Date: 23 July 2021
My ref: 18/P/5118/OUT
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Sent via email

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Dear Sir/Madam

Re: Jet Zero consultation

We are writing in response to the recently published Jet Zero consultation paper on behalf of North Somerset Council. We refer hereinafter to the Jet Zero consultation paper and to the supporting "evidence and analysis" document collectively as the "consultation papers".
A planning inquiry into proposals to expand Bristol Airport commenced three days ago on the 20th July 2021. The issues being addressed included those relating to the relationship of that expansion with the 6th Carbon Budget Target and the Net Zero 2050 target enshrined in section 1 of the Climate Change Act 2008, as amended and updated by Budgets. In the light of the Jet Zero Consultation, the Inspectors have asked the parties to the Inquiry to provide updated evidence by close of play on Friday the 13th August 2021.

The consultation papers explain that *"the consultation is being conducted in line with the Government's key consultation principles"*

Those principles include that the consultation should:

"Give enough information to ensure that those consulted understand the issues and can give informed responses…"

Unfortunately, there is insufficient information provided in the material that has been published for the Council to be able to engage meaningfully with the issues raised by the consultation. Indeed, further information is required in order for the Council to understand the evidence base that the Government has drawn from, the nature of analysis that has been conducted, the assumptions adopted in that analysis, how the Government has approached the investment costs and risks (including risks to meeting legally binding carbon targets) associated with the various policy options and the extent to which the Government has had regard to the precautionary principle.

We are therefore writing to ask you to provide the Council with the additional information requested below (or to make it publicly available) as quickly as possible and at least by the 6th August 2021 to enable the Council to address the implications of the Jet Zero consultation fully in its updated evidence to the Inquiry. This information is also necessary to enable the Council to provide an informed response to the Jet Zero consultation by the close of that consultation on the 8th September 2021.

The Council is concerned that if it does not receive this information on this timescale, there could be significant ramifications for the administration of the inquiry.

The Council is also concerned that it has proven necessary to ask so many questions in order to obtain information which it regards as necessary in order to provide an informed response to the Jet Zero consultation. Indeed, it does not consider that the consultation principles have been complied with since it is evidence that the information to enable an informed response has not been provided to date. However, these concerns can no doubt be allayed via a prompt response to all of the matters set out below and with the prompt provision of all of the material/documentation requested.

1. The Consultation Principles state that consultation documentation should

   "Include validated impact assessments of the costs and benefits of the options being considered when possible; this might be required where proposals have an impact on business or the voluntary sector."

   No validated impact assessment has been provided. **Please provide any and all impact assessments of the costs and benefits of the options considered in the Consultation paper which have been undertaken**, given that all of the options will affect airline and airport costs which in turn will affect fare prices.

   In the event that no such assessment(s) have been conducted, **please could you provide any and all copies of documentation explaining why this has not been done notwithstanding the requirements of the Consultation Principles**?

2. The "evidence and Analysis" document outlines four scenarios which have been considered. Please confirm that no other scenarios have been assessed. In the event that other scenarios have been assessed, **please provide any and all documentation setting out such assessment**.

3. The Evidence and Analysis document identifies that the four scenarios have been examined against a "policy off" baseline where there is no carbon price, no action on SAF or zero emission aircraft, and only minor annual efficiency improvements. However, the document does not present any information regarding the assumptions regarding expected changes in passenger demand, airport capacity, or the detail of the annual efficient improvements assumed. **Please provide full details of the assumptions adopted in the "policy off" baseline including the assumptions adopted regarding the capacity of each airport included in the assessment.**

4. For scenarios 1 and 2 an assumption of the BEIS central carbon price on all flights, reaching £231/tCO2 in 2050 (2018 prices) has been adopted. At paragraph 2.18 of the "Evidence and Analysis" document this is discussed. That paragraph recognises that:

    a. There is uncertainty surrounding the values to use when modelling future carbon prices.
    b. The value the government places on changes in carbon emissions is currently under review now that the UK has increased its domestic and international ambitions by committing to net zero.
    c. Accordingly, current BEIS central carbon values are likely to undervalue GHG emissions in the long term since they were developed by reference to the previous decarbonisation target of 80% reduction in emissions by 2050.
    d. The potential impact of placing a higher value on GHG emissions has been explored by using the existing BEIS high carbon values series in our scenarios, in addition to the prescribed central values.

    i) **Please provide any and all analysis undertaken which examines the likely scale and/or nature of the uncertainty surrounding the values to use when modelling future carbon prices**;

    ii) Please provide any and all modelling undertaken of future carbon prices.

