The UK Emissions Trading Scheme
A New Way to Combat Climate Change

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
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executive summary

1 The UK is a signatory to the 1997 Kyoto Protocol, an international agreement to reduce emissions of greenhouse gases[1], which are believed to cause global warming. In addition, the UK Government aims to go beyond the reductions required under the Kyoto Protocol using a set of policy instruments, the UK Climate Change Programme (the Programme), to achieve this. The UK Emissions Trading Scheme (the Scheme) is part of the Programme. The Department for Environment, Food and Rural Affairs (the Department) manages the Programme and the Scheme.

2 The Scheme began with an auction in March 2002, in which companies and other organisations (known collectively as 'Direct Participants') bid emission reductions over the five years 2002 to 2006 in return for a share of £215 million incentive funding from the Department. From April 2002 the Direct Participants and other organisations could trade their emissions 'allowances' - the emissions allowed after the promised reductions. Each year, Direct Participants are issued with allowances equal to their target emissions for the year, and at the end of each year, each must hold enough allowances to cover its actual emissions for that year. A Direct Participant can choose to reduce its actual emissions below its target (releasing emissions allowances to sell to other companies or to save for use in future years), meet its target, or buy allowances to cover any emissions in excess of its target.

1 Carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons.

3 The Scheme aims to secure significant reductions in UK greenhouse gas emissions - 3.96 million tonnes[2] in 2006, or about 6 per cent of the 65.8 million tonnes reduction it was estimated that the policies and measures in the Climate Change Programme might deliver by 2010; to help UK firms to learn about emissions trading and prepare for international emissions trading; and to establish the City of London and the UK as an international centre for emissions trading. The Scheme should lower the cost to the UK of reducing emissions, compared to more traditional methods of regulation, because companies with lower-cost ways of making emissions reductions will tend to sell allowances to organisations facing higher costs. The Department also wanted the Scheme to influence the development of a European Union (hereafter referred to as 'European') emissions trading scheme due to be launched in 2005.

4 We examined the Scheme's origins (Part 1 of our report), its impact on emissions reductions (Part 2), and its wider benefits (Part 3). Our report is based on a range of methods, including consultation with participants and other stakeholders, examination of case studies involving four of the biggest Direct Participants, and an expert panel to advise us on our methods and findings. We were also assisted by specialist consultants. Our methods are set out in more detail in Appendix 1.

Key findings

5 The Department has successfully set up a novel and functioning emissions trading scheme, which has the potential to benefit the UK economy. Companies participating in the Scheme told us that they have gained greater understanding of how they can reduce emissions and practical experience of using the emissions market. Companies providing emissions trading services, such as brokerage and verification, have established themselves in the UK market and gained experience that places them in a strong position to gain further business as European and international emissions trading develop.

6 The UK Scheme has encouraged the development of the European scheme and influenced its design in some aspects. The experience gained in establishing the Scheme is helping both the Department and industry prepare for the launch of the European scheme in 2005. In addition, the Department is adapting the registry system for the UK Scheme, which records the numbers of allowances held by participants, for use in the European scheme and other trading schemes. The Department is collaborating with a number of European Union member states who have expressed interest in adopting the UK system for their own registries. Nonetheless, the overlapping timetables of the two schemes will bring complexities - there are fundamental differences between the schemes - and wider benefits to the UK and participants in the UK Scheme may be less than hoped for.

7 The Department had to work hard to attract enough Direct Participants, but eventually secured more than enough (34) to make the auction viable, and the total amount of reductions committed was in line with predictions. More organisations may have taken part if given more time to prepare; this would most likely have resulted in more emissions reductions at a lower price, but the tight timescale was due to the need to gain the benefits of early emissions trading experience for the UK.

2 Throughout this report, 'tonnes' refers to emissions reductions or allowances measured in tonnes of carbon dioxide equivalent (tCO_2e) - the term is explained in Appendix 2.

