Appeal by: Bristol Airport Limited

Appeal Reference: APP/D0121/W/20/3259234

North Somerset Council Application Reference: 18/P/5118/OUT

Rebuttal proof of evidence of
Dr Mark Hinnells PhD, MSc, MA, BA
Carbon Emissions

Reference: NSC/W6/3

Ricardo Energy and Environment

Ricardo Energy & Environment

Rebuttal Evidence of Dr Mark Hinnells on behalf of North Somerset Council: Carbon

PINS Appeal ref APP/D0121/W/20/3259234

Report ref. ED14606100 for North Somerset Council

ED 14606100 | Final | Date 06/07/2021

Customer:

North Somerset Council

Contact:

Dr Mark Hinnells
Ricardo Energy & Environment

t: +44 (0) 1235 75 3157
e: mark.Hinnells@ricardo.com

Ricardo is certificated to ISO9001, ISO14001 and OHSAS18001

Author:

Dr Mark Hinnells

Date:

06 July 2021

Ricardo Energy & Environment reference:

ED14606100- Final

Table of contents

1 Instructions and scope of evidence

1. I am instructed by North Somerset Council (NSC) in relation to the Appeal by Bristol Airport Ltd against the refusal of application 18/P/5118/OUT for the development of Bristol Airport to accommodate 12 million passengers per annum (PINS Appeal ref APP/D0121/W/20/3259234).

2. I was instructed by NSC to review the evidence on carbon emissions submitted by Bristol Airport Ltd to this Inquiry. The relevant evidence comprises:

3. The evidence of Mr Osund-Ireland (BAL/6/2)

   a) The evidence of Mr Melling on planning (BAL/7/2) where relevant to carbon.

   b) Broadly I am satisfied that my Proof deals with the issues raised by Mr Osund-Ireland in his proof, eg on policy background, and significance of the development.

4. However there is one issue in particular I wish to rebut and that is that as Mr Osund-Ireland puts it “Emissions from aircraft can only be influenced by BAL and are controlled at the national level” and he cites tax policy as a mainstay of constraining emissions (pages 27-33 of his proof). I will show that demand constraint through tax is weak to the point of non-existent and that capacity constraint, including using the land use and planning system, is an appropriate response. I also wish to highlight three important publications which were not public at the time of submission of Proofs, namely the CCC Independent Assessment of UK Climate Risk, the CCC 2021 Progress Report to Parliament, and a report on progress (or lack of it) with the technology and markets needed to deliver negative carbon emissions. Taken together they make the case that impacts of climate are significant and serious; that we are not making sufficient progress in policy terms; and that emissions reductions technologies and market cannot deliver carbon removals. In that context, consent for additional airport capacity is premature.

2 Aviation tax versus planning policy

5. In assessing whether the change in carbon emissions would prevent UK Government achieving net zero GHG emissions by 2050, Mr Osund-Ireland argues (para 2.2.1 subpara 7 of BAL/6/2):

   a) Emissions from aircraft can only be influenced by BAL and are controlled at the national level.

   b) it is for UK Government to provide clear mechanisms for capping aviation emissions within UK carbon budgets and encouraging the industry to drive emission reductions through innovation to make best use of existing runways. Those mechanisms include the Sixth Carbon Budget (CD9.64) and the UK ETS (CD9.36) / CORSIA (CD9.41), but

Government clearly has the means to apply such additional mechanisms as it deems appropriate to meet its net zero target.

c) Mr Osund-Ireland suggests that granting planning permission for the Appeal Proposal cannot prejudice the Government's ability to meet net zero in 2050.

6. I rebut this case, and argue that

a) Demonstrating attainment of 6th carbon budget emissions targets and net zero with the proposed development in operation is a material consideration in the determination of the appeal.

b) There is no coherent evidence of driving down emissions through tax or trade mechanisms.

c) Whilst this remains the case, refusal of planning consent through planning and land use policy is an important and valid policy response. NPPF has a clear focus on development which is sustainable.

d) Even if there were coherent evidence that tax or trade mechanisms will drive down emissions, this would have a consequent adverse impact upon the likely economic benefit which the proposed development would deliver, and if capacity were allowed at Bristol, the adverse economic consequences on other airports. This would need to be weighed in the planning balance.