    iii) **Please indicate when the review on the value the government places on changes in carbon emissions will be concluded**?

    iv) **Please confirm that the adoption of a Jet Zero policy will await the outcome of and have regard to the conclusions of such a review**?

    v) In the event that you confirm that the adoption of a Jet Zero policy will precede the outcome of and will not have regard to the conclusions of such a review, **please explain why it is appropriate to adopt new policy without regard to any change in value the government places on changes in carbon emissions which takes account of the adoption of the 6th carbon budget, the commitment to net zero and the inclusion of international aviation emissions therein**.

    vi) Scenarios 1 and 2 have been conducted assuming the BEIS central carbon value. Contrary to paragraph 2.18, the consultation papers do not appear to contain an exploration of using the existing BEIS high carbon values in scenarios 1 and 2. **Please provide any and all analysis which examines the potential impact of placing a higher value than the BEIS central carbon values for scenarios 1 and 2**.

5. At paragraph 3.8 of the "evidence and analysis" document, the demand assumption of 60% growth on 2018 levels is adopted resulting in growth of 273 million terminal passengers in 2018 to 466 million in 2050. Scenario 2 is also based upon the same level of growth over the same timescale. However, the charts produced in the Evidence

and Analysis are the graphs unambiguously use a baseline of 2016. A 60% growth from 268mppa in 2016 would imply 430mppa based on 2016. Given this ambiguity, **please clarify whether a base of 2018 or 2016 has been used in the assessment undertaken**.

6. At paragraph 2.12 of the "Evidence and Analysis" document, it is recognised that increased costs are likely to be passed on to air passenger and that this in turn may reduce demand for air travel. The Council is keen to understand the extent to which this has been taken into account in updating the 2017 DfT forecasts of passenger demand forecasts. **Please provide any and all assessment which has been undertaken as to the likely implications of increased fares in the forecasting which has been undertaken for all scenarios examined.**

7. In Making Best Use of Existing Runways (2018) a number of tables were produced identifying at a national level and over time for each scenario considered in that document:
    a. The number of forecast passengers;
    b. The number of atms;
    c. The forecasts carbon emissions.

    The equivalent information is not provided within the Jet Zero consultation material. **Please provide for each scenario that has been considered (including any that are additional to the four outlined in the consultation papers) for each year to 2050 for which analysis was conducted:**
    a. The number of forecast passengers;
    b. The number of atms;
    c. The forecasts carbon emissions.

8. The Evidence and Analysis paper explains at paragraph A.6

    "We have revised the capacity assumptions in our modelling to reflect this, while also updating capacities for several airports where more up-to-date evidence has become available. Our assumptions also reflect plans for a third runway at Heathrow (with a phased introduction)."

    Paragraph 4.1 of the Evidence and Analysis papers states:

    "Our trajectories also indicate that aviation net zero can be met by 2050 with future capacity assumptions consistent with Making Best Use policy and the Airports National Policy Statement."

    Further at paragraph A.7 the Evidence and Analysis paper states:

    "*The modelling scenario that we have used should not therefore be seen as a prediction of what DfT thinks will happen with regard to future capacity expansion, but as a reasonable upper bound of possible future airport capacity levels and therefore associated emissions, in order to better test the potential of measures to meet net zero."*

In order to understand the extent to which the analysis undertaken has taken account of growth and expansion since the publication of MBU and in order to determine whether the Council agrees that the capacity assumptions represent a "reasonable upper bound", it is necessary to see the assumptions adopted. This is also highly relevant to the consideration of cumulative impact assessment for the purposes of the planning inquiry referred to above. In the absence of further information, the Council is unable to provide any informed response to the statement made in paragraph 4.1 or A.7 set out above.

Please provide any and all information regarding the capacity assumptions included in any modelling undertaken (including that which has been undertaken but which is not presented in the consultation papers).

9. At paragraph 4.3 the Evidence and Analysis paper states:

"*There is significant uncertainty surrounding the abatement potential, uptake and costs of the measures described in this document and therefore these scenarios should be seen as illustrative pathways rather than forecasts."*

Please confirm the Council's understanding that, the statement in paragraph 4.1 set out above is to be read, in the light of paragraph 4.3, as confirming that the Government has not produced any forecasts which prove that aviation net zero can be met by 2050 with future capacity assumptions consistent with Making Best Use policy and the Airports National Policy Statement; rather it has produced some illustrative pathways.