8 Based on expert advice, the Department used a 'descending clock' method for the auction (explained in Appendix 3). Bidders were limited to receiving no more than than 20 per cent of the total budget, in order to prevent one company receiving a disproportionate share and to allow sufficient numbers to enter the Scheme. This limit reduced the quantity of reductions that could be purchased to some extent, but otherwise the Department's method of conducting the auction was an effective way of maximising the quantity of reductions bought from the bidders for the Department's budget of £215 million. A different approach to the auction, for example a 'sealed-bid' system (in which bidders offer to make reductions at a range of different prices), rather than the 'descending clock' method which was used, might have given the Department the option of securing slightly fewer emissions reductions at a much lower price. However, the Department was concerned that this approach might have discouraged some Direct Participants from joining the auction and that a more open auction format would encourage Participants to bid more strongly than a sealed-bid format.

9 Each Direct Participant's targets for making reductions were set by reference to a 'baseline', calculated from emissions in the three years 1998 to 2000 (either as a simple average or an adjusted figure, retrospectively taking account of any regulatory limits on emissions applying at the start of the Scheme in 2002). The auction resulted in promised reductions from baseline of 4.03 million tonnes in 2006, (reduced to 3.96 million tonnes after three Direct Participants dropped out of the Scheme), with targets for the years 2002 to 2005 increasing by 20 per cent a year towards the 2006 total. Taking into account the need to meet the targets for 2002 to 2005 as well as 2006, over the five years Direct Participants will be required to deliver reductions from baseline totalling 11.88 million tonnes, at a price of £17.79 a tonne.

10 Companies' performance against their targets is measured and verified annually.[3] In the Scheme's first year (2002), Direct Participants (those receiving incentive payments under the Scheme) reported reductions of 4.64 million tonnes compared to targets for that year totalling 0.79 million tonnes; an excess of 3.85 million tonnes (487 per cent). These reported reductions in the first year even exceeded the required target for 2006, 3.96 million tonnes, by 0.68 million tonnes or 17 per cent. Because participants can sell excess allowances or save them for later use, the ultimate impact of Direct Participants' 2002 performance on reported reductions will be less than 4.64 million tonnes. At present it is not possible to say by how much, but it does appear that the reported reductions for 2002 may overstate the impact of the Scheme to date.

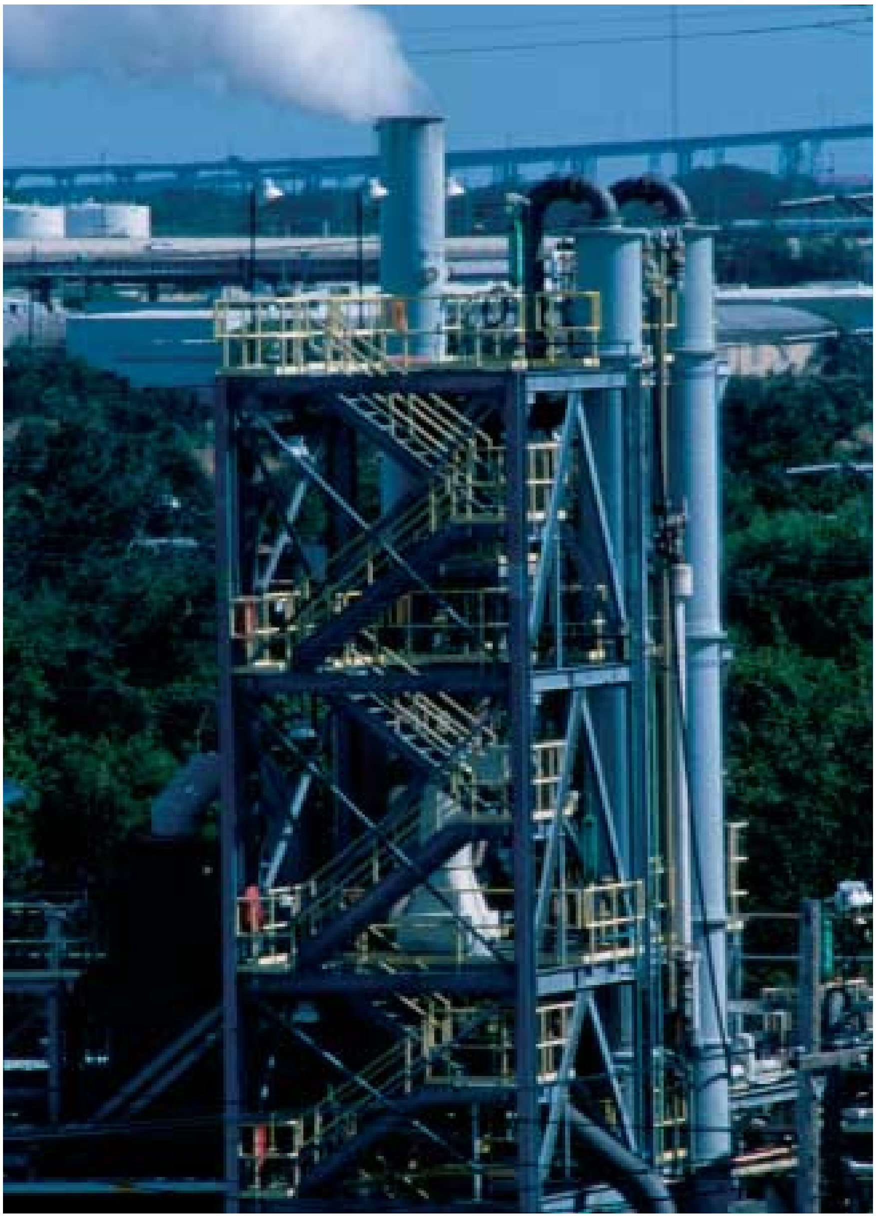
11 In some cases, Direct Participants' levels of emissions in the years immediately before the start of the Scheme were substantially below their baselines. The result of this was that for some Direct Participants, their targets to reduce emissions had been achieved even before the Scheme came into operation. Potentially, these Direct Participants could receive incentive payments merely for continuing their operations at the same level, rather than accepting them in return for additional efforts to meet reduction targets.

