



House of Commons
Environmental Audit
Committee

Pre-Budget Report 2003: Aviation Follow-up

Third Report of Session 2003–04

Volume I



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Aviation Follow-up**

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Report, together with formal minutes

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The Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

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References

In the footnotes of this Report, references to oral evidence are indicated by 'Q' followed by the question number. References to written evidence are indicated by page number as in 'Ev12'. 'App' refers to written evidence printed in Volume II, serial number HC 233-II.

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Summary

1. The aviation White Paper actively promotes a huge growth in air travel over the next 30 years. The environmental impact of this—in particular in terms of emissions and the contribution of aviation to global warming—will be massive. The DfT has failed to recognise this adequately or to accept the disparity between its policy on aviation and the major commitments the Government has given to reduce carbon emissions and develop a sustainable consumption strategy.

2. DfT has implicitly adopted a ‘predict and provide’ approach which is based on assuming a substantial real decrease in the price of air travel. We are emphatically not arguing for a hairshirt approach or ‘pricing people off planes’. But we do feel that the DfT, in conjunction with the Treasury, could have used economic instruments more to moderate the forecast increase in growth and to send out a long-term signal to the aviation industry.

3. The failure of the DfT to give adequate consideration to global warming impacts is reflected in the poor quality of the Integrated Policy Appraisal published as part of the White Paper, and the inadequacy of the Department’s economic appraisals. The DfT has recognised the latter by belatedly attempting to include global warming costs in its supporting paper, *Aviation and Global Warming*. But the analysis is opaque and poorly documented, raising concerns about the consistency of treatment of costs and benefits, and it therefore fails to provide a proper response to our concerns.

4. In addition, by restricting economic appraisal analyses only to the provision of new runways—as opposed to new terminals, runway extensions, and operational improvements to maximise the use of existing runways—the Department has failed to provide an appraisal of the overall environmental impacts resulting from the future increase in air travel which the Government is promoting.

5. The prospects for including aviation in the EU Emissions Trading Scheme are uncertain. Given the admission by the DfT that the UK is “ploughing a lonely furrow” in its advocacy of emissions trading, there is little prospect of implementing in the foreseeable future an international emissions trading system to cover aviation emissions. It is therefore disappointing that the UK has not shown leadership by pursuing alternative strategies.

6. Given the Government’s expressed desire to incorporate aviation in the EU Emissions Trading System from 2008, we are astonished that the DfT appears to have done no research on some of the key issues which need to be resolved or to model the impact of including aviation in a cross-sectoral emissions trading system. Such research is essential even before any draft proposals can be contemplated. Given the timescales involved, we think it might soon be too late to achieve the target date of 2008.

7. It is by no means obvious that an EU or international emissions trading system can generate sufficient credits to allow aviation to expand as forecast, while at the same time delivering carbon reductions of the order needed. The DfT supporting paper, *Aviation and Global Warming*, implicitly recognises this potential difficulty. The price of carbon could, in such circumstances, go through the roof—provided there was sufficient political will to maintain targets and enforce penalties.

8. If aviation emissions increase on the scale predicted by the DfT, the UK's 60% carbon emission reduction target which the Government set last year will become meaningless and unachievable. The most we could hope to attain would be about 35%. The DfT admitted that the target would need to be looked at should international emissions be allocated to national inventories—and this can only mean with a view to watering it down.

9. The Government should recognise the difficulties it faces in meeting its 2050 carbon target. If it did so, it would be forced to take more action now and develop an adequate policy response. It should not continue to hope that the solution lies in technological advances as the weight of evidence suggests that the scope for these is limited.

Conclusions and recommendations

1. It is extraordinary that, after such an extensive period of consultation on aviation policy, the DfT was unable to publish the documents supporting the White Paper until nearly two months later. This raises questions about the extent to which such analyses were fully available during the autumn at the time when the key decisions contained in the White Paper were being made. (Paragraph 6)
2. Despite protestations to the contrary, it is abundantly clear that the aviation White Paper adopts a “predict and provide” approach. The DfT has forecast future demand and then provided the framework to meet practically all of it. It is actively promoting growth on the scale envisaged, and indeed the urgency with which it is requiring airport operators to implement expansion plans bears this out. (Paragraph 12)
3. We do not know to what extent future growth in air travel will be fuelled by existing passengers travelling more frequently rather than by the 50% of the population who do not currently fly at all. The DfT has failed to carry out any detailed studies to explore the social and behavioural impacts of the proposed growth in aviation, and the manner in which these impacts may vary for different rates of growth. It must do so as soon as possible and publish the results. (Paragraph 16)
4. The DfT must publish a formal statement of what it understands by sustainable consumption in the context of air travel. As part of this statement, it should explain how the projected growth from 180 mppa to 476 mppa by 2030 can be reconciled with the commitment made by the UK Government in Johannesburg to encourage more sustainable approaches to consumption; and it should also set out what policies it is pursuing to discourage unnecessary air travel. (Paragraph 18)
5. The Integrated Policy Appraisal which supports the White Paper offers a particularly weak assessment of climate change impacts. The entries are not only very slim compared to other parts of the IPA, but they entirely fail to reflect the scale of aviation emissions by 2030 in relation to UK domestic emissions or to give any hint of the difficulties which will face the UK in meeting its carbon reduction targets. (Paragraph 21)
6. We agree with the Chief Scientist that climate change is a profoundly serious threat to mankind. The Government has in principle accepted our recommendation that specific consideration must be given in policy appraisals to the impact on carbon targets. It must ensure that this priority is in future fully reflected in appraisals conducted by all departments. (Paragraph 24)
7. We welcome the fact that the Government will consider including the possibility of catastrophic or sudden climate changes in its estimate of the price of carbon— notwithstanding our conviction that the value of our climate is literally priceless. (Paragraph 26)
8. The DfT has implicitly admitted that it failed to include the environmental costs of aviation emissions in its appraisals and has sought to rectify this omission in the supporting document Aviation and Global Warming. (Paragraph 27)

