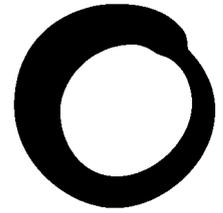


May 2008



**Friends of  
the Earth**

# Briefing

# Why the Government's Carbon Diet must include Chocolate

**The UK will shortly have the world's first climate change law but it currently excludes emissions from international aviation and shipping. This briefing explains why it is essential these emissions are included and how it can be done.**

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## Why the Government's Carbon Diet must include Chocolate

### Introduction

The UK Parliament is currently debating the world's first law setting national limits for emissions of carbon dioxide. However, the Climate Change Bill does not include carbon dioxide emissions arising from the UK's use of international aviation and shipping. Ministers have argued for a Bill that allows them to include such emissions at some point in the future, but there is no timescale for such inclusion, or any requirement for these powers ever to be used.

As all carbon dioxide emissions cause climate change – regardless of their source – a law that excludes any significant source of emissions is akin to a calorie-controlled diet that ignores calories from chocolate.

Difficulties in including these emissions have been much exaggerated. The Government has long measured and reported emissions from these sectors under the Kyoto Protocol, and the Bill now<sup>1</sup> includes a requirement for them to be reported annually to Parliament (although they will not count as part of the budget).

This briefing explains the changes needed to the Climate Change Bill to ensure these emissions are included from the outset.

### What the Climate Change Bill must do

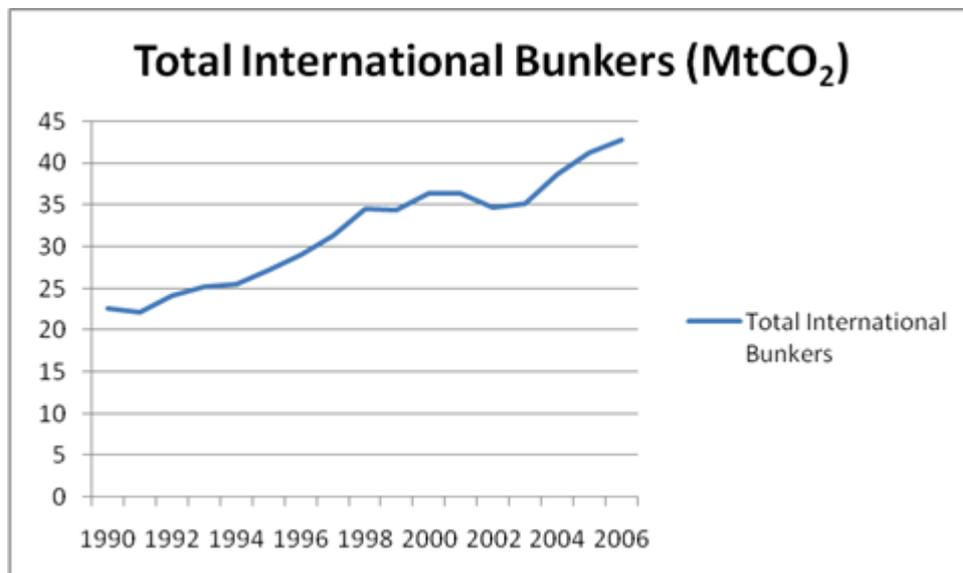
To be effective, any Climate Change Bill must take account of a simple fact: there is a limit to the amount of carbon dioxide that can be emitted between now and 2050 without causing serious, and possibly irreversible, damage to our climate. The UK Government, alongside many others, is committed to keeping temperature rise to no more than 2°C, which is believed necessary to avoid the worst impacts of climate change. The Prime Minister has been clear: “our vision has one overriding aim: holding the rise in global temperatures to no more than 2 degrees centigrade.”<sup>2</sup>