3 Evidence on driving down emissions through tax or trade mechanisms

7. At Para 60 of my Proof, I explained that MBU (CD6.4) examined a carbon traded scenario in the context of a UK target of a reduction to 80% of 1990 levels. Under the carbon-traded scenario, UK aviation emissions could continue to grow provided that compensatory reductions are made elsewhere in the global economy. This could be facilitated by a carbon trading mechanism in which aviation emissions could be traded with other sectors. Of course, since then the UK emissions reduction target has changed from an 80% cut to net zero, or 100% cut.

8. I did not cover some of the taxation instruments in my Proof, quite simply because there are no policy decisions made which could support the argument that tax is the preferred route to constrain emissions. It is worth, in the light of BAL evidence, unpacking this.

3.1 UK ETS

9. Mr Osund-Ireland refers to the **UK Emissions Trading Scheme (UK ETS**) in his evidence at para 3.4.5-3.4.7, notably that a consultation to appropriately align the UK ETS cap with a net zero trajectory which will be launched later this year. The trajectory will not be set until

sometime between 2023 and 2024. It is then important to see Mr Osund-Ireland's evidence in the context that it comes prior to a consultation process to address the UK ETS cap and before the policy decisions are taken in the light of that consultation.

a) Under UK ETS, a proportion of free allowances will be allocated to qualifying aircraft operators based on their historical aviation activity (2010 and/or 2014 verified tonne-kilometre (tkm) data)[1]. According to Government "*Aviation free allocation entitlement will then be reduced by a fixed amount of 2.2% of the initial free allocation amount each year, including 2021*. There is no clarity on free allowances going forward under the scheme, and "*the years 2023-2025 should be treated as indicative, pending the outcome of the ongoing free allocation review*". If free allocation entitlement continues to fall at the rate of 2.2% per annum into the future, there would still be free allocations equivalent to 51% of emissions in 2050. Such an approach, of itself, does not achieve and is incompatible with net zero.

b) There is no clarity on carbon border adjustment mechanism (CBAM), which would place a carbon price on imports of certain goods from outside the UK, as a way to reduce the risk of either carbon or income leakage. The position of aviation in this context remains to be clarified by central Government.

c) There is also no clarity over whether UK ETS would at any point apply to flights outside the EEA (at the moment they do not). Long Haul flights account currently, and in future, for a significant proportion of emissions.

d) There is no clarity over whether non carbon warming will be included given the potential trade-offs between reducing carbon and reducing other warming impacts, discussed in my Proof.

e) The detail remains so uncertain and the timescale longer than the timescale for a decision in this Appeal, that no reliance can be placed on UK ETS to address aviation emissions within a UK carbon target. In short there is no evidence that the UK ETS can be relied upon to ensure that the aviation sector (whether expanded by the proposed development or not) can achieve the 6th carbon budget target or net zero.

3.2 CORSIA

10. DfT launched a consultation on ***Implementing the Carbon Offsetting and Reduction Scheme for International Aviation o***n 18 January 2021 (CD9.41)[2]. Mr Osund-Ireland outlined

[1] https://www.gov.uk/guidance/uk-ets-apply-for-free-allocation

[2] www.gov.uk/government/consultations/implementing-the-carbon-offsetting-and-reduction-scheme-for-international-aviation/implementing-the-carbon-offsetting-and-reduction-scheme-for-international-aviation-corsia#international-aviation-emissions

in his Proof (at para 3.4.10) the six options for this interaction. It is not necessary to unpack each of them or assess likelihood in order to ascertain that there is no clarity over the way forward.

a) A summary of responses and outcome to the consultation, was published on the 28 April 2021, and as a result the Government proceeded with making the Air Navigation (Carbon Offsetting and Reduction Scheme for International Aviation) Order 2021 [3].