9. As far as we can identify, the DfT has nowhere calculated a figure for the net consumer and producer surplus arising from the overall increase in aviation forecast in the White Paper from 180 mppa to 476 mppa. In other words, we have no net benefit figure with which to compare our figure of minus £42 billion NPV for the increase in environmental costs. In this sense, the DfT has failed to evaluate the impact of new terminals, runway extensions, and operational improvements aimed at maximising the use of existing runways. (Paragraph 28)
10. The quality of the economic appraisal of options carried out by the DfT is poor and the supporting analysis contained in Aviation and Global Warming is opaque and unhelpful. The DfT should address this by publishing a new and fully documented appraisal which takes account of the overall forecast increase in air traffic. (Paragraph 28)
11. On the key issue of the impact of aviation on global warming, the White Paper contains no specific proposals apart from the commitment to work towards the inclusion of aviation in the second phase of the European Emissions Trading System from 2008. We are disappointed at the failure of the Government to show leadership in this area. (Paragraph 30)
12. It is regrettable that the Government did not take the initiative in promoting an interim emissions charge in view of the difficulties and timescales involved in developing an ETS to cover aviation. We believe that such an approach could offer the scope for flexible adoption by like-minded member states and could therefore be a more practical option than emissions trading which requires an all or nothing approach. (Paragraph 33)
13. We are astonished at the lack of essential research to underpin the incorporation of aviation in the EU Emissions Trading System (ETS). In view of the timescales involved in developing and ratifying EU directives, we suspect it may soon be too late to achieve the Government's professed intention of incorporating aviation in the second phase of the EU ETS from 2008. The DfT must set out, in response to this report, what needs to be done and by when to achieve this goal. (Paragraph 36)
14. It is unclear if any consensus exists among EU member states on incorporating aviation within the EU Emissions Trading System; and whether the political will exists to resolve the complex and contentious issues which need to be addressed for this to be achieved. It is not even clear to what extent, and at what level, any of these issues are even being discussed. (Paragraph 38)
15. In commenting on the recent ICAO meeting, the DfT official referred to the UK as 'ploughing a pretty lonely furrow' in its advocacy of emissions trading, and—given the opposition of some important players—we conclude that the likelihood of any significant progress being made is remote. (Paragraph 39)
16. We welcome the fact that the DfT has accepted our figures for the relative impact of aviation emissions compared to UK domestic emissions. We trust that the Treasury will do so too, and will in future provide figures on a consistent basis which take account of the radiative forcing effect. (Paragraph 43)

17. It is inconceivable that any emissions trading system could generate sufficient credits to allow aviation to expand as forecast, while at the same time delivering carbon reductions of the order needed. The price of carbon could, in such circumstances, go through the roof—provided there was sufficient political will to maintain targets and enforce penalties. (Paragraph 45)
18. If aviation emissions increase on the scale predicted by the DfT, the UK's 60% carbon emission reduction target which the Government set last year will become meaningless and unachievable. The most we could hope to attain would be about 35%. The DfT admitted that the target would need to be looked at should international emissions be allocated to national inventories—and this can only mean with a view to watering it down. (Paragraph 50)
19. The Government should recognise the difficulties it faces in meeting its long-term carbon targets. If it did so, it would be forced to take more action now and develop an adequate policy response. It should not continue to hope that the solution lies in technological advances as the weight of evidence suggests that the scope for these is limited. (Paragraph 51)

Introduction

1. Since its inception in 1997, the Environmental Audit Committee has regularly reviewed the progress made by the Treasury in placing environmental objectives at the heart of its fiscal strategy. In doing so, we have taken as one of our reference points the Statement of Intent on Environmental Taxation, which the Treasury itself released in July 1997. This stated that the Government would “over time ... reform the tax system to increase incentives to reduce environmental damage.”¹

2. In our most recent report on this subject, *Budget 2003 and Aviation*, published in July 2003, we focussed specifically on the environmental costs and impacts of aviation in the light of the discussion document, *Aviation and the Environment: Using Economic Instruments*, published by the Treasury and DfT in March 2003.² We did so in the context of the DfT’s airports consultation and the concerns felt by many over the huge projected increase in air traffic. The Government response to our report was delayed until the publication of the aviation White Paper, *The Future of Air Transport*, on 16 December 2003.³

3. The Government’s latest Pre-Budget Report (PBR) was published on 10 December 2003.⁴ As the function of the PBR is to set out the Treasury’s strategy, including its environmental tax strategy, we would normally use this occasion to examine the extent to which the PBR takes forward the agenda set out in the Statement of Intent. Indeed, we have received various memoranda which comment on a variety of issues, and we took oral evidence on 4 February 2004 specifically on fiscal instruments for encouraging energy efficiency from the Association for the Conservation of Energy, the Energy Saving Trust, and the Carbon Trust. All the evidence we have received or taken is published in the accompanying volume, and we would like to express our thanks to all those individuals and organisations who contributed.⁵

4. However, the PBR included nothing on aviation and—in view of the seriousness with which we view the growing environmental impacts of aviation—we have taken the opportunity in this inquiry to follow-up on the Government’s response to our previous report and on the aviation White Paper itself. We wrote to the Secretary of State for Transport, the Rt Hon Alistair Darling MP, to clarify a number of issues and received a short memorandum from him. We also took oral evidence from him on 24 February 2004, and from the Economic Secretary to the Treasury, John Healey MP, as well as from the

1 The Statement of Intent on Environmental Taxation was issued in July 1997 as an annex to one of the Budget press releases. It is reprinted at Appendix II in the Third Report from the Environmental Audit Committee, Session 1997-98, *The Pre-Budget Report: Government response and follow-up*, HC 985.

2 Environmental Audit Committee, Ninth Report of Session 2002-03, *Budget 2003 and Aviation*, HC 672. Subsequent references in the text to ‘our report last year’ etc are to this report.

3 HM Treasury, *The Government Response to the Environmental Audit Committee’s Report on Budget 2003 and Aviation*, December 2003, Cm 6063. For the White Paper, see: DfT, *The Future of Air Transport*, December 2003, Cm 6046.

4 HM Treasury Pre-Budget Report, *The strength to take the long-term decisions for Britain: Seizing the opportunities of the global recovery*, December 2003, Cm 6042.

5 See volume II.

Aviation Environment Federation and from British Airways.⁶ A number of the memoranda we received also commented on aviation policy.

5. This report, therefore, deals exclusively with aviation matters. We intend to cover other issues relating to the latest Pre-Budget Report after the 2004 Budget in the light of any further announcements which the latter may include.