The idea that we must live within a carbon limit is a relatively new one in UK politics. Until recently, most political parties stated their climate change aims in terms of targets for a year at some point in the future – the commitment to at least a 60% reduction in emissions by 2050 being the most significant. However, a long-term target (however tough) is not enough in itself to ensure we meet the 2°C aim. Carbon dioxide emissions persist in the atmosphere for many years, with each year's emissions adding to those of up to 100 years previously to increase the concentration closer to danger levels. It is therefore the total quantity of carbon dioxide emitted from now to 2050 that is critical, not emissions in 2050. So if emissions stay high until 2045, even an invention that cut emissions to zero overnight would be too late – the total carbon emitted would have pushed concentrations beyond safe limits. The UK Climate Change Bill can only limit emissions that the UK is responsible for, rather than total global emissions. So the challenge for the Bill is to ensure that UK emissions are kept to no more than the UK's fair share of the total global emissions possible without breaching the 2°C limit. This must of course include **all** emissions that the UK is responsible for; not counting emissions from certain sectors undermines the entire logic of planning to keep within a limit, and raises the very real danger that the 2°C limit will be breached.

The Bill is most seriously undermined if it ignores sources of emissions that are now, or are likely to become in the future, sizeable sources of carbon dioxide (CO<sub>2</sub>). Emissions arising from the use of international aviation and shipping in the UK are

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already significant, but perhaps more importantly are growing rapidly. The graph below shows how CO<sub>2</sub> emissions from the sum of the UK share of International aviation & shipping have risen since 1990 (source DEFRA).



In 2006 international aviation was 6.4% of total UK CO<sub>2</sub> emissions and international shipping was 1.2%. Combined they represent 7.6% of UK CO<sub>2</sub> emissions<sup>3</sup>. Aviation emissions have more than doubled since 1990.

None of this is to say that all sectors of emissions must be reduced by the same amount. It will be cheaper to make savings in certain sectors than in others, and some policies may be more acceptable to society than others. Some argue that international aviation and shipping play such a crucial role in our economy, and are so important to people that they are likely to be sectors in which cuts are significantly smaller than the overall cuts. In the blueprint Friends of the Earth commissioned from the Tyndall Centre "Living within a carbon budget" one scenario allowed substantial growth in passengers taking international flights- while still ensuring overall carbon dioxide emissions were cut by the requisite amount<sup>4</sup>. However this balance can only be achieved if all sectors are included within the budget.

## What the Climate Change Bill does do

The Climate Change Bill provides a legal framework to control UK emissions by setting out a series of "carbon budgets" that will limit the total amount of carbon dioxide that can be emitted in a five-year period. The Government will set these budgets (after receiving advice from an independent committee of experts).

Ministers argue the Bill should exclude emissions from the UK's use of international aviation and shipping from the carbon budget. They suggest it should be possible for Ministers to include them at some point in the future (by way of regulations) but only if a new international agreement covering such emissions is reached. They have not proposed any *requirement* to do this, or any time limits by which it must be done. Under such a Bill it is therefore possible that they will never be included in the carbon budgets.

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The Bill does require that these emissions must be reported annually, alongside the annual report on progress towards meeting the carbon budgets. The reports will be prepared in line with the international carbon reporting practice at the time – just as such reports have been submitted to the United Nations for many years under the Kyoto protocol. There will however be no target or budget for these emissions, in effect, the report will be for information only.

## **What needs to change – aviation**

Emissions from international aviation and shipping have not yet been included in international agreements or policies to cut carbon dioxide emissions, such as the Kyoto treaty or the European Union Emissions Trading Scheme (EU ETS). The Kyoto protocol required signatories to report these emissions in their statistical returns on the basis of fuel sold from so called “international bunkers”. Although this may change in future if there is a new international agreement, the bunker fuel reports will be the basis on which the Bill requires these emissions to be reported annually – but they will not be counted as a part of the budget.

The Kyoto Treaty also charged the United Nations Framework Convention on Climate Change with the task of agreeing a method for allocating these emissions. Although it came up with eight allocation options in 1996<sup>5</sup>, progress since then has been blocked by a veto by Saudi Arabia. The issue was not discussed in Bali in December 2007. The inclusion of emissions from bunker fuels in the post 2012 international agreement was discussed at the April Bangkok climate talks. However there is little prospect of any agreement in the short-medium term. In the absence of any further progress on allocation since Kyoto, the “bunker fuel” method remains the existing internationally agreed model.

