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Is the Airports Commission Report compliant with a Committee on Climate Change emissions framework?

Why did the aviation policy framework set out in the 2003 Air Transport White Paper fail (it had to be ignominiously withdrawn just 7 years later)? Because rather than honestly and necessarily bringing together the competing factors of 'capacity versus carbon', as the public interest required, so as to strike whatever might be an optimum outcome between the two, it instead kept them separated within the policy analysis in order that increased airport capacity could be allowed to surge upwards, without the constraining influence of a fixed, even reducing, carbon budget being applied.

And even though the Climate Change Act 2008 subsequently imposed that discipline on every other aspect of UK economic and social activity, aviation yet again managed to wangle a grotesquely preferential approach, getting official sanction to an emissions framework for aviation that permitted its 2050 emissions to be 1990 **+120%** whereas all other sectors must be relentlessly reduced to **minus 80-85%.** Only collusion (or confusion) in high places can possibly explain this uniquely favourable treatment.

So *the* test for Sir Howard Davies' Airports Commission was always going to be: how would it now treat the 'capacity versus carbon' equation within *its* policy process: attempt another 'diversionary exercise' so that the issue just got lost in a thicket of disconnected propositions and technical appendices (after all, it worked last time), or alternatively require the integration of those two critical analytical factors as a central test of any runway proposal so as to ensure that this time the potential for capacity expansion was constrained, to whatever extent, by a carbon collar.

At the outset the prospects were much more promising, with the Commission accepting that it would have to work within the analysis framework established by the Committee on Climate Change's pioneering 2009 report, limiting aviation in 2050 to a still enormously favourable one quarter share of the UK's greatly diminished carbon budget. Aviation emissions could not exceed the level of emissions in 2005 (37.5MtCO2) for the period 2005-50. This required, calculated the CCC, limiting the UK 2050 passenger increase to +60% and ATMs to +55%.

(Before proceeding further let's just note the status of this so-called '2005-2050 target' which now forms a cornerstone of UK aviation analysis. It has no basis in science; fails for example to incorporate any allowance for non-CO2 effects; and hasn't been formally adopted by governments since 2010. But it uniquely privileges aviation industry activity and emissions; which is not surprising, since that's where the formulation originated, before being laundered through the DfT.)

In most circumstances this *might* allow some additional and new capacity to be provided but the CCC 2009 analysis did not address the specific or locational aspects of new runways. However what runway promoters and all other commentators failed to consider subsequently was: by the time a new SE runway might come on line - Davies has this in 2026 - how much of that +55% ATM growth 'allowance' (which the Davies *Interim Report* subsequently recalculated to a much smaller +33/38%[1]) would still be available? In fact the DfT Forecasts show that growth in the

[1] "But the most significant difference between the CCC and Commission forecast is in the number of ATMs that can be accommodated within the carbon cap. While ATMs in the CCC forecasts grew by 55% from 2.2 to 3.4 million, in the new forecasts they grow by just 33%* to 2.9 million." *NB the number is 33% in the Technical Appendix but 38% in the main report 4.16. It's not clear why. *Technical Appendix* table 5.1 has

interim (2005-26), using spare capacity at all the other London system competitors to whichever was the new runway recipient, and at 'strong regionals' such as Manchester or Birmingham, will have already consumed *all* that allowance by the time the new runway opened.

With that exception, if we skip all the intermediate stages of the analysis argument that the environment organisations have inputted to Davies over the last 2 years, how has his *Final Report* - recommending an additional runway at Heathrow - been squared with a carbon cap of 37.5MtCO2? Ostensibly he is saying: "one new runway can be accommodated within our climate change commitments". Thus, at the level of his headline statements, there are not even any qualifications to that position, such as that 'whilst an additional runway should be provided in the SE for capacity management and efficiency reasons, this has to be subject to X or Y measures limiting the total amount of passenger demand/ATMs to a level consistent with a carbon cap'.

So first what we have in the *Main Report* are a few perfunctory pages (ps.203-5) on the carbon issue, which carefully do *not* address the overall 'capacity v carbon' question in a clear and explicit way; do not illustrate what happens to the trajectory of total UK aviation emissions between 2015-50 if a 3rd runway is added; but instead confine themselves to this ambiguous statement about forecast assumptions: 'All of the Commission's forecasts incorporate measures to ensure that carbon dioxide emitted by UK flights and ground movements does not lead to increased emissions overall either at international level (in the carbon-traded forecast) or within the UK economy (in the carbon-capped forecast).' *para.9.111* What measures might those be, and how effective would they be? In the main report this apparently is to be taken on trust.

Nonetheless the Commission had to acknowledge the carbon consequences of capacity expansion so in the *Business Case and Sustainability Assessment* for the particular NW runway option it's proposing it noted: "Given the large increase in carbon compared to baseline and the limited extent to which these can be minimised, the Commission has determined that the carbon impact of the scheme is **ADVERSE*** with respect to the Commission's objective to minimise carbon emissions in airport construction and operation. The only reason this is not **HIGHLY ADVERSE*** are some of the system wide surface transport impacts, which show a comparative carbon "saving" of developing at Heathrow as opposed to airports with higher surface access carbon impacts." *para.16.17* (And we could unpack this claimed trading-off between air-v-surface access emissions, but that's another story). *[*these two terms are defined on p.141]*

How to disarm that negative assessment?: "The impact of expansion at Heathrow in terms of the impact on national carbon emissions is less positive. However, in common with air quality, carbon emissions are best understood and considered at a national or international level. While expansion at Heathrow certainly concentrates emissions, national policies and international management schemes will be key to ensuring that this concentration is contained within levels consistent with limiting the impacts of climate change." *Para.6.21, p.146*