The White Paper

The White Paper and supporting documentation

6. The White Paper was published on 16 December 2003. On 10 February 2004, the DfT made available 27 supporting papers, including the key document, *Aviation and Global Warming*, which is dated January 2004 and shows some signs of having been prepared in a hurry.⁷ These documents are also not available on the Department's web-site. **It is extraordinary that, after such an extensive period of consultation on aviation policy, the DfT was unable to publish the documents supporting the White Paper until nearly two months later. This raises questions about the extent to which such analyses were fully available during the autumn at the time when the key decisions contained in the White Paper were being made.**

Predict and provide

7. The aviation White Paper provides for a huge expansion in air traffic from the current level of 180 million passengers per annum (mppa) to 476 mppa by 2030.⁸ The latter is very close to DfT's central demand estimate of 500 mppa.⁹ Essentially, therefore, the White Paper provides the framework to satisfy future demand. This not only includes provision for 5 new runways, but also new terminals and improvements in operational management in order to maximise the use of existing facilities.

8. The Secretary of State for Transport argued that we should not categorise the DfT's approach as "predict and provide" on the grounds that this expansion was conditional on the achievement of stringent environmental criteria.¹⁰ The same point was made by British Airways.¹¹ The White Paper does indeed include a number of proposals for tackling environmental impacts at a local level by strengthening the regulatory framework with regard to noise, including the possibility of introducing differential landing charges and a compensation regime; and by tackling local air quality issues through a combination of

6 The oral evidence sessions were on 21 January 2004 (John Healey MP), and 11 February 2004 (AEF, BA).

7 eg inconsistent formatting of paragraphs, incomplete text in one text box, one graph overlapping the top of the page.

8 Based on the 12s2 scenario in DfT, *Passenger Forecasts: Additional Analysis*, December 2003, Annex B.10.

9 *ibid*, para 1.3.

10 Q294ff.

11 Q219 and DfT memorandum.

better operational management, technological improvements, and the use of economic instruments such as an emissions-related element to be included in landing charges.¹²

9. However, it is clear that the Government do not see these measures as major hurdles but rather as the progressive development of existing policies on local operational management. Indeed, the White Paper makes it clear that these ‘stringent environmental criteria’ amount to no more than respecting existing targets on air and water quality, ensuring that developments are consistent with existing arrangements for the control of the noise impacts of aviation, strengthening proposals for mitigating environmental impacts, and gradually introducing tighter standards for noise and emissions as it becomes feasible to do so.¹³ Despite the numerous references to the need for a balanced approach, repetition of this assertion does not necessarily make it true. The balance the Government has in fact struck is skewed decisively in favour of aviation.

10. This bias in favour of growth is overtly demonstrated in the programme of action during 2004 set out in the White Paper.¹⁴ This programme begins:

- *“we expect the airport operator to move quickly to develop the detailed design for a new runway at Stansted and associated development...”*
- *“we will institute immediately a programme of work on how to make the most of Heathrow’s existing runways and add a new runway after the Stansted runway...”*
- *“we expect all major airports to produce or update existing master plans, as appropriate, to take account of the conclusions in this White Paper.”*

11. The eagerness with which the Government is promoting growth is palpable. So too is the conviction throughout the White Paper that growth is a good thing. Nowhere is the latter more apparent than in the tortuously argued paragraphs on tourism, where—after initially emphasising the economic benefits of both in-bound and out-bound tourism—it finally emerges that the Government is concerned about a widening gap in the tourism balance of payments.¹⁵ Such a conviction in favour of growth belies claims of a balanced approach.

12. Despite protestations to the contrary, it is abundantly clear that the aviation White Paper adopts a “predict and provide” approach. The DfT has forecast future demand and then provided the framework to meet practically all of it. It is actively promoting growth on the scale envisaged, and indeed the urgency with which it is requiring airport operators to implement expansion plans bears this out.

Demand forecasts and behaviour

13. The increase in demand which DfT is forecasting represents the equivalent of another Heathrow every 5 years.¹⁶ We expressed concern last year on the assumptions underlying

12 Aviation White Paper, chapter 3 passim.

13 *ibid.* para 3.5-3.7.

14 The White Paper, chapter 12, page 146.

15 The White Paper, paragraphs 4.21-4.23.

16 Based on an increase of nearly 300 mppa by 2030, and Heathrow’s present traffic of just over 60 mppa.

the Department's proposals—namely that passenger numbers will increase by 4% every year for thirty years and that fares will decrease by up to 40% over the same period.¹⁷ We considered that the DfT should have promoted a far more extensive discussion of the underlying implications of such assumptions. The Government's response acknowledges the difficulties involved in forecasting and the need to keep its forecasts under review. But it does nothing whatever to address the concerns we had raised.¹⁸

14. In this context, one specific issue the DfT has failed to address is the distributional impact of the forecast growth in terms of the percentage of the UK population who fly. This is important because of the argument repeatedly advanced by the DfT that constraining demand would “price people off planes” and prevent the extension of the benefits of flying to those who cannot currently afford it. Only about 50% of the UK population actually fly at present. It is clearly important to try to understand the behavioural impact of a three-fold increase in air travel over the next 30 years—whether this would mean, for example, that almost everyone will make at least one air journey a year by 2030, or that those who currently do travel by air will do so far more frequently.

15. The Integrated Policy Appraisal attached to the White Paper includes a short section on distributional impacts. But it only states that “*policies to encourage growth are likely to make air travel relatively more affordable, accessible and socially inclusive. By contrast, policies not to expand capacity would price-off lower income travellers and ‘favour’ higher income groups.*”¹⁹ Apart from this brief comment, we cannot find any evidence, either in the White Paper itself or in the 27 supporting papers made available in February 2004, that the DfT has conducted any analysis of this topic.

16. We do not know to what extent future growth in air travel will be fuelled by existing passengers travelling more frequently rather than by the 50% of the population who do not currently fly at all. The DfT has failed to carry out any detailed studies to explore the social and behavioural impacts of the proposed growth in aviation, and the manner in which these impacts may vary for different rates of growth. It must do so as soon as possible and publish the results.

