

Discussion Paper 03: Aviation and Climate Change
Response from *Manchester Airports Group (M.A.G)*



Discussion Paper 03: *Aviation and Climate Change*

Response of Manchester Airports Group (M.A.G)

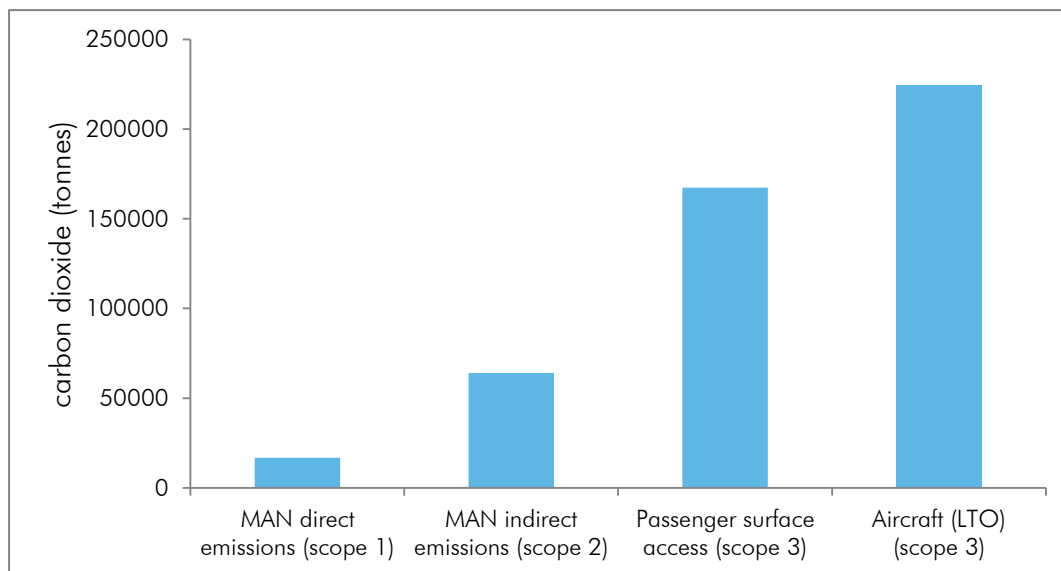
1 About M.A.G

- 1.1 Owning and operating Manchester, London Stansted, East Midlands and Bournemouth Airports, Manchester Airports Group (M.A.G) is the UK's second largest airport operator. M.A.G airports handle in excess of 42 million passengers and 600,000 tonnes of freight per year, carried by over 80 airlines to around 220 destinations worldwide.
- 1.2 M.A.G welcomes the opportunity to submit evidence to the Airports Commission in response to Discussion Paper 03. We believe that climate change is an important and pressing policy issue and that an evidence based understanding of how aviation contributes to climate change and the likely implications of different policy measures is a fundamental aspect of the work of the Commission.

2 Introduction

- 2.1 Aviation is a relatively modest contributor to climate change accounting for about 1 to 2% of anthropogenic global CO₂ emissions.¹ Figure 1 presents an extract from the estimated carbon footprint for operations associated with Manchester Airport. It is apparent that even with consideration of aircraft emissions restricted to the landing and take-off cycle most emissions arise from aircraft operations. In totality airport emissions account for a small proportion of emissions associated with aviation.

Figure 1: Manchester Airport Carbon Footprint



¹ Review of Economics of Climate Change, Stern (2006), available at http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/sternreview_index.htm

- 2.2 Whilst direct airport emissions account for a small proportion of the total emissions arising from aviation, M.A.G accepts that emissions from its operations are important and a vigorous and radical programme of work has been implemented to ensure that they are reduced. This has included:
- Energy efficiency schemes which, by way of illustration, energy demand at Manchester has been reduced by 16% in the last 5 years;
 - The adoption of renewable energy including a 2MW woodchip biomass heating boiler at Stansted, wind turbines at East Midlands and a solar PV array at Bournemouth; and
 - The purchase of all electricity from renewable sources, with 100% of M.A.G's procured electricity now sourced from biomass generation.
- 2.3 M.A.G recognises that through partnership working it can support and enable others to reduce their emissions. This includes work with on-site partners, providers of public transport and airlines. By way of example the introduction of continuous descent approach (CDA) at East Midlands Airport has increased the proportion of aircraft achieving CDA to more than 90%, with an estimated saving of approximately 1,500 tonnes of CO₂ annually.
- 2.4 As part of this partnership approach M.A.G is a founding member of Sustainable Aviation, a unique alliance of the UK's major airlines, airports, aerospace manufacturers and air navigation service providers. The coalition brought together by Sustainable Aviation seeks to drive a long term strategy to deliver cleaner, quieter, smarter flying. M.A.G continues to contribute to the work of the Group and supports its strategic reports which have done much to advance knowledge in this area. In particular the publication of a carbon roadmap,² updated in 2011, which sets out the projected emissions from UK aviation concluding that substantial growth in activity can be accommodated without increasing absolute emissions and that, with the application of carbon trading, net emissions can be reduced markedly, to 50% of 2005 levels. This position has been reached following extensive collaboration with experts across the industry.
- 2.5 The level of emissions forecast by the Sustainable Aviation Carbon Roadmap is consistent with the Government's emissions trajectory. Achieving the forecast is predicated on the progressive introduction of more efficient aircraft types, the use of alternative fuels from sustainable sources and the introduction of market based measures, such as carbon trading.
- 2.6 M.A.G believes that market based measures, such as the European Emissions Trading Scheme, are an important element of the policy framework required to deliver guaranteed savings in net emissions from aviation. Market based measures have the greatest potential to achieve savings at lowest cost and to deliver the Government's policy objective to '*ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions*'.³ It is important however that any market based measures reflect the international nature of aviation in order to reduce the potential for unintended consequences such as carbon leakage.