10. The Evidence and Analysis paper explains at paragraph A.7:

"DfT recently updated the fleet mix component of the aviation model to better reflect the age profile of aircraft operating in the UK. This is the module that forecasts the type of aircraft that service the flights predicted by the model."

Paragraph A.11 refers to the "Fleet Mix Model".

Please can we be provided with the Fleet Mix Model that has been utilised in in any modelling/assessment work undertaken (including that which has been undertaken but which is not presented in the consultation papers).

11. The CCC in its pathway to 2050 adopted the assumption that "the fuel efficiency per passenger of aviation is assumed to improve at 1.4% per annum, compared to 0.7% per annum in the baseline. This includes 9% of total aircraft distance in 2050 being flown by hybrid electric aircraft." The 1.4%/year efficiency improvement is a figure in-line with the historical average trend and was adopted notwithstanding the November 2018 paper by ATA "Understanding the potential and costs for reducing UK aviation emissions" which the CCC and DfT jointly commissioned.

All four scenarios in the "Evidence and Analysis" paper assume a 2.0% pa (2017-2050). We understand that the adoption of this 2% assumption is based on:

a. the optimistic scenario from ATA research; and
b. the ICAO "aspirational goal."

The Glossary to the ATA paper explains that the:

"Assessment range covers three possible outcomes for the attributes of each technology. Worst is the lowest level of attribute change: Nominal is expected level of attribute change: Best is the highest level of attribute change. Three scenario options have been created. Pessimistic uses only the most obvious high value low challenge technologies: Likely adopts the most likely technologies based on the current well-developed technology plans: ***Optimistic introduces some high-risk technologies in addition to the technologies adopted in the "likely" case*****." (emphasis added)**
The additional technology content of the optimistic scenario within the ATA research can be found on page 24 Table ES-5 Technology.

(i) Please provide any and all assessments or information relating to the assessment of likelihood of the "high-risk" technologies coming forward to the extent and on the timescale assumed in the ATA Optimistic scenario.

(ii) Please provide any and all documents or information which explains why it is considered appropriate to reject the approach recommended by the CCC of 1.4% efficiency growth.

In relation to the ICAO aspirational goal, the Council has been unable to identify any evidential foundation relied upon as establishing that there is any likelihood that ICAO aspirational goal will be achieved. The ICAO Environmental report 2019 computed 1.37% per annum long-term fuel efficiency, which includes the combined improvements associated with both technology and operations. The individual contributions from technology and operations is .98% and .39%.[1]

(iii) Please provide the documentation which the Government understands provides the evidential basis for ICAO adopting an aspirational goal of 2% efficiency.

(iv) In the event that the answer to the previous request is that there is none, please provided any and all documentation which explains why Government considers it appropriate to adopt an unevidenced aspiration as the foundation for policy making in relation to Jet Zero.

12. At paragraph 3.11 the Evidence and Analysis paper explains:

[1] see www.icao.int/environmental-protection/Documents/EnvironmentalReports/2019/ENVReport2019_pg17-23.pdf

"Achieving such a high rate of fuel efficiency improvement will also be challenging, and may not be met if airlines cannot afford to invest in modernising their fleets at sufficient speed, or if the aerospace sector cannot afford to invest in creating the necessary aircraft advancements (made even more likely by the huge financial impact of Covid-19 on the aviation industry)"

(i) Please provide any and all assessments undertaken which examine the likelihood of airlines being able to afford to invest in modernising their fleets at sufficient speed given the ongoing disruption cause by the Covid-19 pandemic

(ii) Please provide any and all assessments undertaken which examine the likelihood of aerospace sector being able to afford to invest in creating the necessary aircraft advancements on the timescale necessary to deliver a 2% annual efficiency target.

13. The CCC in its pathway to net zero assumed that sustainable aviation fuels (SAF) would contribute 25% of liquid fuel consumed in 2050, with just over two-thirds of this coming from biofuels and the remainder from carbon-neutral synthetic jet fuel (produced via direct air capture of CO2 combined with low-carbon hydrogen, with 75% of this synthetic jet fuel assumed to be made in the UK and the rest imported). In the "Evidence and Analysis" paper in scenarios 2and 4 the assumption is that 30% of fuel demand will be met by Sustainable Aviation Fuel (SAF). The evidential foundation for the adoption of this assumption is the Analysis by E4Tech for Sustainable Aviation.

    The E4Tech paper 2018 concluded that as a result of reviewing the current, new and emerging sustainable fuels market this Road-Map has determined that, with the right policy and investment framework UK aviation can reduce its CO2 emissions by between 15-24% by 2050. E4Tech explain "*This is based on the assumption that sustainable fuels contribute between 25% and 40% of the aviation fuel market*".

