its emissions of all greenhouse gases by 12.5 per cent from 1990 levels by 2008–12. The Government has also established its own, more demanding targets for carbon dioxide. The strategy to achieve the reductions emphasises electricity generation from low carbon technologies, improved energy efficiency and lower emissions from transport.

The chapter goes on to look at the various projections about the likelihood of reaching targets based on current trends. Although such projections are fraught with uncertainty, it seems unlikely that the targets will be hit, and even if they are, levels of emissions are predicted to start rising again unless further action is taken.

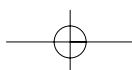
Energy efficiency measures

Chapters 2–4 look at the specific policy areas in the Climate Change Programme, starting with energy efficiency measures. Overall, energy efficiency measures are responsible for delivering around half of the projected carbon dioxide savings up to 2010 and are the most cost-effective way of achieving reductions in emissions. The Government has frequently stated that a 'step change' in energy efficiency is necessary.

However, the Energy Efficiency Action Plan does not constitute a 'step change'. The target for carbon dioxide reductions in the domestic sector has been reduced, while those for industry are open to negotiation and are plagued by a lack of transparency.

Domestic energy efficiency measures so far seem to be both successful and reasonably cost-effective, with both Warm Front and the Energy Efficiency Commitment (EEC) achieving their targets. However limited monitoring and uncertainty about the extent of 'comfort taking' means that the level of actual savings achieved are themselves uncertain. Monitoring of the programmes should be improved and the Government should consider expanding both schemes. This should include both higher targets and a broader scope – for example to develop and provide measures for insulating properties without cavity walls.

The potential for energy service companies (ESCOs) to contribute to domestic energy savings has not been exploited so far. The trial adjustment to the rules governing changes in supplier are therefore a welcome step forward and should be widely publicised to ensure that households take up the opportunity. Depending on the outcome of the trial ESCO scheme, the Government should consider requiring energy suppliers to provide energy services and penalise them if they do not perform. Meanwhile the four per



cent limit on the proportion of each company's customers allowed to participate in the trials should be lifted.

Current electricity and gas metering arrangements make it impossible for consumers to monitor how they use energy, despite the fact that 'intelligent' meters are available. The Government needs to set a target for the installation of advanced meters as part of ongoing meter replacement programmes.

Business and industry are subject to a range of measures intended to drive increased efficiency or encourage the uptake of low carbon generation. However, it is difficult to estimate the final effect of the programmes on reducing emissions of carbon dioxide.

The Climate Change Programme estimated that the Climate Change Levy (CCL) would lead to reductions in carbon dioxide emissions of 2MtCe (million tonnes of carbon or equivalent) a year by 2010. However, there is little information available on its actual performance. The Government should publish a revised evaluation of the CCL's performance and the use of receipts from it.

In addition, the failure to increase CCL rates since its introduction has made it less effective as an incentive to adopt energy efficiency measures or renewable generation. The Treasury and currently DEFRA (the Department for Environment, Food and Rural Affairs) estimate that the social cost of carbon is £70 per tonne, while the CCL rate values it at only around £37 per tonne. There are therefore good grounds for at least doubling the rate of the Levy if it is to reflect the Government's own thinking on the cost of carbon emissions. Rates should be revised annually with an aim of doubling the rate of the Levy within a specified time period – for example five years. There should be matching cuts in employers' National Insurance contributions and increased funding for energy efficiency programmes.

The CCL has to some extent been overshadowed as a policy measure by the Climate Change Agreements (CCAs) between the Government and industry. The CCAs give an 80 per cent discount on the CCL in return for agreed emissions reductions measured against a baseline. The first period of CCA operation over-achieved on the targets, raising serious questions about the validity of the baselines set. DEFRA is now revising these, and to re-establish confidence in the measure should consider having both the baselines, and subsequent performance, independently assessed.

The National Allocation Plan for the first phase of the European Union Emissions Trading System (EU ETS) is barely consistent with the UK's ambition of reducing carbon dioxide emissions by 15.2 per cent. This is enough to maintain its commitment under the Kyoto Protocol, but will not meet the Government's domestic target. It is deeply disappointing that the government has caved in to pressure from industry by proposing a weaker target. Although the Government states that allocations in the second period will be consistent with 'contributing' to the 20 per cent reduction

target, the failure to set a more demanding target for the first phase will make achieving this extremely difficult. The Government must reaffirm its commitment to achieving its 20 per cent reduction target in order to allow businesses time to plan more than business-as-usual reductions.