For aviation, reports based on bunker fuel sales are effectively equivalent to the emissions from all international departing flights from UK airports, or half the fuel used by aeroplanes on flights to and from UK airports (as each departure is matched by a return flight). This is because aeroplanes rarely carry excess fuel, loading only the correct amount of fuel for the next journey to avoid the expense of transporting extra payload. The Department for Transport and Treasury have for some time used emissions from aviation ‘bunkers’ in their projections of future aviation emissions.<sup>6</sup>

An alternative methodology, though not one with current international agreement, could be to base the figure on the proportion of British passengers on each flight from the UK. This would make the UK responsible for a slightly larger level of emissions as UK citizens make up 77%<sup>7</sup> of the passengers on flights arriving and departing from UK airports.

Should international agreement be reached around a new methodology like this then there would be a difference between the calculations for aviation emissions based on the old and the new methods. However, failure to include international aviation emissions from the outset would mean that a much larger emissions “gap” would need to be bridged when, at a later date, they were included.

## **The European Union Emissions Trading Scheme: will including aviation solve the problem?**

The Government has promised to ask the expert Committee on Climate Change to be set up under the Bill

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*“for its advice on whether there is a methodology for including international aviation emissions which was workable and compatible with the EU ETS and takes account of progress in the UNFCCC and the wider international context, and on the impacts of adopting it.”<sup>8</sup>*

Aviation emissions are likely to be included in the EU ETS at some point on or after the start of 2011. However, it is not immediately obvious how the EU ETS could be used to determine the UK's proportion of international aviation emissions because the allocation of carbon permits within the EU ETS will be to airlines, not countries, under an EU-wide emissions “cap”. Airlines can fly routes between airports in other countries with passengers from any nationality on board. For example, Easy Jet (UK owned) fly Paris-Athens and Ryan Air (Irish owned) fly Stansted – Rome. As a result airlines provide no obvious method of allocating the UK share of emissions.

In any case, other sectors already in the EU ETS will also be included in the UK Law. Inclusion in the EU ETS is therefore not a credible reason for aviation emissions to be left out of the UK bill. Another reason not to rely solely on the EU ETS to tackle aviation is that it is expected only to have a limited effect on emissions from aviation.<sup>9</sup> There are many other policies the Government could and should use in the UK to reduce demand for aviation and encourage efficiency in the industry. For example, the doubling of Air Passenger Duty in February 2007 is estimated to save 0.75 MtC (0.75 mega tonnes of carbon) per year by 2010<sup>10</sup>. The Treasury intends to replace this tax with a per plane charge ‘Aviation Duty’ related to aircraft emissions in 2009. These taxes give the Government as much control over aviation emissions as they have over emissions from motoring, for example.

In 2003 the DfT passenger forecasting computer model showed the introduction of fuel tax on aviation fuel and VAT on air tickets would cut the forecast growth in passengers from 500million in 2030 to just 315million<sup>11</sup>. This reduced rate of passenger growth could be largely offset by projected technology improvements so that aviation emissions could be stabilised. Finally, Government decisions on investing in and promoting airports, as opposed to high-speed rail, will have an impact on future emissions. Bizarrely, the Bill currently provides an incentive to transfer international passengers from rail to air. This is because emissions from railways are counted in the carbon budget, so reducing rail services would appear as a cut in emissions, while the additional flights would not be counted as an increase.

**Friends of the Earth therefore believes the Bill must be amended so that the UK's share of international aviation emissions are included from the first budget period. There is a credible and accurate method for allocating these emissions using the existing “bunker fuels” methodology. The EU ETS will be one of a number of policy tools that Government should use to control emissions from aviation, but it does not replace the need to count and restrict UK emissions overall to a level that is compatible with the 2<sup>0</sup>C aim for maximum acceptable rise in global temperature.**

## **What needs to change – shipping**

As with aviation, international shipping emissions are also reported to the UNFCCC on the basis of “bunkers” sold in the UK. However, for shipping, this methodology is likely to underestimate the true situation because ships can transport large quantities of additional fuel at far lower cost than aircrafts, and so it makes economic sense to “fill up” in the countries where fuel is cheapest. A further issue that international

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negotiations must resolve is the responsibility for shipping emissions of a landlocked country like Switzerland, which imports goods by sea that are landed in another country such as the Netherlands. This, incidentally, has little effect on islands like the UK.