3 Companies' baselines (see paragraph 9) were also verified in the first year of the Scheme.

12 However, our consultants' research into four cases has established that the companies have in practice made significant additional efforts to cut emissions, and they report that incentive payments are helping to pay for emissions reductions. These four Direct Participants were selected because in the first year of the Scheme they had reduced emissions beyond their targets by the greatest extent. They are not typical of the Direct Participants as a whole. However, between them they account for more than 50 per cent of the incentive funding, and they are therefore significant in their own right.

13 The additional measures taken by these Direct Participants, often funded by the incentive payments, have had the effect of taking them well beyond their Scheme targets. In 2002 their emissions were 3.78 million tonnes below their baselines, nine times the target of 0.42 million tonnes. According to our consultants' estimates, approximately 66 per cent (2.49 million tonnes) of the reductions reported by these four companies for 2002 is attributable to the Scheme; while an estimated 34 per cent (1.28 million tonnes) is not. The value of this 34 per cent cannot be calculated precisely, since tighter baseline rules would have been likely to affect participation in the Scheme, and thus alter the value of allowances held and the incentive payments received. The value is likely to lie in the range £2.8 million to £9.8 million. However, the Department felt unable to set more demanding baselines as the Scheme needed to be based on even-handed application of general principles, and to allow some 'credit for early action' for participants who had reduced significantly their emissions before the Scheme's launch.

14 Many of the issues identified above (the difficulty in attracting participants, the limitations of the auction design and undemanding targets) stem from the voluntary nature of the Scheme and the consequent need for an incentive payment. In a mandatory trading scheme, these issues either would not occur or, in the case of target-setting, would not give rise to an incentive payment. At the time the Scheme was developed, however, the Department felt it could not launch a mandatory Scheme and considered that the wider benefits of early experience of emissions trading were more likely to be achieved through a voluntary scheme.



Conclusion

15 The Scheme is a pioneering initiative. Innovation in policy-making carries risks, and the issues identified above have resulted, at least in part, from the development of policy in a completely new area. And these issues must also be put against the significant achievements of the Scheme, not least in setting up a well-functioning emissions trading system and encouraging participants to identify emissions reductions and make them available to others. A key aim of the Scheme has been 'learning-by-doing' and it is important that the Department makes the most of its opportunity to learn from the experience of the Scheme in further developing this Scheme, in continuing to influence the European emissions trading scheme and in designing other trading schemes planned in the environmental area.

RECOMMENDATIONS

Existing UK and developing European emissions trading schemes

16 The Department should:

1 **In the existing UK Scheme, where some Direct Participants have gained unduly from the way in which baselines were set, further consider ways of improving the value obtained from the payment of incentives**, for example by agreeing with these participants further emissions reductions and/or voluntary limits on the sale of surplus allowances. The development of such agreements should be based on review by the Department of the factors contributing to key Direct Participants' emissions reductions, including the results of the Scheme's second year (2003). The Department has been looking at the scope to address this issue since the results of the first year became available.

