



Department  
of Energy &  
Climate Change

# International aviation and shipping emissions and the UK's carbon budgets and 2050 target

19 December 2012



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**Presented to Parliament pursuant to section 30(3) of the Climate Change Act 2008**

**19 December 2012**

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# Part 1 – International Emissions and the Net UK Carbon Account

## The Climate Change Act 2008

1. The Climate Change Act 2008<sup>1</sup> (“the Act”) established a legally binding target to reduce the UK’s greenhouse gas emissions by at least 80% below base year<sup>2</sup> levels by 2050, to be achieved through action at home and abroad.
2. The 80% target within the Act is designed to be consistent with the level of effort likely to be needed globally if we are to meet our internationally shared goal to limit temperature increases to below 2°C<sup>3</sup>. This target applies to the UK economy as a whole and does not automatically imply each sector must achieve an 80% reduction in its own emissions. It may prove more cost effective to make greater emission reductions in some parts of the economy than others.
3. The Act introduced a system of carbon budgets which provide legally binding limits on the amount of emissions that may be produced in successive five-year periods, beginning in 2008. By setting the overall emissions reduction trajectory to 2050 through the carbon budget system we can provide a clear, credible, long-term framework to move to a low-carbon UK economy, and give businesses and individuals the direction and certainty they need to play their part.

## Existing Carbon Budgets

4. Government has set four carbon budgets for the period 2008-27.

	First Carbon Budget (2008-12)	Second Carbon Budget (2013-17)	Third Carbon Budget (2018-22)	Fourth Carbon Budget <sup>4</sup> (2023-27)
Carbon budget level (MtCO <sub>2e</sub> )	3,018	2,782	2,544	1,950
Percentage reduction below baseline levels	23%	29%	35%	50%

<sup>1</sup> Climate Change Act 2008 <http://www.legislation.gov.uk/ukpga/2008/27/contents>

<sup>2</sup> The baseline is 1990 for carbon dioxide, nitrous oxide, and methane, but 1995 for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride

<sup>3</sup> At the Conference of the Parties (COP) in Cancun in 2010, all countries agreed a goal of limiting global temperature increases to 2°C above a baseline of pre-industrial levels

<sup>4</sup> The Fourth Carbon Budget will be reviewed in 2014. If, at that point, our domestic commitments place us on a different emissions trajectory to the EU ETS trajectory we will, as appropriate, revise up the level of the fourth budget to align it with the actual EU trajectory

## Treatment of International Aviation and Shipping emissions within the Act

5. International aviation and shipping emissions are not currently included within the 2050 target as defined by the Act, or within the four carbon budgets that have been set.
6. At the time of passing the Act there was recognition that emissions from international aviation and shipping would also need to reduce if the UK were to achieve its long-term climate goals, and they were included within the wider framework of the Act through the requirement to take them into account when setting carbon budgets. However, a number of problems with inclusion of international aviation and shipping emissions within the UK's carbon budgets and carbon target were identified:
  - Lack of international agreement over how to allocate international emissions to individual countries.
  - Significant uncertainty over how best to measure and monitor these emissions in a sufficiently robust manner, e.g. high levels of uncertainty over both long-term emissions trends and in-year fluctuations. Specifically, for aviation there were concerns over the proposed aviation European Union Emissions Trading System (EU-ETS) methodology at the time, and for shipping there was uncertainty over which methodology to adopt.
  - Concern that inclusion without international commitments to emissions reductions would necessitate unilateral action to reduce emissions from these heavily globalised sectors, and so may generate perverse incentives for these sectors to move operations elsewhere, thus failing to reduce net emissions (carbon leakage) and impacting the UK economy.
7. As a result the Act currently requires:
  - An 80% reduction from the 1990 baseline<sup>5</sup> in UK territorial emissions, as reported internationally to the United Nations Framework Convention on Climate Change (UNFCCC). This includes emissions from domestic sources, such as our homes, UK power stations and industry. Emissions from domestic aviation and shipping are also included, but emissions from international aviation and shipping are not.
  - The Committee on Climate Change (the CCC) to provide advice on the consequences of including international aviation and shipping emissions<sup>6</sup> in UK carbon budgets and the 2050 target.
  - That international aviation and shipping emissions be taken into account when setting carbon budgets<sup>7</sup>.