As with aviation, international negotiations are not making much progress, and it is unlikely that these matters will be resolved soon. It is possible that shipping will be included in the EU ETS but not for several years<sup>12</sup>. While the principle that all emissions need to be counted stands just as much for ships as for aeroplanes, these practical difficulties mean there is a good argument for provisions in the Bill to allow aviation and shipping emissions to be treated differently. Using a proxy rather than actual emissions measurements for shipping may well be judged more accurate than using international carbon reporting practice in this sector. The Tyndall Centre has suggested allocating global shipping emissions to states on the basis of their share of global GDP<sup>13</sup>. Others have suggested using import records recording tonnage and country of origin), to estimate emissions. Finally, surveys or sampling might be an economical way to understand emissions from this sector.

**Friends of the Earth therefore believes that the Bill must set a date by which the UK's share of international shipping emissions will be included in the Bill, and that this should not be later than the second budget period (beginning in 2013). In the interim period, the Bill should be amended so that it clearly requires the Committee on Climate Change and Ministers to have regard to the best available knowledge on the carbon impact of the UK's use of international shipping, and factor this into the budget set for the first period. Put simply if it is judged that we can safely emit 600 MtC in this first budget period, and shipping is believed to be likely to account for 50 MtC, the budget should be set at 550 MtC.**

### **Support for change**

During the pre-legislative scrutiny of the draft Climate Change Bill in the last session of Parliament, three Committees studied the Bill, and almost 17,000 responses to the public consultation were received. According to the summary of responses published by DEFRA in October 2007, 75% of those responding to the consultation recommended the inclusion of international aviation and shipping<sup>14</sup>. Furthermore all three committees identified their exclusion as a weakness in the Bill<sup>15</sup> – their comments are below:

The Environmental Audit Committee: "While the draft Bill contains provisions that allow these emissions to be included in the future, we recommend that they be included immediately."

The Joint Committee on the Draft Climate Change Bill: "We consider this to be a serious weakness which, in view of the significant likely growth of such emissions, has the effect of reducing the credibility of the 60% carbon reduction target."

Environment, Food and Rural Affairs Committee: "The inclusion of the UK's share of emissions from international aviation and shipping will have significant implications for the validity of the 2050 target."

Since the publication of the draft Bill, the United Nations Development Programme has also highlighted the potential adverse effect of excluding international aviation

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and shipping from the Bill. Although praising the principle of the Bill in its "Human Development Report 2007/2008", the UNDP found

"Emission targets in the Climate Bill are not consistent with the objective of avoiding dangerous climate change. Our sustainable emissions pathway suggests that developed countries need to cut emissions of greenhouse gases by at least 80 percent by 2050 against 1990 levels, not 60 percent. **Moreover, the current framework excludes aviation and shipping. Factoring them in would raise the cumulative United Kingdom carbon budget to 2050 by around 5.5 Gt CO<sub>2</sub>, or 27 percent.**

If the rest of the developed world followed the pathway envisaged in the United Kingdom's Climate Change Bill, dangerous climate change would be inevitable. It would lead to approximate atmospheric concentrations of greenhouse gases in excess of 660 ppm CO<sub>2</sub>e (parts per million carbon dioxide equivalents), and possibly 750 ppm CO<sub>2</sub>e. These are outcomes that would correspond to a rise in average global temperatures of 4–5°C, well beyond the dangerous climate change threshold" (our emphasis added).<sup>16</sup>

Finally, in Parliament too there has been enormous support for the Bill to be amended to deal with these emissions. An Early Day Motion (No. 736) tabled by Nigel Griffiths MP, which highlights the UNDP report, was signed by almost 200 MPs in the first month after it was tabled. The EDM "urges the Government to support amendments to the Bill during its passage through Parliament to address the UNDP concerns".

## **Conclusion**

Friends of the Earth welcomes the Climate Change Bill but believes that it must also deal with the UK's responsibility for emissions from international aviation and shipping. These are already significant sources of emissions, and in recent years have grown rapidly. Excluding them from the Bill undermines the principle of the Bill, which is to constrain emissions from the UK to a level compatible with keeping global temperature from rising by more than 2°C.