17. This issue also has wider significance in view of the commitment made by the UK Government, at the World Summit on Sustainable Development in 2002, to develop a ten year sustainable consumption and production strategy. The Government released its initial strategy in September 2003 but at the same time highlighted the fact that this was only a beginning.²⁰ So far, some attention has been paid to sustainable production and eco-efficiency issues, but much less to the concept of sustainable consumption. In a few specific contexts, the Government has for some while been attempting to promote changes in behaviour towards a more sustainable lifestyle. DfT and Defra, for example, have been campaigning to reduce the use of cars for school runs, and to promote the use of home working and video-conferencing. Yet DfT does not appear to adopt the same attitude towards aviation.

17 EAC, *Budget 2003 and Aviation*, 2002-03, HC 672 paragraph 24.

18 Government Response, recommendation 3.

19 Aviation White Paper, page 172.

20 DTI/Defra, *Changing Patterns – UK Government Framework for Sustainable Consumption and Production*, Sep 2003.

18. The DfT must publish a formal statement of what it understands by sustainable consumption in the context of air travel. As part of this statement, it should explain how the projected growth from 180 mppa to 476 mppa by 2030 can be reconciled with the commitment made by the UK Government in Johannesburg to encourage more sustainable approaches to consumption; and it should also set out what policies it is pursuing to discourage unnecessary air travel.

Appraisal of climate change impacts

19. We have already referred to the Integrated Policy Appraisal (IPA) appended to the White Paper. We have general concerns about the quality of appraisals—in particular, environmental appraisals—within the policy development process and this is an issue upon which we have commented in our work on Greening Government.²¹

20. With regard to the aviation IPA, we are concerned about the manner in which it addresses the issue of global warming. The IPA qualitative assessment states only that “*Aviation growth will lead to increased consumption of aviation fuel and greater emissions of greenhouse gases, adversely affecting climate change. But accompanying policies to tackle environmental impacts, whether by regulatory or economic means, will help to mitigate this.*” Moreover, the quantitative assessment simply refers to the environmental costs of £1.4 billion a year rising to over £4 billion a year by 2030.²²

21. The Integrated Policy Appraisal which supports the White Paper offers a particularly weak assessment of climate change impacts. The entries are not only very slim compared to other parts of the IPA, but they entirely fail to reflect the scale of aviation emissions by 2030 in relation to UK domestic emissions or to give any hint of the difficulties which will face the UK in meeting its carbon reduction targets.

22. In recent months a number of reports or analyses have raised the profile of Climate Change. We note in particular the comments made by the Government’s Chief Scientist in his recent article in the magazine *Science*, in which he stated that: “...*climate change is the most severe problem that we are facing today—more serious even than the threat of terrorism.*”²³ Some while later, the leaked Pentagon study on Climate Change presented a rather more apocalyptic vision of the future—even if the concepts on which it rested were already well known among scientists.²⁴ The impact of Climate Change was also reflected in disturbing reports that up to a third of all terrestrial species may become extinct by 2050, and that by that date the Great Barrier Reef will also be completely destroyed.²⁵

23. In view of the seriousness with which we regard this issue, we recommended in our report on the Energy White Paper that all departments should include within the process

21 eg EAC, Thirteenth Report of Session 2002-03, *Greening Government 2003*, HC 961, paragraphs 35-45.

22 Aviation White Paper, page 168.

23 *Science*, 9 January 2004, Climate Change Science: Adapt, Mitigate, or Ignore?

24 The study was widely reported in late February and made available on the internet. See, for example, the Observer article of 22 February 2004 at: <http://www.guardian.co.uk/climatechange/story/0,12374,1153547,00.html>.

25 The UN study, *Extinction Risk From Climate Change*, was widely reported in January 2004. See, for example, the BBC report of 7 January 2004 at: <http://news.bbc.co.uk/2/hi/science/nature/3375447.stm>. The Queensland University’s Centre for Marine Studies report on the Great Barrier Reef was also widely reported in February 2004. See, for example: <http://www.reuters.com/newsArticle.jhtml?type=topNews&storyID=4407162>.

of appraising new policies specific consideration of any implications arising from the adoption of the 60% carbon target.²⁶ In its response to our report, the Government stated that it

“agrees that in assessing major or strategic policy decisions, consideration should be given to the potential implications both for the domestic goal to reduce carbon dioxide emissions by 20% by 2010 and for the longer term aim set by the Energy White Paper to put ourselves on a path to cut carbon dioxide emissions by 60% by about 2050, with real progress towards this target by 2020. The Government is currently considering how this might best be applied in practice.”

24. We asked the Secretary of State how seriously he regarded climate change. His response reflected the mantra that a balance had to be struck with economic and social concerns—though somewhat later he did appear rather more keen to emphasise how seriously he did in fact treat the issue.²⁷ **We agree with the Chief Scientist that climate change is a profoundly serious threat to mankind. The Government has in principle accepted our recommendation that specific consideration must be given in policy appraisals to the impact on carbon targets. It must ensure that this priority is in future fully reflected in appraisals conducted by all departments.**

Environmental costs and benefits

25. In our report last year, we noted the difficulties—both practical and conceptual—of evaluating environmental impacts in financial terms. The valuation of noise represents a good example of the extent to which such estimates can vary. The airports consultation included a figure of £25 million per annum for the UK as a whole: whereas we estimated that the cost for Heathrow alone could be as much as £66 million per annum.²⁸ Even such a figure, as we pointed out last year, may still grossly understate the full value.

26. The largest quantifiable impacts of air travel relate to carbon emissions. Indeed, this accounts for almost all of the £1.4 billion costs which the Treasury identified as the current environmental costs of aviation. This figure was based on the Government’s estimate of £70 per tonne for the social cost of carbon. We pointed out that the latter took no account of the possibility of catastrophic or sudden climate changes, and that valuations could increase dramatically if such changes were to occur. The Government’s estimate is currently being reviewed, and the response to our report stated that this issue would be included.²⁹ **We welcome the fact that the Government will consider including the possibility of catastrophic or sudden climate changes in its estimate of the price of carbon—notwithstanding our conviction that the value of our climate is literally priceless.**

26 EAC, Eighth Report of Session 2002-03, *Energy White Paper – Empowering Change?*, HC 618, paragraph 14.

27 EAC, Eighth Special Report of Session 2002-03, *Government Response*, HC 1333, paragraphs 9-10.

28 It is interesting to note, for example, that the Regulatory Impact Assessment for the aviation White Paper suggests that the increase in traffic from a third runway at Heathrow (27 mppa) would add about £120 million of costs in present value terms. See paragraph 37 of the RIA.