b) Government said in its response "we plan to consult again during summer 2021 on detailed proposals for implementing CORSIA offsetting in the UK.", and "the second consultation will cover the detailed policy design of any interaction between the schemes and will be followed by a second statutory instrument covering the CORSIA offsetting requirements. Our aim is for this SI to come into force by April 2022... Consequential amendments to the UK ETS Order 2020 may be required as a result of the chosen policy option for interaction between CORSIA and the UK ETS. Any such amendments to the UK ETS Order will be in force no later than the start of UK ETS Phase 1(b) in 2024. It remains the case that, due to the impact of coronavirus (COVID-19) on the aviation sector's emissions, aeroplane operators are not expected to accrue CORSIA offsetting obligations in the pilot phase"[4]. Note the pilot phase runs 2021-23, so there is no effect from Corsia before 2023.

c) In a letter dated the 30th June 2021 (so after Proofs), the CCC has explained it's position in relation to the use of CORSIA to offset UK carbon budgets[5]: Whilst CCC accepts the generally held view that there should be a primacy about international policy, at the same time, UK targets for carbon are tougher and now include aviation, so there will be a need for the UK to go further. CCC then note "*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*." (my underline).

[3] www.gov.uk/government/consultations/implementing-the-carbon-offsetting-and-reduction-scheme-for-international-aviation/outcome/implementing-the-carbon-offsetting-and-reduction-scheme-for-international-aviation-corsia-uk-government-response

[4] www.gov.uk/government/consultations/implementing-the-carbon-offsetting-and-reduction-scheme-for-international-aviation/outcome/implementing-the-carbon-offsetting-and-reduction-scheme-for-international-aviation-corsia-uk-government-response#conclusions-and-next-steps

[5] https://www.theccc.org.uk/publication/letter-uk-emissions-trading-scheme-and-corsia/

d) It is also important to note CORSIA has a target which is not compatible with net zero. CORSIA aims at achieving zero growth in emissions. However, carbon emissions associated with aviation have grown substantially since 1990. Significant cuts in emissions are required by the aviation sector in order to achieve net zero carbon emissions for the economy as a whole. At present CORSIA runs in pilot form until 2023, is voluntary until 2027 and runs only until 2035.

e) In any event, it has not been demonstrated that there is sufficient capacity to offset the UK's aviation sector emissions so as to achieve the 6th carbon budget target nor net zero 2050 with or without the proposed development in place.

3.3 Renewable Transport Fuels

11. Government accepted in its response to the first consultation, that one implication of CORSIA might be simply to encourage, rather than require , the use of Sustainable Aviation Fuel (SAF). Consequently, as discussed in my evidence, at para 120, the DfT is exploring requiring the use of a fraction of bio, waste, or alternative fuel though the ***Targeting net zero Next steps for the Renewable Transport Fuels Obligation*** published in March 2021 (CD9.98)[6] . The consultation is closed, but no decisions have been announced. However, the mooted addition of a few percentage points to a fuels obligation does not suggest that the Government is persuaded that SAF can be transformational to aviation. SAF plainly has a role to play but it as the CCC identified even with significant expansion in its use the UK aviation sector will remain a major carbon emitting sector in the period to 2050 and cannot achieve net zero without significant greenhouse gas reduction measures.

12. BAL itself has made no commitment to the introduction of any infrastructure at Bristol Airport to enable the use of SAF in the future.

13. Regardless of possible SAF use, BAL has not demonstrated the greenhouse gas reduction measures which will achieve the offset required to ensure that the UK aviation sector with the proposed development in place will achieve the 6th carbon budget target or net zero in 2050.

3.4 Air Passenger Duty

14. The ***Air Passenger Duty consultation***[7] ran from 23 March 2021 to 14 June 2021, and, in particular, the consultation explored the case for reducing APD on domestic flights and for increasing the number of international distance bands to better align costs with environmental

[6] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/974822/targeting-net-zero-rtfo.pdf

[7] https://www.gov.uk/government/consultations/consultation-on-aviation-tax-reform

impacts. The consultation stated (para 1.11) "*The government will therefore consult on how the aviation sector will deliver its contribution to our net zero commitment later this year*".