3 Do you consider that the DfT CO₂ forecasts present a credible picture of future UK aviation emissions? If not, why not?

² Carbon Roadmap, Sustainable Aviation, (2011), available at <http://www.sustainableaviation.co.uk/wp-content/uploads/SA-CO2-Road-Map-full-report-280212.pdf>

³ Aviation Policy Framework, (Department for Transport 2013)

- 3.1 M.A.G is a founding member and active contributor to the work of Sustainable Aviation and was pleased to have the opportunity to contribute in particular to the Group's carbon roadmap, which was updated in 2011. Sustainable Aviation has an unparalleled level of access to expertise across all parts of the aviation industry, including engine and airframe manufacturers. As such the Roadmap is an authoritative expression of the latest thinking in this area.
- 3.2 At 2050, the Sustainable Aviation Roadmap predicts CO₂ emissions 22% lower than forecast by DfT. This difference is examined in detail in the Roadmap, at section 9.3. The two prominent differences between the forecasts are the more pessimistic view of average fuel efficiency improvement taken by the DfT (0.9% per annum versus 1.21% per annum) and a lower estimate of the penetration of sustainable alternative fuels.
- 3.3 M.A.G strongly supports the work of Sustainable Aviation, acknowledging that it draws upon the best available knowledge in this area and we would be content for the Group to further clarify the evident differences in so far as they are material to the Commission's considerations.
- 4 To what extent do you consider that the analysis presented in this paper supports or challenges the argument that additional airport capacity should be provided?**
- 4.1 M.A.G supports the use of appropriate market based measures to complement the industry's efforts to increase environmental efficiency and reduce total emissions. We expect aircraft operations within, to and from Europe to be included within the European Emissions Trading Scheme (EU-ETS). The full introduction of aviation to EU-ETS has been paused following the European Commission's recent decision to allow further time for an international agreement to be reached⁴. This pause is temporary and does not indicate a change of policy. In allowing further time the Commission has made clear that it will only exempt aviation from EU-ETS if international negotiations deliver a similarly stringent framework, with the proposal to defer requiring that *'...clear and sufficient progress is made at the ICAO assembly'*.⁴ As such we confidently expect that European or international policy will ensure that emissions from aviation are subject to a cap.
- 4.2 The overall picture established by the Sustainable Aviation Carbon Roadmap is that aviation will continue to become increasingly carbon efficient, accommodating all forecast growth to 2050 with little change in absolute emissions. The inclusion of aviation emissions within an appropriate policy framework will ensure that absolute emissions from aviation are capped and that net emissions are consistent with the trajectory established by the Government in its future carbon budgets.
- 4.3 The work in the discussion document on carbon leakage serves to illustrate the complexity of this issue, with UK aviation forming a component within a much larger interrelated global network. Whilst we would accept that there must be significant uncertainty in any assessment of carbon leakage arising due to capacity constraints it is clear that constraining capacity will not necessarily deliver savings in absolute emissions and furthermore that the inclusion of aviation emissions within an appropriate policy framework means that constraining capacity will not deliver any savings in net emissions.

⁴ Communication 697, European Commission Statement (2012), available at http://europa.eu/rapid/press-release_MEMO-12-854_en.htm

4.4 We consider therefore that climate change should not present a barrier to the provision of additional capacity.

5 How could the analysis be strengthened, for example to allow for the effects of non-CO₂ emissions?

5.1 The Commission's consideration of non-CO₂ emissions from aviation illustrates the complexity of this issue and (in Figure 2.1) the very significant scientific uncertainties that remain. In particular we would note that different emissions have very different residency times in the environment. At one extreme vapour contrails may disperse in minutes whilst the impact of CO₂ emissions persists for decades. Whilst M.A.G would agree that radiative forcing is the most commonly used metric, this vast difference in residency time means that it is a poor predictor of the future impact that emissions will have. We do not believe it is possible to directly compare the future impact of different emissions in a simple way and we are concerned by the prominence given to radiative forcing in the discussion document. Given the longer residency time that CO₂ has in the environment, the relative scale of CO₂ emissions compared to other sources and the greater scientific understanding of the consequences of elevated CO₂ in the atmosphere M.A.G believes that it is appropriate and pragmatic to prioritise the reduction of CO₂. We do not believe that is possible to materially strengthen the analysis in this area.