29 Government Response, response to recommendation 14.

27. We also pointed out last year that, in carrying out their economic appraisal of options, the DfT had failed to take account of the costs resulting from the forecast increase in carbon emissions. We therefore calculated the Net Present Value (NPV) of this increase and came up with a figure of over minus £18 billion at a 6% discount rate (£42 billion using the Treasury's latest discount rate of 3.5%); and contrasted this with a net positive benefit which the DfT had identified of £17.4 billion for one of the largest runway expansion options.³⁰ **The DfT has implicitly admitted that it failed to include the environmental costs of aviation emissions in its appraisals and has sought to rectify this omission in the supporting document *Aviation and Global Warming*.**³¹

28. However, the DfT has gone on to argue that we overstated our figures as we based them on the costs of the overall increase in air traffic rather than the impact of specific runway options; and that the environmental cost (NPV) attributable to new runways is only between minus £4 and minus £5 billion.³² This raises a number of issues:

- **As far as we can identify, the DfT has nowhere calculated a figure for the net consumer and producer surplus arising from the overall increase in aviation forecast in the White Paper from 180 mppa to 476 mppa. In other words, we have no net benefit figure with which to compare our figure of minus £42 billion NPV for the increase in environmental costs.³³ In this sense, the DfT has failed to evaluate the impact of new terminals, runway extensions, and operational improvements aimed at maximising the use of existing runways.**
- The DfT's response to our specific request for clarification on this topic referred us to the analysis in *Aviation and Global Warming*. However, paragraphs 5.25 to 5.29 of that paper are opaque and difficult to reconcile with other figures. It is unclear, for example, where the net benefit figure of providing additional runways (£17.1 billion NPV) and the overall increase in passengers (35 mppa) are derived from.³⁴ The paper does not even make it clear what discount rate is being used. Nor can we be certain that costs and benefits have indeed been calculated on an entirely consistent basis.³⁵ **The quality of the economic appraisal of options carried out by the DfT is poor and the supporting analysis contained in *Aviation and Global Warming* is opaque and unhelpful. The DfT should address this by publishing a new and fully documented appraisal which takes account of the overall forecast increase in air traffic.**

30 EAC, Ninth Report of Session 2002-03, *Budget 2003 and Aviation*, paragraphs 44-49.

31 DfT, *Aviation and Global Warming*, paragraphs 5.25-5.35.

32 Government Response, response to recommendation 10. See also the DfT memorandum in response to EAC's request for clarification on certain aspects of the Government response.

33 Based on the latest 3.5% Treasury discount rate.

34 Based on option 12s2 in Annex B.10 of DfT's *Passenger Forecasts :Additional Analysis*, the increase would be 45 mppa.

35 We note, for example, that the SERAS economic appraisal conducted for this option was based on an increase in passenger traffic of 89 mppa.

Emissions trading and global warming

UK domestic policy

29. We highlighted last year the impact of aviation emissions on global warming in relation to UK domestic emissions and carbon reduction targets, and the scale of the subsidy provided to aviation as a result of the absence of fuel taxes. We also recommended that the UK Government should replace Air Passenger Duty with an emissions based charge to raise £1.4 billion and subject to an annual escalator; and should consider the case for levying VAT on air tickets.

30. On the key issue of the impact of aviation on global warming, the White Paper contains no specific proposals apart from the commitment to work towards the inclusion of aviation in the second phase of the European Emissions Trading System from 2008. We are disappointed at the failure of the Government to show leadership in this area.

31. The White Paper refers to the possibility of consultation on other economic instruments to tackle global impacts.³⁶ However, the DfT confirmed in its memorandum that this would be dependent on progress at an EU and international level in incorporating aviation within an emissions trading system.³⁷ Indeed, when we questioned the Secretary of State on this, he refused even to countenance any other approach on the grounds that to do so would be a poor negotiating tactic.³⁸ In practice, therefore, the Government's view is that emissions trading is the only show in town, and it is unclear whether and in what circumstances it would contemplate any other approach.

32. In this connection, we noted last year that there was some support within the EU for the concept of introducing an emissions charge as an interim measure, and we asked the Secretary of State to update us on developments. DfT officials explained that this idea had gone nowhere:

"...the Commission published [the consultancy report] and invited everybody to comment but with no time scales and so forth. That is probably about 18 months ago now and it has rather fallen away. There is not really much appetite for it."

DfT also suggested that it would have taken so long to get an emissions charge in place that it would not have the characteristic of an interim measure.³⁹

33. Our own view is somewhat different. We think that there would have been far more likelihood of introducing an emissions charge in 2008 than incorporating aviation within the EU Emissions Trading System from that date. Moreover, it does not seem impossible to us that member states could have agreed a framework which allowed a certain degree of flexibility in the introduction of such charges—as indeed exists in other areas of EU policy.

36 op.cit. paragraph 3.42.

37 See volume II, DfT memorandum, paragraph 2.

38 Q321.

39 QQ319-320.

It is regrettable that the Government did not take the initiative in promoting an interim emissions charge in view of the difficulties and timescales involved in developing an ETS to cover aviation. We believe that such an approach could offer the scope for flexible adoption by like-minded member states and could therefore be a more practical option than emissions trading which requires an all or nothing approach.

The EU Emissions Trading System

34. The Secretary of State emphasised his commitment to work for the inclusion of aviation in the second round of the EU Emissions Trading System from 2008, and he reiterated the statement in the White Paper that this would be a key objective of the UK presidency in 2005.⁴⁰ However, if this is indeed the Government's objective, a number of key issues will need to be resolved as a matter of urgency—including the manner in which emissions will be allocated between member states, the treatment of radiative forcing, and the impact on other sectors of the economy. We asked the Secretary of State and DfT officials about this. They referred to the research which Defra had now commissioned, in conjunction with the UNFCCC, on allocation options.⁴¹ However, they acknowledged that further work—especially on modelling cross-sectoral impacts—was essential even to draw up initial proposals, but that nothing was currently being done.⁴²

<p>Radiative forcing: Why aviation emissions have more impact on global warming</p>
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<p>In addition to carbon dioxide, aircraft engines give rise to various other emissions—including water vapour, NO_x (nitric oxide and nitrogen dioxide), and particulates. Some of these emissions at altitude also contribute to global warming through, for example, the formation of contrails and high altitude clouds. While it is difficult to evaluate the effects with certainty, the Intergovernmental Panel on Climate Change concluded in 1999 that the impact of aviation emissions might be in the order of 2 to 4 times greater than that from carbon dioxide alone.</p>