15. Placing a tax on flights related to carbon is only effective at reducing carbon emissions if they are set at a level which means that people limit the amount they fly. If people choose not to fly then additional economic and other benefits that the expansion of the aviation sector might otherwise produce will not be realised.

16. If BAL are contending that air passenger duty will result in a reduction in emissions because people to choose not to fly then this needs to be reflected in a reduction in the economic and other benefits associated with the proposed development.

3.5 Summary of policy development in progress

17. So at this present time:

a) The UK Emissions Trading Scheme is in set-up, and we will not know until 2023-4 its design and what its carbon cap will be. This scheme at present is not designed to achieve net zero.

b) Government is keen to avoid double counting between UK ETS with CORSIA, but has up to six options under consideration for the interaction between the two schemes. A further consultation is planned during summer 2021 on detailed proposals for implementing CORSIA offsetting in the UK. CORSIA has a target which is not compatible with the Paris Agreement, since it aims only at net zero growth, not net zero for all aviation emissions, and at present is in pilot form until 2023, voluntary until 2027 and runs only until 2035. It will come under pressure for redesign during COP26 in Glasgow in November 2021 and at ICAO Assembly in 2022.

c) One implication of CORSIA might be merely to encourage, rather than mandate, the use of Sustainable Aviation Fuel SAF so Government has proposed the addition of a few percentage points to a Renewable Transport Fuels Obligation. A consultation launched in March, closed in April, and decisions are awaited.

d) APD is leaving until a later consultation "how the aviation sector will deliver its contribution to our net zero commitment"

e) In wider policy developments, the Transport Decarbonisation Plan (TDP), which Government promised in the 'spring' is not yet published, and the Net Zero Aviation consultation, as a subset of the TDP, which was due to be launched at the Jet Zero Council on 30th of June is now expected later in July.

18. Therefore we simply have no evidence, that pricing mechanisms can and will deliver a combination of demand management or technical change to reduce emissions as necessary to

meet the 6th carbon budget target or net zero in 2050. There is no modelling or evidence to prove that granting planning permission for the expansion of Bristol airport can be achieved on a basis that is consistent with meeting the 6th carbon budget or net zero in 2050. That exercise has not been undertaken by BAL nor by central Government. Until it is done it is premature to grant planning permission for the proposed development as I explained in Proof of Evidence.