Although the principle that emissions must be counted is the same for both sectors (indeed for all sectors) the practicalities for each are slightly different, and therefore we believe the Bill should be amended to

- (a) Include international aviation from the first budget period using existing methodology for measuring emissions, which is robust for this sector.
- (b) Set a date for the inclusion of international shipping emissions, which shall be no later than 2013, and use the time before then to determine the best allocation method. In the first budget period, use best available evidence on the UK contribution to international shipping emissions to adjust the UK carbon budget such that total emissions (i.e. those in the budget plus those from shipping) do not exceed a level compatible with avoiding a greater than 2°C global temperature rise.

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- <sup>1</sup> . Clause 15(5), Climate Change Bill (as amended at Lords Report Stage), <http://www.publications.parliament.uk/pa/ld200708/ldbills/044/200708044.pdf>
- <sup>2</sup> Prime Minister's Speech on Climate Change, 19 November 2007, <http://www.number-10.gov.uk/output/Page13791.asp>
- <sup>3</sup> Derived from DEFRA statistics:-  
<http://www.defra.gov.uk/environment/statistics/globalmos/alltables.htm>
- <sup>4</sup> 'Living within a Carbon Budget' Tyndall centre for climate change research, see:-  
[http://www.foe.co.uk/resource/reports/living\\_carbon\\_budget.pdf](http://www.foe.co.uk/resource/reports/living_carbon_budget.pdf)
- <sup>5</sup> see chapter on bunker fuels in communication for consideration at meetings of UNFCCC subsidiary body for scientific and technical advice in 1996 <http://unfccc.int/resource/docs/1996/sbsta/09a01.pdf>
- <sup>6</sup> For example 2007 Passenger Forecasts from DfT:  
<http://www.dft.gov.uk/pgr/aviation/environmentalissues/ukairdemandandco2forecasts/airpassdemandfullreport.pdf>
- <sup>7</sup> See table G2 DfT passenger forecasts, Terminal passengers, excludes transfer passengers  
<http://www.dft.gov.uk/pgr/aviation/environmentalissues/ukairdemandandco2forecasts/airpassdemandfullreport.pdf>
- <sup>8</sup> Taking forward the UK Climate Change Bill: the Government response to pre-legislative scrutiny and public consultation, Cm 7225, 29 October 2007: <http://www.official-documents.gov.uk/document/cm72/7225/7225.pdf>
- <sup>9</sup> European Commission's Impact Assessment of Aviation EU ETS proposal shows only small decrease in growth rate of aviation emissions from 142% by 2020 from 2005 levels to 135%, see:-  
[http://www.foe.co.uk/resource/briefings/aviation\\_in\\_the\\_euets.pdf](http://www.foe.co.uk/resource/briefings/aviation_in_the_euets.pdf)
- <sup>10</sup> HM Treasury pre budget report November 2006 see:- [http://www.hm-treasury.gov.uk/media/2/2/pbr06\\_chapter7.pdf](http://www.hm-treasury.gov.uk/media/2/2/pbr06_chapter7.pdf)
- <sup>11</sup> Explained in 'Hidden Cost of Flying' <http://www.aef.org.uk/uploads/HiddenCost.pdf>
- <sup>12</sup> EC energy package Jan08 no proposal for including shipping in ETS  
[http://ec.europa.eu/environment/climat/emission/pdf/com\\_2008\\_16\\_en.pdf](http://ec.europa.eu/environment/climat/emission/pdf/com_2008_16_en.pdf)
- <sup>13</sup> [http://www.tyndall.ac.uk/research/programme2/task\\_2.4.html](http://www.tyndall.ac.uk/research/programme2/task_2.4.html)
- <sup>14</sup> DEFRA summary of responses  
<http://www.defra.gov.uk/environment/climatechange/uk/legislation/pdf/summary-responses.pdf>
- <sup>15</sup> Committee responses are at:-  
<http://www.defra.gov.uk/environment/climatechange/uk/legislation/index.htm>
- <sup>16</sup> p 121, UNDP Human Development report 2007/8,  
[http://hdr.undp.org/en/media/hdr\\_20072008\\_en\\_complete.pdf](http://hdr.undp.org/en/media/hdr_20072008_en_complete.pdf)