35. Some of these issues are likely to be contentious:

- With regard to radiative forcing, British Airways argued forcibly that no account should be taken of it in incorporating aviation in the ETS. We think such an approach would flout the precautionary principle and were pleased that the DfT seems to accept the need to take account of the extra impact of aviation emissions.⁴³
- Allocation options are also likely to provoke fierce debate. Indeed, it was the failure to agree this very issue at Kyoto which led to the exclusion of international aviation

40 Q315.

41 QQ332-333.

42 QQ332-351. See especially Q349.

43 Q323.

emissions from national inventories. We also note a certain irony in the fact that the DfT has argued how economically beneficial it is for the UK to host such a large percentage of international flights, when it may well effectively be penalised for this under an ETS and have to make a correspondingly larger cut.

- The impact on other sectors of bringing aviation into an emissions trading scheme is likely to be immense. Indeed, the DfT acknowledged in oral evidence to us, that

“There is no specific modelling going on as we speak on that particular issue but it is something that clearly has to be done if aviation is going to be brought into emissions trading schemes.”⁴⁴

36. We are astonished at the lack of essential research to underpin the incorporation of aviation in the EU Emissions Trading System (ETS). In view of the timescales involved in developing and ratifying EU directives, we suspect it may soon be too late to achieve the Government’s professed intention of incorporating aviation in the second phase of the EU ETS from 2008. The DfT must set out, in response to this report, what needs to be done and by when to achieve this goal.

37. It is also unclear what contact on this topic there has been with both the Commission and other EU member states. A DfT official told us that: *“The first thing that we need to do and that we are in the process of setting up is getting together with the European Commission and some like-minded Member States to address precisely those issues.....Remember that we only launched this in the middle of December, so we are still at an early stage of trying to prepare our submissions.”* The Secretary of State for Transport tried to put a more positive gloss on this, but the impression we were left with is that discussions have barely started.⁴⁵

38. It is unclear if any consensus exists among EU member states on incorporating aviation within the EU Emissions Trading System; and whether the political will exists to resolve the complex and contentious issues which need to be addressed for this to be achieved. It is not even clear to what extent, and at what level, any of these issues are even being discussed.

Action at an international level

39. A similar position exists in the international context. In 2001, ICAO passed a resolution (A33-7) which included a commitment to develop an open emissions trading system. However, little has been achieved in the last few years. We note that two international bodies, ICAO and the UNFCCC, are involved, and we welcome the UK Government’s efforts at the recent Montreal ICAO meeting to try to clarify responsibilities on the issue of allocation and make further progress here. However, **in commenting on the recent ICAO meeting, the DfT official referred to the UK as ‘ploughing a pretty lonely furrow’ in its advocacy of emissions trading, and—given the opposition of some**

44 Q349.

45 QQ353-353.

important players—we conclude that the likelihood of any significant progress being made is remote.⁴⁶

Aviation and the 60% carbon target

The scale of the problem

40. In February 2003, the Government published its Energy White Paper. This included a specific commitment to a 60% cut in carbon emissions by 2050. In our report last year, we took the DfT's forecast aviation emissions data for 2030 and compared that with the target level of emissions for 2050. The results showed that, by 2030, aviation could account for over 70% of the Government's carbon target of 65 million tonnes. In its memorandum, the DfT has accepted the order of magnitude of our figures.⁴⁷

41. By contrast, we found the Treasury to be rather more ambivalent on the use of consistent figures. The Economic Secretary again attempted to obfuscate when questioned on the scale of the impacts when radiative forcing is included. We pointed out that it is misleading for the Treasury to calculate environmental costs of aviation on one basis, while quoting data which not only ignores radiative forcing but also does not fully take into account the impact of future targets.⁴⁸ In box 7.2 of the latest Pre-Budget Report, for example, the Treasury states that aviation emissions will constitute 10%-12% of UK emissions by 2020. In fact, they would represent 29% to 36% of UK domestic emissions if future targets and the effects of radiative forcing are taken into account.⁴⁹

42. The recent DfT paper, *Aviation and Global Warming*, includes revised forecasts which show that aviation emissions are likely to increase to only 18MtC by 2030.⁵⁰ This is significantly lower than DfT's estimates in the July 2003 consultation document and reflects optimistic assumptions regarding technological improvements.⁵¹ We do not necessarily share these assumptions, but have nonetheless used the figures in order to establish an agreed basis for evaluating the scale of the problem. Assuming a radiative forcing factor of 2.5 (the index which the Treasury has itself used to calculate environmental costs of aviation emissions), this is equivalent to nearly 45MtC—as against a target of 99MtC by that date if we are to remain on track to achieve the 60% 2050 target. Even assuming that aviation stabilises at this level, as the DfT's own forecasts in *Aviation and Global Warming* suggest, then by 2050 we will be in a situation where aviation emissions alone will comprise 70% of the UK target. The following table sets this out:

46 Q309.

47 See volume II, DfT memorandum, paragraph 1.

48 QQ9-15.

49 Based on a 2.5 radiative forcing factor, and on DfT figures in *Aviation and Global Warming* for the 2020 carbon target and for aviation emissions. (See *Aviation and Global Warming* paragraphs 3.56ff for the latter.).

50 DfT, *Aviation and Global Warming*, paragraphs 3.53-3.57.

51 The DfT July 2003 consultation forecast that emissions would rise to 70-80 million tonnes of carbon dioxide by 2030. This is equivalent to between 19-22 MtC (using the standard conversion factor of 3.67).