2 **In implementing the European Scheme, continue to press for UK companies to retain as much benefit as possible from their experience in the UK Scheme and for elements of the UK Scheme to be adopted by other member states**. One of the aims of the Scheme was to benefit the UK economy by enabling UK-based service providers such as brokers, verifiers and consultants to win business at home and abroad. The Department should use its influence to ensure that barriers to these companies' expansion into the European Scheme are removed: for example, by ensuring that verifiers in the European Scheme are accredited to the same standards as in the UK Scheme. The Department should continue to collaborate with other member states to help them establish emissions trading registries based on the UK system.

The Department is currently planning to develop trading schemes for waste and for sulphur dioxide. For these and any other future trading scheme, the Department should:

3 **Take early advice from technical experts on the industries concerned, when designing the rules for new schemes**. The UK Scheme aimed to operate an open, consistent and simple set of rules. However, applying this approach across a range of participants resulted in some companies benefiting unduly and unexpectedly. More extensive consultation at an earlier stage with the Environment Agency, with its knowledge of prospective participants' operations and of the basis for setting regulatory limits, might have helped the Department better understand the likely impact of its proposed rules, and improve their design accordingly.

4 **Develop the way it uses any other regulatory requirements on scheme participants, based on experience from the UK Scheme**. In general, the baseline figures for the Direct Participants were calculated as an average of their emissions for the years 1998-2000 inclusive. However, where Direct Participants' emissions in any of these years were higher than the regulatory limit applying at the start of the Scheme in 2002, the regulatory limit was substituted for the actual emissions in the relevant year in the calculation. Although such limits define maximum rather than likely typical levels of future emissions, this had the positive effect of lowering these Direct Participants' baselines. Given the tight timescale, the Department had little alternative but to use these regulatory limits on this occasion. In future it should provide itself with scope to set baselines based on an assessment of likely average emissions, rather than on the regulatory limit, and involve the regulator (principally the Environment Agency in this case) in the design of the Scheme, as in recommendation 3 above.

5 **Fully inform participants about plans to introduce trading and provide enough time for them to prepare**. Companies can only take advantage of trading schemes if they fully understand the concepts, their relevance and how to participate effectively. Innovative policies such as trading require extensive publicity and education, particularly directed towards smaller companies. The Department recognises the importance of effective publicity and is working closely with the Emissions Trading Group and industry Sector Associations in advance of the introduction of the European Scheme.

6 **Consider carefully the size of pilots used to test scheme design, especially where knowledge of the market is limited**. The auction was originally planned to be the first of three. One of its purposes was to act as a pilot, to improve the limited information about the emissions market and the costs of abatement. However, the auction may not have fully realised the potential level of participation and reductions available, despite large sums in incentives being committed. A smaller initial auction might have been sufficient to learn lessons, at a lower cost.

7 **Develop explicit plans to make the best possible use of the scheme to improve its information on, for example, the cost of measures to reduce emissions**. For example, a 'sealed-bid' system rather than the 'descending clock' method might have given the Department better information on which to decide how much to spend in the auction; while requiring Scheme participants to provide information on their costs could help inform policy development in the future. The Department was concerned that these measures might deter participation in the UK Scheme, which is voluntary, but in future mandatory schemes this will not be a problem.

8 **Continue to share the good practices developed by the Department's emissions trading team with other parts of the Department and other government departments**. The Department's emissions trading project team brought together policy, economic and legal specialists in an effective multi-disciplinary team to develop an innovative policy instrument. It also worked closely with business and the City and gained experience with a number of out-reach events to promote the Scheme. The Department has adopted a similar project management approach to its implementation of the European Scheme. The team should continue to disseminate the benefit of this experience more widely to their colleagues and those in other departments.

9 **Ensure that risk management procedures provide for sufficient challenge**. The Department used good techniques to identify and mitigate a number of risks to the development and implementation of the Scheme. However, these risks were predominantly operational, and did not include more fundamental and problematic issues, such as the major differences between the Scheme and the European Scheme that became apparent as the latter developed. The Department's risk management procedures should provide strong and independent challenge. Since the scheme was developed, more rigorous procedures for identifying and managing risk have been adopted across the Department.