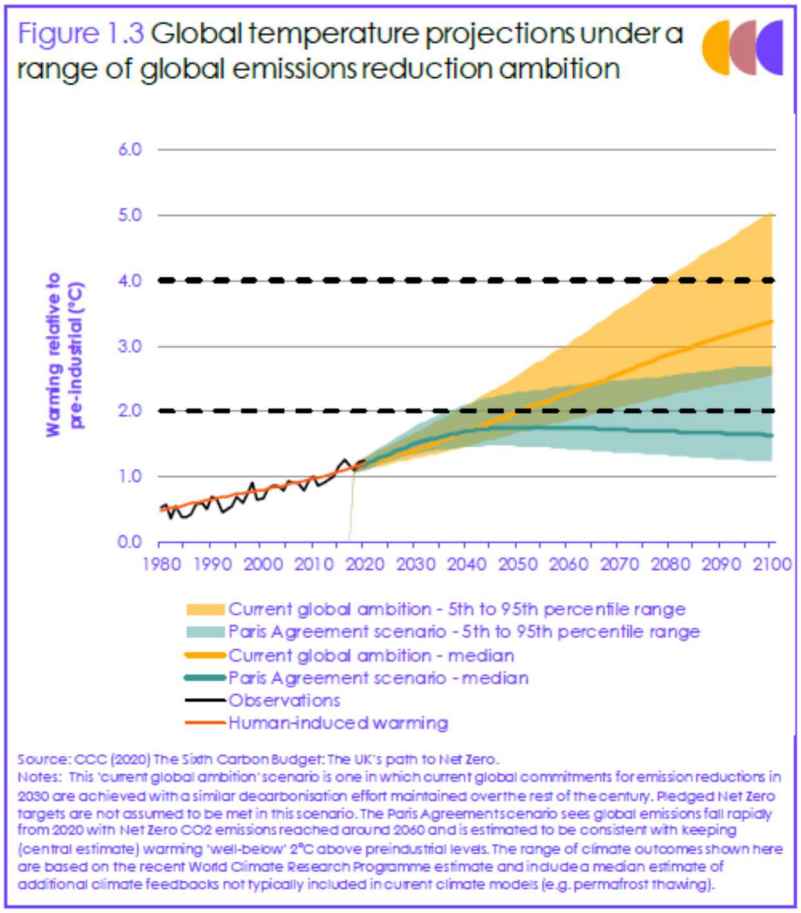
4 Update

19. Since Proofs, three particularly relevant documents have been published, two from CCC updating impacts of climate change and the need for adaptation in the UK, and a progress report to Parliament which was particularly critical of a lack of progress including on aviation emissions; and a report indicating a lack of progress with both technology and markets on emissions removals, which all underline that consenting additional aviation capacity would be premature.

4.1 CCC Independent Assessment of UK Climate Risk

20. If anyone were in any doubt about the impacts of climate change then the CCC Independent assessment[8] makes for sober reading. “In the absence of further adaptation, the number of risks with annual impacts costing of the order of £billions per year is likely to triple by the 2080s, even if the global effort is successful in reducing greenhouse gases and limiting warming to 2ºC above 1850-1900 temperatures”. But whilst the aim of Paris is to mitigate to 1.5-2 degrees, temperatures are unlikely to be held at this level on current policies. Trajectories of 2-4 degrees are more likely and so the CCC recommends we adapt to 2 degrees now, and assess the risks for 4 degrees, shown in Figure 1.3 from CCC reproduced below.

[8] https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/



21. Risks include:

    a) Risks to viability and diversity of terrestrial and freshwater habitats and species

    b) Risks to soil health from increased flooding and drought

    c) Risks to natural carbon stores and sequestration (and our ability to get to net zero)

    d) Risks to crops livestock and trees

    e) Risks to supply of foods and food crops, goods and services, including risk to supply chains and distribution

    f) Risk of failure in the power and energy systems

    g) Risk to human health wellbeing and productivity from increased exposure to heat

    h) Multiple risks to the UK form climate change overseas.

    i) The risks from climate change have increased, in this, the third Independent assessment, since the first Independent Assessment in 2012 and the second in 2017.

22. The implications for Bristol Airport are that any local economic benefits from development must take into account the wider environmental, social and economic impacts of climate change.

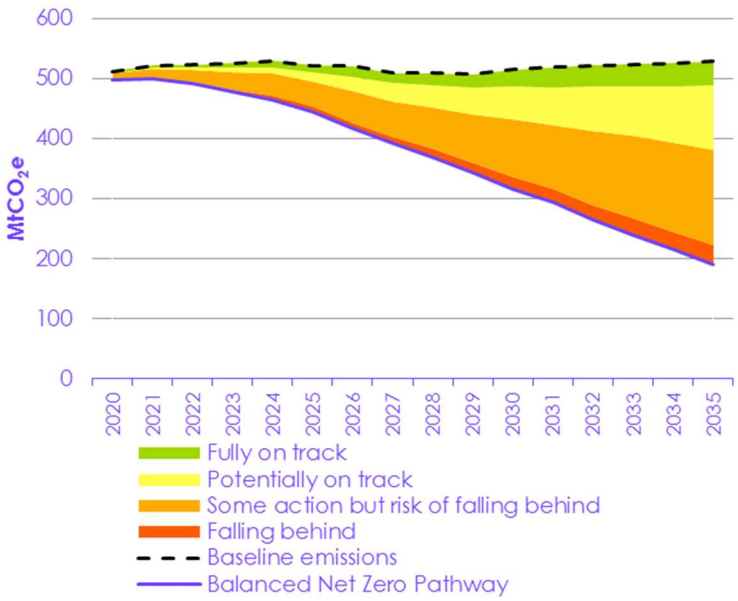
4.2 CCC Progress report to Parliament

23. CCC published their 2021 Progress Report to Parliament on 24 June[9]. The Foreward noted (my underline) "We commend Ministers for accepting our advice on the future path for UK emissions. The setting of the UK's 2030 NDC, the passing into law of the Sixth Carbon Budget, the decision to bring international aviation and shipping emissions within the UK carbon budgets; all were made on the Committee's recommendation. But the Committee's advice to step-up the ambition and resourcing of adaptation continues to go unheeded. And the willingness to set emissions targets of genuine ambition contrasts with a reluctance to implement the realistic policies necessary to achieve them".