    Further it stated:
    "Achieving this result will require a step change in the current policy and investment framework for sustainable aviation fuels."

    "To achieve the high 24% GHG emissions saving target, based on the high scenario for production to 2030, would require a sustained annual growth rate of around 14% per year between 2030 and 2050."

    Please provide any and all documents which appraise the likelihood and/or risks associated with the adoption of an assumption that 30% of fuel demand will be met by Sustainable Aviation Fuel.

14. The Government's response to the UK Renewable Transport Fuels consultation concluded that the RTFO should be increased by 5 percentage points in the period up to 2032, only a portion of which may be SAF**. Please provide any and all assessments or documents which consider the extent to which that obligation of 14.6% is consistent with the investment required an attainment of 30% of aviation fuel**

demand being met by SAF in 2050 as assumed scenarios 2 and 4 in the Jet Zero consultation.

15. Paragraph 2.8 of the Evidence and Analysis document states:

"The costs of SAF are high and uncertain. A recent ICCT report suggested that, in general, SAF is around two to three times the cost of kerosene, and potentially up to eight times the cost of kerosene for certain pathways (for example Alcohol-to-Jet) . Based on a range of evidence, we estimate the abatement costs of SAF to currently be broadly in the range of £200-600/tCO2 , though it is expected that these should fall over time as production scales up."

(i) Please specify the documents that constitute the "range of evidence" referred to in paragraph 2.8.

(ii) Please provide any and all assessment(s) undertaken relating to the estimate of abatement costs of SAF.

(iii) Please provide any and all assessments undertaken which examine the implications for abatement costs of SAF as a result of a scaling up of production

16. Paragraph 2.8 of the Evidence and Analysis document states:

"*The WEF Clean Skies for Tomorrow report suggests that production costs could fall by 20-70% by 2050, depending on the fuel pathway, mainly driven by economies of scale and reductions in the cost of input feedstocks."*

Please provide any assessment undertaken which contains an assessment of the likely fall in costs of SAF production **in the UK** by 2050.

17. In relation to scenario 3, paragraph 3.14 of the Evidence and Analysis paper states:

"Achieving such a high proportion of SAF would require a high share of more advanced SAF pathways in particular (such as power-to-liquids), which are currently much more expensive than others. Secondly, there will need to be a substantial ramp up of SAF production. There are currently a number of barriers to these two conditions, including the high capital costs of building first-of-a-kind plants, the high risk for investors due to low technological maturity, the stringent certification requirements for new fuel pathways and blend limits (there are currently only eight certified SAF pathways), the lack of secure and sustainable supply chains for feedstocks, competition for feedstocks with other sectors (such as biomass used in road fuels), potential changes needed to aircraft engines and re-fuelling infrastructure to be compatible with SAF at blends higher than 50%, and the lack of a domestic market. Only if these challenges are overcome, in addition to those discussed in the previous scenarios, will such a scenario be plausible."

Please provide any and all assessments undertaken which examine the likelihood of the challenges identified in paragraph 3.14 being overcome and thus the likelihood of this scenario being plausible.

18. In relation to scenario 4, paragraph 3.17 of the Evidence and Analysis paper states:

"In order for such a scenario to be feasible, a number of challenges will need to be overcome. For example, a step change in battery density improvements and other technological advancements will be required (enabled by a greater investment in R&D), certification and safety regulations will need to keep up with new technologies as they emerge, airport infrastructure (e.g. re-fuelling infrastructure for hydrogen and electricity supply for charging electric aircraft) will need a coordinated change to facilitate the use of new aircraft types, and airlines will need to be able to quickly incorporate new aircraft types into their fleets. For hydrogen specifically, the development of a hydrogen strategy and supply-chain across the economy is crucial. Furthermore, for both electric and hydrogen aircraft, the costs of these technologies will ultimately need to fall so that zero emission aircraft offer a cost-effective approach to decarbonisation, relative to using SAF or GGRs"

Please provide any and all assessments undertaken which examine the likelihood of the challenges identified in paragraph 3.17 being overcome and thus the likelihood of this scenario being feasible.

19. All of the scenarios produced in the Jet Zero consultation result in the aviation sector producing residual carbon emissions in 2050 which are required to be off-set. At paragraph 2.19 of the Evidence and Analysis paper it is stated that:

"our analysis suggests that there would be sufficient GGR capacity to offset the residual aviation emissions that are estimated in all the scenarios we present below. We define residual emissions as those which remain after efforts to decarbonise the aviation sector have been made."