There is a huge potential for reducing energy use and loss in buildings. Energy loss can be addressed by improving building standards. However, poor enforcement means a high degree of uncertainty about the savings that will be made. This can be improved by giving local authority building control departments the resources to enforce the regulations. The current proposals for the 2005 building regulations do not require integrated low carbon generation, even in large projects. Given the availability of grants under, for example, the Community Energy Programme, and grants for small-scale renewable technologies, the onus should be on developers to demonstrate that incorporating low carbon generation is not feasible on a particular project.

Alternatively, developers should be required to incorporate a percentage of renewable electricity and heat technologies into new projects consistent with the 2015 Renewables Obligation target. The recent changes to the planning guidance allows local authorities to adopt policies in favour of small scale, building-integrated renewables, and local authorities should be encouraged to make the inclusion of renewables a condition of planning consent for new developments. For the longer term, the Government should commit to a target of zero net emissions from new buildings by 2015.

Low carbon generation

Chapter 3 looks at progress on increasing capacity and takeup of renewable, low carbon technologies. The Government has a target for renewables to supply ten per cent of electricity by 2010 (with a subsequent proposal for supply in 2015). It is unlikely that this target will be met.

The main delivery mechanism, the Renewables Obligation (RO), suffers from problems of design and scope, which have led to a rapid increase in wind power planning applications but neglected other, less developed technologies. This imbalance needs to be addressed by, for example, ensuring that developing technologies can realise an additional, performance-based price for their output. This additional mechanism would be separate from the operation of the Obligation, and could include having a 'feed in' tariff scheme to guarantee a market and price for output from new technologies, or for small scale projects (for example, those below 1MW), attaching an additional value to the renewables certificates for emerging technologies and requiring suppliers to commit to buying a certain proportion of their required power from such sources.

In addition, the scope of the RO is limited. Currently, it only values the electricity sold to suppliers. Electricity generated but not sold to suppliers,

for example from domestic systems, has no extra value, so reducing the incentive for these technologies to be installed. Moreover, heat derived from renewables or from liquids, such as biofuels, is not covered by the electricity obligation. This neglects the contribution that renewables can make to total carbon dioxide reductions or to the wider energy system. The Government should establish a renewable heat obligation in addition to the electricity obligation.

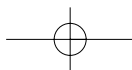
Biomass is particularly undervalued by the RO given that it can provide non-intermittent output and renewable heat when used in CHP plants. Adjustments to the rules to allow increased co-firing in coal plants should increase the biomass contribution to renewables output. However, this should not be at the expense of encouraging the development of new capacity, especially smaller scale plants, or the emergence of a viable energy crop industry in the UK.

The RO will be reviewed in 2005. However, under the current conditions investment will be concentrated on mature technologies (onshore wind) or those technologies which are sufficiently developed to qualify for capital grants (offshore wind and biomass). In the short term, this will lead to an expansion of renewables capacity, but the longer-term consequences for less mature technologies which offer huge economic and employment advantages to the UK could be severe.

CHP is the poor relation of low carbon generation and the Government has so far failed to tackle the problem of low implementation of CHP, despite its many promises to do so. A first step would be to commit to meeting its own target for CHP capacity by 2010, rather than accepting that it is likely to be missed. The Government also needs to recognise that, in many cases, CHP is a 'special case' which will not necessarily be competitive in the short term.

In particular, it is clear that the potential of community CHP projects is not being realised, despite the fact that they deliver both emission reductions and reductions in fuel poverty. The Government is considering extending the Community Energy programme beyond 2005. Given the estimates of cost-effective potential, and the contribution to both the Government's climate change and fuel poverty strategies, the scheme should be extended, with higher levels of funding available and more realistic expenditure deadlines. In theory, developers have to show that they have considered opportunities for CHP in projects. However, this approach clearly has not acted as a driver. The measure should be strengthened in the current DTI revision of power station consents, with a requirement for developers to justify the rejection of CHP as an option.