So it's against the opaque background of the *Main Report* – effectively saying nothing of substantive value about the carbon consequences, and thus suppressing it as an issue for public and decision-maker debate - that maybe just a few intrepid explorers are signalled to venture further into the thicket. Its paragraph 9.110 acknowledges 'the need for a fuller economic analysis incorporating the CCC's planning assumption for aviation emissions. This is discussed in detail in the Economic section of this report, and in the *Business Case*.' That takes us to two technical annexes: on *Carbon: further assessment* and then *Economy: carbon policy sensitivity test*

In the first Annex, table 2.2 on page 22 shows us that, with HR3, CO2 emissions at Heathrow itself rise from 22.2MtCO2 in 2026 to 25.3m in 2040 before dropping back to 22m in 2050; total UK emissions for those dates are 41.3m-45.5m-43.5m. To get our baselines we then have to source the Heathrow 2010 emissions of 18.8m from the DfT 2013 Forecasts, telling us that HR3 is adding millions of tonnes of additional emissions every year; and from figure 3.8 (p.34) of the second of the Davies annexes that the UK emissions baseline in the same 2010 year was 33MtCO2. Now, if you blink, you won't have noticed – and Davies does not disclose – that total UK aviation emissions actually dropped from 37.5m to 33MtCO2 between 2005-10 (as a result of

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the actual numbers which compute to 33% but says that these exclude freight. So in 2013 the Commission was projecting an ATM growth 'allowance' all the way through to 2050 significantly (42%) smaller than CCC 2009: 0.7m ATMs compared to 1.2m ATMs. This further reduces the headroom available for a new runway.

economic recession) but are now to be permitted to increase from 33m to 45MtCO2 throughout the 2020s-30s: an increase of 36% from 2010.

That first annex tells us that the Davies overall approach is not CCC compliant – and is also gaming the system - and that HR3 is contributing to that exceedance. The second Annex therefore needs to pull a rabbit out of the hat. How does it do that? By building on some interesting – but also partial (in terms of the breadth of its coverage) and therefore flawed - research into marginal abatement cost curves undertaken for the DfT in 2011 (see 2nd Annex footnote 2). This tested what might be the potential for measures X, Y or Z – for example, improved air traffic control or airline operations – individually and in a basket to potentially reduce aviation emissions by a modelled percentage. This research is now pressed into service to massage away the continuing forecast breach of the CCC limit.

But first an implausible and contradictory assumption also has to be introduced: "the carbon price is set at £334/tonne in 2050 to control CO2 emissions from aviation to 37.5MtCO2 in the do minimum option" *para.3.3* Implausible because (as Greenpeace have pointed out) this is 6,200% higher than current carbon allowances prices. Contradictory because one of the stated purposes of expanding capacity is to prevent monopoly tightening of prices.

However paragraph 3.7 (p.27) notes that even when 'the 2050 carbon price is raised from £196/tonne to £334/tonne … national carbon emissions [only] drop by 2.3MtCO2 to 41.0MtCO2 with the new capacity. Therefore adding the new runway leaves a further 3.5MtCO2 to be abated by further policy measures.' We're now at the final move on the chequer board. Figure 3.8 (p.33) illustrates the effect of applying the basket of possible abatement measures included in table 3.7; miraculously it closes the 3.5m tonne gap. But only in the very final year (2050) itself: even in 2045 national aviation emissions are at 39m and they peak at 40m per annum around 2035, having exceeded the CCC limit in every year from now.

This is a consequence of Davies bending the CCC's rules for the emission's trajectory between 2005-50. Whereas in 2012 CCC assumed that aviation emissions would continue at a constant level of 37.5MtCO2 throughout the first four carbon budget periods to 2028, Davies in the 2013 Interim Report allowed them to rise above the 2005 level as long as they came back down, even at the very last moment ('It therefore follows that emissions can, and do, exceed 37.5MtCO2 prior to 2050.' *Technical Appendix 5.4*).

So by this technical sleight of hand, and right at the end of an extended analytical chain, Davies might be able to claim a technical and quite marginal compliance with the CCC framework, but only in the last year of the 2040s and on the basis of theoretical, modelled-only abatements which are not backed by any government policy stance supportive of demand management.

Who should we believe, and trust? This morning I tweeted these short statements, and received at least one reply from the Airports Commission:

AR "@ukairportscomm fails to demonstrate or provide evidence that HR3 compatible with UK carbon budget. Abject policy failure; throw it away. And fails to show how it will meet CCC requirement to "limit demand in a balanced manner across available capacity" http://bit.ly/1BX9fXQ **UKAirportsCommission** Apart from endorsement from CCC and reams of evidence in both report and supporting documentation. **AR** 'reams of evidence' that HR3 compatible with UK carbon budget? Where? Paragraph and figure numbers please **AR** Still awaiting reply. Table 2.2 in Carbon assessment report shows HR3 increases HR emissions, CCC UK 37.5m limit exceeded to 2050 **AR** What about 'adding [HR3] leaves a further 3.5MtCO2 to be abated by further policy measures' para.3.7 of Sensitivity rept. Then Fig 3.8 abatements exceed 37.5 up to 2045. Even by 'adjusting' all the modelling assumptions, still breaches CCC limit."

If the failure to reconcile the competing demands of 'capacity versus carbon' brought down the 2003 White Paper[2], what will the same failure do to Davies?

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[2] "The previous government's 2003 White Paper, *The Future of Air Transport*, … fail[ed] to give sufficient weight to the challenge of climate change. In maintaining its support for new runways – in particular at Heathrow – in the face of the local environmental impacts and mounting evidence of aviation's growing contribution towards climate change, the previous government got the balance wrong." Philip Hammond, Secretary of State for Transport March 2011