	Millions of tonnes carbon (MtC)			
	1990	2000	2030	2050
1. Aviation (excluding RF)	4.6	8.8	17.7	17.4
2. Aviation (including RF @ 2.5 times) [line 1 x 2.5]	11.5	22.0	44.3	43.5
3. UK domestic emissions	164.8	147.0	98.7	65.8
4. Total UK emissions, including aviation but not RF [line 1+ line 3]	169.4	155.8	116.4	83.2
5. Total UK emissions, including aviation plus RF [line 2 + line 3]	176.3	169.0	143.0	109.3
6. Aviation (including RF) as a percentage of UK domestic [line 2 ÷ line 3]	7%	15%	45%	66%
7. Aviation (including RF) as a percentage of total UK [line 2 ÷ line 5]	7%	13%	31%	40%

Notes:

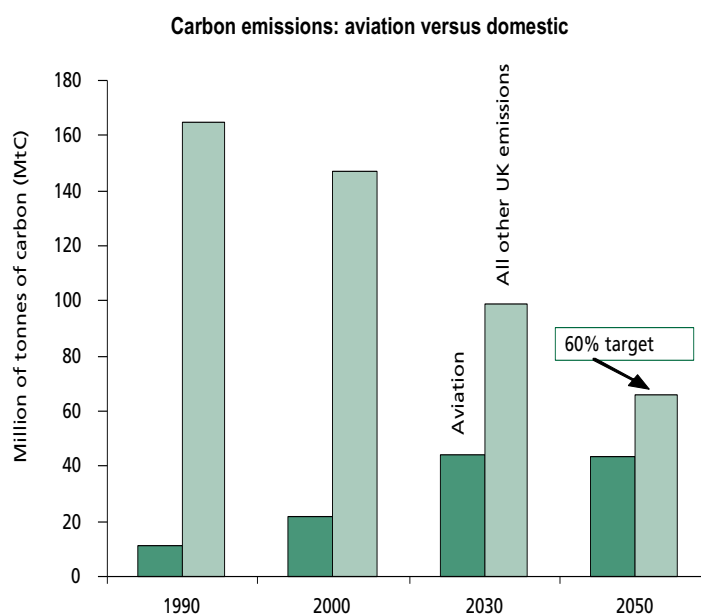
(1) Figures for aviation and UK emissions are based on DfT's *Aviation and Global Warming* (DfT, January 2004).

(2) The radiative forcing (RF) factor is based on that used by the Treasury in its document *Aviation and the Environment: using economic instruments* (March 2003).

43. We welcome the fact that the DfT has accepted our figures for the relative impact of aviation emissions compared to UK domestic emissions. We trust that the Treasury will do so too, and will in future provide figures on a consistent basis which take account of the radiative forcing effect.

Aviation and carbon targets

44. The Government has made it clear that the 60% carbon reduction target for 2050 applies only to UK domestic emissions, as there has been no agreement as yet on how international aviation emissions should be allocated to national inventories. We set out below the forecast increase in aviation (including the effect of radiative forcing) compared to the reduction in all UK domestic emissions which would be required in order to meet the 60% carbon reduction target which the Government set last year.



Source: Environmental Audit Committee

45. The graph demonstrates clearly that, if aviation were to be included in domestic emissions under either an EU ETS or subsequently an international ETS, there is no possibility of the UK achieving a 60% reduction in carbon by 2050. If aviation emissions are simply added to both the baseline and the target, effectively watering it down, the actual level of emissions reductions which could be achieved by 2050 would only be about 35%.⁵² Even this assumes that the rest of the UK economy actually achieves the domestic carbon reduction target of 60%. **It is inconceivable that any emissions trading system could generate sufficient credits to allow aviation to expand as forecast, while at the same time delivering carbon reductions of the order needed.**⁵³ **The price of carbon could, in such circumstances, go through the roof—provided there was sufficient political will to maintain targets and enforce penalties.**

46. We asked the Secretary of State about the impact of including international aviation emissions within domestic inventories. His official admitted that—were this to happen—the 60% target would need to be reconsidered:

*“...if...it is decided that international aviation emissions should be allocated to states, say split 50/50 between country of origin and country of destination so you are bringing international aviation emissions into domestic emissions inventories, then, other things being equal, you would need to look at your overall domestic emissions reduction target because you are adding in a whole new set of emissions. In that sense, yes, you are right. You would probably want to look at that overall target.”*⁵⁴

47. Indeed, the Secretary of State himself acknowledged this specifically at one point in his evidence to us:

Q354 Chairman: But you do accept that the two are intimately related? You cannot include aviation without it having an impact on domestic targets.

Mr Darling: Yes.

He went on to suggest that any subsequent decision on how to deal with this would be a political matter, and that it would be premature to consider these things now.⁵⁵ But his argument had already been contradicted by his official’s admission that modelling work on cross-sectoral impacts was essential if aviation is to be incorporated in emissions trading schemes.

48. The 60% target stems from the seminal report on energy and climate change which the Royal Commission on Environmental Pollution published in 2000. It was based on the application of a contraction and convergence approach to reduce the rate of increase of emissions globally. To the extent that such an approach might actually understate the share of international aviation emissions which the UK might be obliged to adopt, the scale of the problem might even be greater. But we would be concerned if the Government

52 ie the decrease from 169MtC to 109MtC in line 5 of the table above.

53 The DfT supporting paper, *Aviation and Global Warming*, implicitly recognises this difficulty. See, for example, paragraph 5.24. Cf also paragraphs 4.11-4.13 and the discussion of trading costs in 5.14-5.19.

54 Q343.

55 Q356.

attempted to argue that aviation must remain a special case and outside the scope of the target reduction, as this would contravene the spirit of the RCEP recommendation. We would also be concerned if the Government were to turn to the extensive use of the Kyoto “flexible mechanisms”—in particular, the Clean Development Mechanism—as a way of obtaining large apparent emissions reductions without reducing domestic emissions significantly.

49. Nor should the Government hope that technology will provide a way out of the impasse it faces. The figures we have used in our analysis are based on DfT’s latest forecasts which incorporate optimistic allowances for technological improvements.⁵⁶ However, both the DfT and the Treasury continue to place considerable reliance on efficiency improvements in air transport; while the Prime Minister himself stated in the evidence he gave to the Liaison Committee that he expected the G8 to take forward this agenda next year.⁵⁷ The aviation White Paper misleadingly states that “research targets agreed by ACARE⁵⁸ suggest that a 50% reduction in CO₂ production by 2020 can be achieved.” Yet ACARE themselves say that:

“The 2020 targets will not be achieved by developments of the current engine architecture and more radical changes will be required”; and that “the consensus view is that the rate of progress for conventional engines will slow down significantly in the next 10 years. To maintain the same rate of progress as today to 2020 and beyond will require breakthrough technologies and consequently higher risk approaches.”⁵⁹

50. If aviation emissions increase on the scale predicted by the DfT, the UK’s 60% carbon emission reduction target which the Government set last year will become meaningless and unachievable. The most we could hope to attain would be about 35%. The DfT admitted that the target would need to be looked at should international emissions be allocated to national inventories—and this can only mean with a view to watering it down.