The imminent review of the RO will consider the treatment of CHP: the Government should include the possibility of an obligation for all CHP output in the scope of the review. However, it is essential that this does not



undermine the support that the Obligation gives to renewable technologies and the Obligation should therefore be increased to take account of newly eligible CHP capacity.

Transport

Chapter 4 looks at measures to reduce emissions from transport. Projections of future emissions show that carbon dioxide emissions from transport are expected to rise dramatically, missing the targets set out in the Climate Change Programme. The Government's approach to increasing efficiency in transport has so far concentrated on fiscal measures, in particular fuel duties and the Vehicle Excise Duty (VED).

Voluntary agreements with car manufacturers and differentiated fuel duties have resulted in improvements in efficiency and reduced emissions. However, biofuels are taxed at a higher rate than liquified petroleum gas (LPG), despite having lower emissions. The structure of fuel duties should be revised to ensure that the duties reflect a fuel's carbon dioxide emissions.

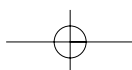
The level of VED differs according to the car's emissions. However, the differentials are not sufficient to drive consumers to pick lower emission cars. The differential should be increased to levels where VED becomes an effective policy mechanism in reducing emissions.

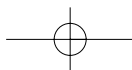
So far, the Government's approach has been inconsistent and short-term. The Alternative Fuels Framework has provided a degree of certainty for new investors over a three year period. However, if more radical change is to be achieved, such as the adoption of renewable fuels, three years is not long enough to ensure a high degree of confidence from investors. A ten year framework would be more appropriate. The Government should also introduce a biofuels obligation consistent with the EU Biofuels Directive target that 5.75 per cent of fuels supplied should be biofuels by 2010.

Emissions from aviation currently threaten to overwhelm the efforts the UK has made to reduce its emissions of carbon dioxide. Emissions from international aviation are not currently included in the UK's climate change commitment and targets. This should be rectified, and the Government should stick to its intention to press for the inclusion of aviation in the EU Emissions Trading Scheme. The impact of aviation should also form part of the review of the performance of the Climate Change Programme so far.

Broader issues

Chapter 5 highlights some of the broader issues in energy systems which the Government must now address in order to achieve its targets. The Government's ultimate ambition is to create a 'low carbon economy'. However, changing the course of energy systems is not a simple or a short-term task, and the policies in place so far have met with, at best, limited success.





The Government seems to believe that if enough policies are in place, it will be able to meet its goals. This paper argues that individual policy measures will not necessarily provide enough support to overcome the barriers in the broader energy system, and that as a result the Government should adopt a more comprehensive approach to changing technology. This includes setting out a clear framework for energy policy which makes clear that environmental issues, in particular climate change, should tend to take precedence over economic objectives when the two areas come into direct conflict.

An example of this is the design of electricity trading rules. The New Electricity Trading Arrangements (NETA) were devised to deliver short-term, low cost power, which they have so far succeeded in doing. The emphasis on economic performance has penalised small and renewable generators, and as a result has hindered the longer-term move to a low carbon economy. It would have been far better had the rules been created to support the Government's aim of developing a sustainable energy system rather than undermining it. NETA supports the status quo of electricity production and use, rather than enabling change.

In addition, there is considerable uncertainty about the level of government commitment to achieving a low carbon economy. Statements from Ministers talk about aspirations, targets and, latterly, 'moving towards goals'. This ambiguity does nothing to encourage investor confidence. If the Government continues to be committed to reducing carbon dioxide emissions, and encouraging low carbon generation, it needs to make this unequivocally clear. This clarity will need to be backed up by putting resources into the policies and establishing a strong framework for action.

This problem is exacerbated by the fact that there is no clearly responsible body to ensure delivery of carbon cuts through the successful implementation of the Government's policy. The Sustainable Energy Policy Network could take over this role, but is currently hampered by a lack of accountability as well as by the large number of different organisations ultimately responsible for delivery. A more effective approach would be to establish a body whose remit is to report annually on the movement towards targets and to identify policies or departments which are not playing their part. This should be a body that has the influence to ensure that targets are met, such as a small delivery unit in the Cabinet Office reporting directly to the Prime Minister.