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<sup>5</sup> 1990 Baseline reported as part of annual UK greenhouse gas emissions figures at

[www.decc.gov.uk/en/content/cms/statistics/climate\\_stats/gg\\_emissions/uk\\_emissions/uk\\_emissions.aspx](http://www.decc.gov.uk/en/content/cms/statistics/climate_stats/gg_emissions/uk_emissions/uk_emissions.aspx)

<sup>6</sup> Climate Change Act Part 2, section 35 requires the CCC to advise Government regarding the treatment of international aviation and shipping emissions as emissions from UK sources

<sup>7</sup> As required by Section 10 (2) i of the Climate Change Act 2008



8. The Act requires the Secretary of State, by 31st December 2012<sup>8</sup>, to either:

a. make provision by regulations as to the circumstances in which, and the extent to which, emissions from international aviation or international shipping are to be regarded as emissions from sources in the United Kingdom; or

b. lay before Parliament a report explaining why such legislation has not been made.

9. The Act contains the flexibility to adapt our approach<sup>9</sup> to evolving circumstances such as significant developments in either scientific knowledge or European and international law or policy, both of which are highly likely given the long time horizon under consideration.

10. The CCC have recently provided advice on this issue<sup>10</sup> recommending inclusion of international aviation and shipping emissions in the carbon budget framework and 2050 target and concluding that the barriers identified at the time of drafting the Act have since been sufficiently reduced or removed. The CCC recommended inclusion of international aviation emissions on the basis of its inclusion in the EU-ETS, and of shipping emissions on the basis of their forecast of emissions, taking account of the Energy Efficiency Design Index developed by the International Maritime Organization.

## How existing Carbon Budgets take account of International Aviation and Shipping

11. The UK's carbon budgets as described within the Act set an envelope for territorial UK emissions following the precedent of what is included within the reported 1990 baseline. While domestic aviation and shipping emissions are included within carbon budgets, international aviation and shipping emissions are excluded.

12. In setting the levels of existing carbon budgets, which go out to 2027, the Government has taken account of international aviation and shipping emissions, and the recommendations of the CCC<sup>11</sup>. This is illustrated in the figure below. In effect, the budgets for other sectors have been constrained so that, to 2027, the UK is on a trajectory that could be consistent with a 2050 target that includes emissions from international aviation and shipping.

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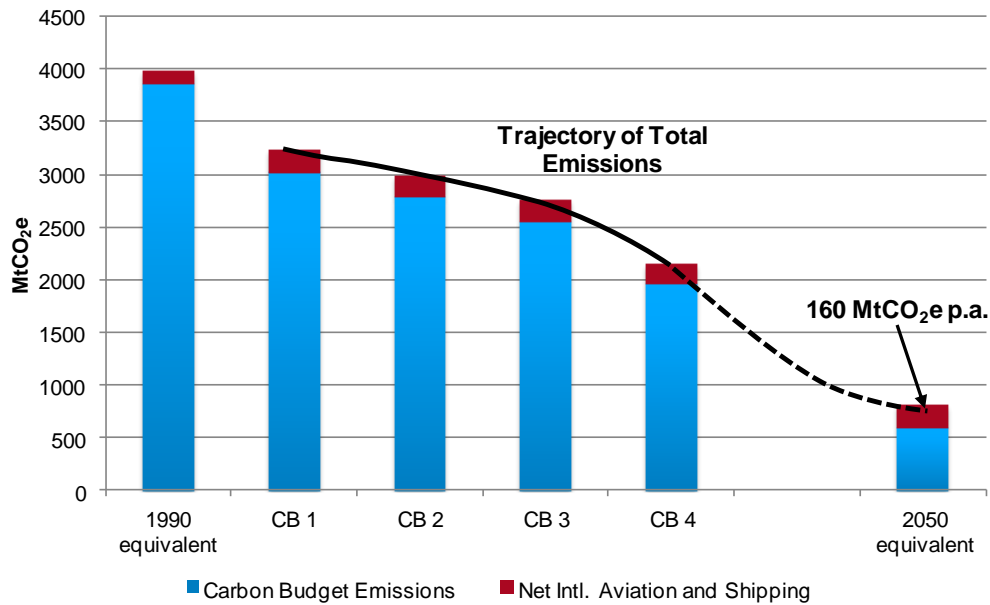
<sup>8</sup> As required by Section 30 of the Climate Change Act 2008

<sup>9</sup> Section 10 (2) of the Climate Change Act 2008

<sup>10</sup> Committee on Climate Change, April 2012. Scope of carbon budgets: Statutory advice on inclusion of international aviation and shipping, available at <http://www.theccc.org.uk/reports/international-aviation-a-shipping>

<sup>11</sup> The CCC have made recommendations on the basis that the UK should aim for a 2050 target of 160MtCO<sub>2</sub>e which includes international aviation and shipping. See 2008 CCC report, Exec Summary, Section 1 (i), page xiv-xv, and Fourth Budget report, Executive Summary, p12 and p32

**Chart 1: Carbon Budgets Relative to Total Emissions**



Notes: 1990 and 2050 emissions have been scaled up five times to be equivalent in scale to carbon budgets, which have a five year time span.