Please provide the analysis referred to together with any and all assessments undertaken which examine the likelihood of the availability in 2050 of measures to off-set aviation emissions.

20. At paragraph 2.21 the Evidence and Analysis paper states:

"In order to achieve the CCC's proposed demand limit of a 25% increase in passenger numbers on today's levels by 2050, our modelling suggests a carbon price substantially higher than £600/t could be necessary."

Please provide the modelling referred to and any and all documents which examine the carbon price consequences of capping demand.

21. At paragraph 2.21 the Evidence and Analysis paper states:

"we think before carbon prices reached this level, they would be sufficient to incentivise technologies to reach net zero GHG emissions by 2050."

Please provide any and all assessment(s) undertaken which demonstrate that "technologies" would be incentivised to reach net zero 2050 before carbon prices reach a level at which capping demand would be justified.

22. At paragraph 2.22 the Evidence and Analysis paper states:

"This analysis suggests that capping demand may not be necessary to reduce emissions to levels which can be offset by GGRs to achieve net zero (such as the level suggested by the CCC's Balanced Net Zero Pathway, 23 Mt in 2050). There is much uncertainty however, and clearly there could be many combinations of technology improvements, GGR costs and demand growth which would achieve net zero."

(i) Please provide the analysis referred to;

(ii) Please provide any and all analysis undertaken which examines different combinations of technology improvements, GGR costs and demand growth to achieve net zero; and

(iii) Please provide any and all analysis undertaken which explains why any particular combination of technology improvements, GGR costs and demand growth is preferred over another.

23. Although the CORSIA scheme is mentioned by consultation papers, they do not explain the extent to which this is taken into account in the scenarios considered. As recently as the 30th June 2021, the CCC has explained it position in relation to the use of CORSIA to offset UK carbon budgets:

"The ICAO's current carbon policy, the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), aims to ensure that most emissions increases above a baseline year (now 2019) are balanced by offsets up to 2035. ***The Sixth Carbon Budget advice set out our position on credits under CORSIA, which is the same as for other credits: they should not be used to meet UK carbon budgets****. While CORSIA could develop to a point where its offsets are of sufficient quality and additionality to be an acceptable contribution to UK carbon budgets, that is currently not the case."* (emphasis added).

Please provide any and all documents or information which explains the extent to which the assessments undertaken (whether published in the Jet Zero consultation or otherwise) allows for offsetting as a result of the CORSIA scheme.

24. Notwithstanding Paras 2.8 and 2.9 of the consultation which discusses a trajectory against which progress will be monitored, the consultation papers do not appear to set any sectoral target for aviation to meet during the 6th Carbon Budget period (2033-37).

(i) Please confirm that the Jet Zero consultation does not propose to set a sectoral target for the aviation sector for the 6th Carbon Budget period.

(ii) If the contrary is the case and the Jet Zero consultation does propose to set a sectoral target for the aviation sector for the 6th Carbon Budget period, please:

a. identify what the aviation sectoral target is for the 6th Carbon Budget;
b. provide the evidence is relied upon to support the identification of that target during that period;
c. provide any and all assessment(s) undertaken which establish the likelihood of that target being met; and
d. the assumptions regarding airport capacity growth included in any such assessment.

(iii) If it is the case that the Jet Zero consultation does not propose to set a sectoral target for the aviation sector for the 6th Carbon Budget period, then given the duty contained within section 13(1) of the Climate Change Act 2008:

a. Please explain when is the Government intending to consult on the appropriate sectoral target for the aviation sector to adopt for the 6th Carbon Budget Period; and

b. Please provide any and all documentation or information which explains the methodology to adopt in considering whether plans for airport capacity expansion comply with the 6th Carbon Budget target in the absence of an adopted sectoral target.

25. The consultation papers do not address the question of uncertainty and the relevance of the precautionary principle. **Please provide any and all documents/assessments demonstrating that the consultation process has had regard to the potential application of the precautionary principle.**

Yours faithfully

Donald Davies - Leader

Jo Walker - Chief Executive

cc:
Grant Shapps MP Secretary of State for Transport
Robert Courts MP Parliamentary Under Secretary of State at the Department for Transport
Liam Fox MP

This letter can be made available in large print, audio, easy read and other formats. Documents on our website can also be emailed to you as plain text files.

Help is also available for people who require council information in languages other than English. For more information contact the sender of this letter.