24. On p6, the CCC concluded that "There also remain a range of issues that have not yet been tackled, and which do not fit neatly into sectoral strategies (see section 4). The Net Zero Strategy will need to fill remaining gaps, clarify existing ambitions, set out a vision for the governance of the transition and ensure that the ambition across the board adds up to a credible and quantified approach to meeting the Sixth Carbon Budget and Net Zero target."

25. Figure 2 from the report is shown below and shows only 12% of carbon emissions reductions are fully on track and 32% potentially on track. 47% are at risk of falling behind and 9% are behind.

CCC Progress Report to Parliament 2021 Figure 2 Is Government ambition on track?

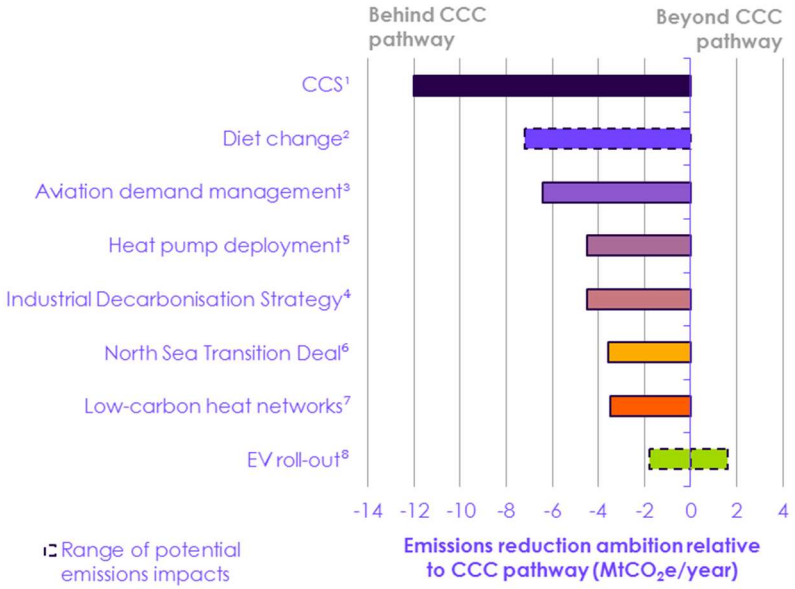


26. Figure 3 showed *Differences in stated Government ambition compared to CCC pathway*, and a lack of ambition for aviation demand management would result in higher emissions of 6.4

[9] https://www.theccc.org.uk/publication/2021-progress-report-to-parliament/

MtCO2e/year in 2030 relative to the CCC pathway for aviation. Across all sectors of the economy, this is the third largest difference between stated Government Ambition compared to the CCC pathway. Importantly the largest gap between stated Government Ambition compared to the CCC pathway is for Carbon Capture and Storage (12MtCO2 p.a.), leaving little hope that remaining emissions can at present be offset or removed.

CCC Progress Report to Parliament 2021 Figure 3 Differences in stated Government ambition compared to CCC Pathway



27. Aviation is unpacked in section h of the CCC Progress Report. Box 4.4 discusses proposed airport expansions and said (my underline):

a) "The UK already has more than enough capacity to accommodate the demand increases in our Balanced Net Zero Pathway. Our advice in the Sixth Carbon Budget was therefore that there should be no net expansion of UK airport capacity, unless the sector is on track to sufficiently outperform its net emissions trajectory and can accommodate the additional demand:

b) Outperforming the net emissions trajectory means <u>making significant progress on nascent and untested technologies</u> like hybrid electric planes, and developing and scaling up markets for sustainable aviation fuels (SAF) and greenhouse gas removals.

c) It is not possible to have certainty today over the pace of development of these technologies in future. <u>It is therefore difficult at present to justify capacity expansion on the basis of outperforming the emissions trajectory</u>, particularly given the uncertainty around the permanence of impacts on aviation demand from COVID-19.