51. The Government should recognise the difficulties it faces in meeting its long-term carbon targets. If it did so, it would be forced to take more action now and develop an adequate policy response. It should not continue to hope that the solution lies in technological advances as the weight of evidence suggests that the scope for these is limited.

56 The ‘central case’ scenario used at paragraph 3.56 of *Aviation and Global Warming* is based on the ACARE aspiration of a 50% improvement in fuel efficiency by 2050.

57 Evidence given before the Liaison Committee on 3 February 2004, HC 310-I, Q88.

58 Advisory Council for Aeronautical Research in Europe.

59 DfT, *Aviation and Global Warming*, January 2004, paragraph 3.44.

Formal minutes

Wednesday 10 March 2004

Members present:

Mr Peter Ainsworth, in the Chair

Mr Colin Challen

Mr Mark Francois

Mr David Chaytor

Mr Malcolm Savidge

Mrs Helen Clark

Joan Walley

Sue Doughty

Mr David Wright

Mr Paul Flynn

The Committee deliberated.

Draft Report (Pre-Budget Report 2003: Aviation Follow-up), proposed by the Chairman, brought up and read.

Ordered, That the Chairman's draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 51 read and agreed to.

Resolved, That the Report be the Third Report of the Committee to the House.

Ordered, That the Chairman do make the Report to the House.

Several papers were ordered to be appended to the Minutes of Evidence.

Ordered, That the provisions of Standing Order No. 134 (Select Committees (reports)) be applied to the Report.

Ordered, That the Appendices to the Minutes of Evidence taken before the Committee be reported to the House.

[Adjourned till Thursday 11 March at 2pm.]

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2003-04 Session

First	Annual Report 2003, HC 214
Second	GM Foods – Evaluating the Farm Scale Trials, HC 90

2002-03 Session

First	Pesticides: The Voluntary Initiative, HC100 (<i>Reply, HC 443</i>)
Second	Johannesburg and Back: The World Summit on Sustainable Development–Committee delegation report on proceedings, HC 169
Third	Annual Report, HC 262
Fourth	Pre-Budget 2002, HC 167 (<i>Reply, HC 688</i>)
Fifth	Waste – An Audit, HC 99 (<i>Reply, HC 1081</i>)
Sixth	Buying Time for Forests: Timber Trade and Public Procurement - The Government Response, HC 909
Seventh	Export Credits Guarantee Department and Sustainable Development, HC 689 (<i>Reply, HC 1238</i>)
Eighth	Energy White Paper – Empowering Change?, HC 618
Ninth	Budget 2003 and Aviation, HC 672
Tenth	Learning the Sustainability Lesson, HC 472 (<i>Reply, HC 1221</i>)
Eleventh	Sustainable Development Headline Indicators, HC 1080
Twelfth	World Summit for Sustainable Development – From rhetoric to reality, HC 98 (<i>Reply, HC 232</i>)
Thirteenth	Greening Government 2003, HC 961

2001-02 Session

First	Departmental Responsibilities for Sustainable Development, HC 326 (<i>Reply, Cm 5519</i>)
Second	Pre-Budget Report 2001: <i>A New Agenda?</i> , HC 363 (<i>HC 1000</i>)
Third	UK Preparations for the World Summit on Sustainable Development, HC 616 (<i>Reply, Cm 5558</i>)
Fourth	Measuring the Quality of Life: The Sustainable Development Headline Indicators, HC 824 (<i>Reply, Cm 5650</i>)
Fifth	A Sustainable Energy Strategy? Renewables and the PIU Review, HC 582 (<i>Reply, HC 471</i>)
Sixth	Buying Time for Forests: <i>Timber Trade and Public Procurement</i> , HC 792-I , (<i>Reply, HC 909, Session 2002-03</i>)

2000-01 Session

First	Environmental Audit: <i>the first Parliament</i> , HC 67 (<i>Reply, Cm 5098</i>)
Second	The Pre-Budget Report 2000: <i>fuelling the debate</i> , HC 71 (<i>Reply HC 216, Session 2001-02</i>)

1999-2000 Session

First	EU Policy and the Environment: An Agenda for the Helsinki Summit, HC 44 (<i>Reply, HC 68</i>)
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Second	World Trade and Sustainable Development: An Agenda for the Seattle Summit, HC 45 (Including the Government response to the First Report 1998-99: Multilateral Agreement on Investment, HC 58) (<i>Reply, HC 69</i>)
Third	Comprehensive Spending Review: Government response and follow-up, HC 233 (<i>Reply, HC 70, Session 2000-01</i>)
Fourth	The Pre-Budget Report 1999: pesticides, aggregates and the Climate Change Levy, HC 76
Fifth	The Greening Government Initiative: first annual report from the Green Ministers Committee 1998/99, HC 341
Sixth	Budget 2000 and the Environment etc., HC 404
Seventh	Water Prices and the Environment, HC 597 (<i>Reply, HC 290, Session 2000-01</i>)

1998-99 Session

First	The Multilateral Agreement on Investment, HC 58 (<i>Reply, HC 45, Session 1999-2000</i>)
Second	Climate Change: Government response and follow-up, HC 88
Third	The Comprehensive Spending Review and Public Service Agreements, HC 92 (<i>Reply, HC 233, Session 1999-2000</i>)
Fourth	The Pre-Budget Report 1998, HC 93
Fifth	GMOs and the Environment: Coordination of Government Policy, HC 384 (<i>Reply Cm 4528</i>)
Sixth	The Greening Government Initiative 1999, HC 426
Seventh	Energy Efficiency, HC 159 (<i>Reply, HC 571, Session 2000-01</i>)
Eighth	The Budget 1999: Environmental Implications, HC 326

1997-98 Session

First	The Pre-Budget Report, HC 547 (<i>Reply, HC 985</i>)
Second	The Greening Government Initiative, HC 517 (<i>Reply, HC 426, Session 1998-99</i>)
Third	The Pre-Budget Report: Government response and follow-up, HC 985
Fourth	Climate Change: UK Emission Reduction Targets and Audit Arrangements, HC 899 (<i>Reply, HC 88, Session 1998-99</i>)

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