6 How can we best deal with uncertainty around demand and emissions, including in relation to future carbon prices?

6.1 As noted in response to previous questions, M.A.G confidently expects that European or international policy will continue to impose a cap on total aviation emissions for flights within, to and from the European Union. Additional capacity in the UK will not necessarily increase absolute emissions and as a result of this wider climate policy will have no impact on net emissions.

6.2 M.A.G understands that the Commission will form a balanced view on the case for additional capacity based on the range of evidence that it receives. We believe that the strategy for UK aviation should be flexible enough to accommodate the full range of forecasts and that uncertainty in emissions and carbon prices should be dealt with by wider climate policy.

6.3 It is notable that carbon emissions are directly proportional to fuel burn, with 1 tonne of kerosene producing approximately 3 tonnes of CO₂. Given current fuel costs of approximately £600 per tonne and a projected carbon cost in 2020 (carbon floor price) of £30 per tonne, it is likely that fuel price, which has been volatile and increasing, will continue to be the dominant factor influencing demand.

7 What conclusions should be drawn from the analysis of effectiveness, and relative cost, of airport capacity and other abatement measures in Chapter 5? Are there alternative analytical approaches that could be used to understand these issues?

- 7.1 The Carbon Roadmap published by Sustainable Aviation⁵ considers all of the potential abatement options and provides a considered view of the likely contribution from each element. As noted in response to previous questions, M.A.G confidently expects that European or international policy will shortly impose a cap on total aviation emissions for flights within, to and from the European Union. We believe therefore that the balance of mitigation measures that is introduced will be driven by normal market pressures and that emissions trading will ensure that mitigation is delivered at lowest marginal cost. Given this policy context we do not believe that any additional policy intervention is required.
- 7.2 Whilst not commenting in detail on the analytical technique underpinning Chapter 5, M.A.G would support the overarching conclusions that constraining capacity in the UK in isolation is likely to result in significant carbon leakage and therefore may not deliver any savings in emissions and that in any event constraining capacity is not an economically efficient way to deliver emissions savings.
- 8 Are there examples of how other countries have considered carbon issues in relation to airport capacity planning that we should be looking at? (Please specify and briefly explain why.)**
- 8.1 M.A.G is not best placed to comment on the approach adopted in other countries, we would though note that signatories to the Kyoto Protocol, including the UK, acknowledge the international nature of aviation emissions and have agreed to pursue emissions policy '*...through the International Civil Aviation Organisation...*'.⁶ We support this position. We would be concerned that any imposition of capacity constraints at a domestic level would lead to market distortions and carbon leakage.
- 9 What do you consider to be the main climate risks and adaptation challenges that the Commission will need to consider (a) in making its assessment of the UK's overall aviation capacity and connectivity needs, and (b) in considering site-specific options to meet those needs?**
- 9.1 In common with other major airports and strategic providers of infrastructure M.A.G has undertaken detailed climate change adaptation assessments for all of its airports.⁷ The key risks identified relate to the potential damage of infrastructure due to extreme weather and changes in the demands placed on infrastructure, in particular to cope with warmer conditions. Whilst we will continue to review and update our assessment, we are confident that the need to adapt to a changing climate should not in any substantive way prevent the growth of any of our airports.
- 9.2 Climate change adaptation risks for airports will be site specific and the Commission will want to ensure that all proponents of long term options for growth have undertaken a suitable risk assessment.
- 10 Are there any opportunities arising from anticipated changes in the global climate that should be taken into account when planning future airport capacity?**

⁵ Carbon Roadmap, Sustainable Aviation, (2011), available at <http://www.sustainableaviation.co.uk/wp-content/uploads/SA-CO2-Road-Map-full-report-280212.pdf>

⁶ Kyoto Protocol, (UNFCCC 1998), available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>

⁷ Climate Change Adaptation Report, M.A.G (2011), available at <http://archive.defra.gov.uk/environment/climate/documents/adapt-reports/08aviation/manc-airport.pdf>

- 10.1 Long term projections for climate suggest that the UK's climate will progressively change in particular that summers will become warmer and drier. The UK Climate Impacts Programme⁵⁸ considers that '*Some markets will expand and there will be new opportunities, such as outdoor leisure, summer food, drinks and clothes...*'.⁹ We are minded to agree with this proposition and when coupled with forecasts of extreme and undesirable increases in temperature in some traditional holiday destinations we see an opportunity for increased inbound tourism to the UK in the longer term.
- 10.2 Whilst it is difficult to forecast the extent of any change, we believe it is a relevant factor that should be noted by the Commission and that an increase in inbound traffic may well feed through to an increase in the predicted future economic benefit of aviation.

M.A.G

17 May 2013

⁸ Kyoto Protocol, (UNFCCC 1998), available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>

⁹ A Changing Climate for Business, UKCIP (2010), available at http://www.ukcip.org.uk/wordpress/wp-content/PDFs/UKCIP_Business.pdf