13. The dotted line shows an illustrative emissions reduction trajectory to 2050 that includes international aviation and shipping emissions. The levels of the carbon budgets for sectors included are shown in blue and estimates<sup>12</sup> of international aviation and shipping emissions are shown in red.

<sup>12</sup> Historic emissions are taken from the UK National Atmospheric Emissions inventory. Aviation emissions out to 2050 are assumed to be constant at the level of the EU ETS cap in 2020 (32.6Mt per year). Shipping emissions out to 2050 are taken from the high emissions scenario of the CCC's *Review of UK Shipping Emissions* (2011), as recommended by the CCC.

## Part 2 – Government’s Decision with respect to Section 30 of the Act

1. Since the Committee on Climate Change gave its advice on this issue, and in reaction to promising signs of progress towards a global deal at the UN aviation organisation (ICAO) the European Commission has come forward with a proposal to “stop the clock” on the international aspects of the aviation EU-ETS. If this proposal is accepted by EU member States it would defer the obligation to surrender emissions allowances from air traffic to and from the EU by one year. This would provide ICAO with more time to make progress on reaching a global deal on aviation emissions.
2. In recognition of the significant potential for global action in this area, it will be important that any decisions made by the UK take into account the work being undertaken by ICAO to develop a global market-based measure to tackle emissions from international aviation. Recommendations by an ICAO High Level Group set up for this purpose will be discussed at the ICAO General Assembly in October 2013. These uncertainties over the future scope of the aviation EU-ETS would impact upon the methodology proposed by the CCC for allocating international aviation emissions to Member States, and therefore the level of international aviation emissions that would be apportioned to the UK’s carbon account.
3. Due to the degree of uncertainty over the future shape of international agreements affecting international aviation, in particular aviation’s treatment within EU-ETS, we are deferring a firm decision on whether to include international aviation and shipping emissions within the net carbon account at this time.
4. We have taken this approach to allow international negotiations relating to the aviation EU-ETS to be resolved before this decision is taken.
5. We are also deferring a decision on the inclusion of international shipping, as although this sector is not affected directly by the uncertainties affecting international aviation, we would prefer to maintain a consistent approach to both international sectors.
6. As explained in part 1, existing carbon budgets out to 2027 have already been set to leave headroom for international aviation and shipping emissions, putting us on a trajectory which could be consistent with a 2050 target that includes a share of international aviation and shipping emissions and aligns with the UK’s share of the international goal of limiting global temperature rises due to climate change to 2°C. The Government does not intend to alter the way in which international aviation and shipping emissions have been taken into account in carbon budgets 1 to 4.
7. Our decision to defer the decision on inclusion implies no change to existing agreed policy to achieve carbon budgets 1-4 (notwithstanding our existing commitment to review the level of the fourth carbon budget in 2014, in order to ensure alignment between the UK’s emissions reduction commitments under the Carbon Budgets, and the commitments under the EU).
8. Whilst we will revisit the issue of whether the net carbon account will be revised to include international aviation and shipping when we come to set the fifth carbon budget,

Government reaffirms its overall commitment to the 2050 target and recognises that emissions from international aviation and shipping should be treated the same as emissions from all other sectors, in order to reach our long-term climate goals.

9. In their 2012 report<sup>13</sup>, the CCC noted that a UK unilateral approach to international aviation and shipping would have limited impact on reducing emissions and could result in perverse outcomes or carbon leakage, given the specific characteristics of these sectors. We agree that these international sectors should be tackled at the international level, and are fully supportive of the development of wider international multilateral frameworks for both sectors. Deferring this decision will allow us to retain flexibility as these agreements develop further, without any negative consequences for the UK's level of emissions, given that existing carbon budgets have already been set (to 2027) to put the UK on a trajectory that could be consistent with a 2050 target that includes emissions from international aviation and shipping.

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<sup>13</sup> Scope of carbon budgets: Statutory advice on inclusion of international aviation and shipping, Committee on Climate Change, April 2012