4.3 Negative Emissions

28. I made the point in evidence that BAL have not shown that negative emissions or removals exist to offset increased emissions from the airport if consented. The Coalition for Negative Emissions and Mckinsey published "***The case for Negative Emissions***" on 30 June 2021[10], which included a very supportive Foreword from Annette Nazareth, Operating Lead for the *Taskforce on Scaling Voluntary Carbon Markets*[11], indicating acceptance of the findings of the report at an international level.

29. This report shows that we are a long way from having the emissions removals investment or markets needed, and the clear implication for Bristol Airport is that capacity constraint (not emitting in the first place) is the best current approach to managing climate impact.

30. The report noted that in all IPCC scenarios negative emissions (ie removals) will be needed, and concluded "Today, the world is far from a trajectory that will meet the need for negative emissions. Based on the current pipeline of projects, the negative emissions required by 2025 in the IPCC's 1.5°C pathway will be missed by 80 per cent. Investment in negative emissions solutions is also lagging and is 30-fold underinvested based on its contribution to a 1.5°C pathway (versus fourfold for emissions reduction solutions)."

31. The report further said "A functioning market for negative emissions solutions can be created through five substantive actions, which are based on early evidence in the emerging negative emissions solutions market and comparable decarbonisation scale-ups:

    1. Define what constitutes 'high-quality negative emissions'.
    2. Shape robust, liquid and transparent markets for trading negative emissions credits, and provide supply-side financing for individual projects.
    3. Ensure that sufficient national commitments to negative emissions – an additional but parallel effort to emissions reduction – are delivered by effective government orchestration and intervention to incentivise supply and mandate demand.
    4. Agree on a method for transparently tracking and celebrating corporate claims, supported by clear accounting principles and a narrative that highlights the distinct value proposition of negative emissions in addition to emissions reduction.

[10] https://coalitionfornegativeemissions.org/wp-content/uploads/2021/06/The-Case-for-Negative-Emissions-Coalition-for-Negative-Emissions-report-FINAL.pdf

[11] In order to develop markets for carbon emissions reductions, Mark Carney, UN Special Envoy for Climate Action and Finance, set up The Taskforce on Scaling Voluntary Carbon Markets, a private sector-led initiative working to scale an effective and efficient voluntary carbon market to help meet the goals of the Paris Agreement. This parallels the Taskforce on Climate Related Financial Disclosure.

5. Enable multilateral collaboration and trade that solves the negative emissions challenge globally."

32. In the absence of technology and markets for emissions removals, it is premature to consent additional airport capacity.

5 Conclusion

33. This rebuttal and update shows:

a) There is no evidence, that pricing/tax mechanisms can and will deliver a combination of demand management or technical change to reduce emissions as necessary to meet the 6th carbon budget target or net zero in 2050. There is no modelling or evidence to prove that granting planning permission for the expansion of Bristol airport can be achieved on a basis that is consistent with meeting the 6th carbon budget or net zero in 2050. That exercise has not been undertaken by BAL nor by central Government. Until it is done it is premature to grant planning permission for the proposed development as I explained in Proof of Evidence.

b) The CCC, in its Progress Report to Parliament, agrees it is simply premature (as stated in my Proof), to allow further airport capacity expansion until it has been demonstrated that "the sector is on track to sufficiently outperform its net emissions trajectory". This has not been demonstrated either by BAL or Central Government.

c) It is far from demonstrated that there is anything like sufficient Greenhouse Gas Removal technology to compensate for emissions.

34. In this case, I remain of the view that the carbon emissions implications of the proposed development weigh heavily against the grant of planning permission.

The Gemini Building
Fermi Avenue
Harwell
Didcot
Oxfordshire
OX11 0QR
United Kingdom

t: +44 (0)1235 753000
e: enquiry@ricardo.com

ee.ricardo.com