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Dear Sir/Madam,

Application by Gatwick Airport Limited for an Order Granting Development Consent for the Gatwick Airport Northern Runway Project

Interested Party Reference number: 20044812 – Response to ExA’s First Written Questions to the Applicant and IPs on a range of issues

Response to ExA’s questions to Applicant and IPs on climate change set out in questions CC1.1-CC1.11

Fundamentally Jet Zero is not Net Zero so CPRE Sussex welcomes the opportunity to respond to the Examining Authority’s questions on climate change and other matters in relation to Gatwick’s proposals.

Summary as response exceeds 1500 words

CPRE Sussex agrees with the Climate Change Committee’s view on the need to limit airport expansion until the sector demonstrates it can reach net zero rather than the Jet Zero Strategy position where residual emissions have to be addressed through uncertain means, such as via technologies like carbon capture that are in their infancy.

Technical reports from expert bodies point up the uncertainties and assumptions involved in deploying SAFs and hydrogen powertrains. There are substantial inconsistencies between Government documents and expert reports. Government documents seem to assume ambitions either will be met or already have been when this may well not be the case.

CPRE Sussex believe the ExA should not recommend the DCO be granted on climate change grounds as it is not clear that net zero by 2050 will be delivered by the proposal and the linked technologies it depends on to meet policy requirements set out in various government documents.

Short responses on housing, and the water environment are included pointing to the difficulties in supplying affordable homes and the urgent need for infrastructure improvements to ensure water supply and wastewater treatment, both issues that climate change will likely make worse.

Jet Zero and the plausibility of the timely roll-out of the necessary technologies

We welcome the Jet Zero documents as an expression of the ambitions of the aviation sector and government with respect to achieving Net Zero by 2050, and we note the Government’s hopes and dreams that “the sector can achieve net zero carbon emissions by 2050 without the government needing to intervene directly to limit aviation growth”. We would add that the UK government view of the policy basis needed to be applied to planning decisions in Flightpath to the Future (Dft, 2022).

On p6 of that document it is stated that no airport should have expansion plans proceed unless

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climate change obligations are met and, on p20 and p44 and their footnotes, that, as the policy basis for planning decisions, the ANPS and Beyond the Horizon continue to have full effect.

We also note the view of the independent Climate Change Committee on the approach needed to the expansion of aviation based on the 6th Carbon Budget set out by the ExA in CC.1.1. and the government's response.

We disagree with the Government response as it states that the Jet Zero Strategy will take aviation to net zero emissions when it is clear that within the Jet Zero Strategy material itself that in sector emissions at 2050 are still expected to be about 25% of current emissions. This "mitigation gap" would be filled by other means (such as carbon capture or passengers taking up off-setting schemes). There is a roadmap in the one-year on document of how a range of initiatives might get the sector to net zero by this is simply a roadmap that it does not appear to be well-evidenced in the source material. The roadmap is not a delivery plan. It appears as very ambitious in comparison to expert views in relation to the likely impact of SAFs, and fleet upgrades to aircraft types that do not yet exist. Even so, to reach net zero, the roadmap needs to include carbon capture technologies and a substantial reduction in demand (not an expansion). The best evidenced pathway, says Jet Zero will leave the sector with substantial residual emissions to which any expansion of aviation will likely add. We would thus agree with the CCC assessment that there should be no expansion until measures are in place that can demonstrably show the sector is on track to exceed current estimates of emission reductions. There is no other sure way to reach net zero in aviation and doing so is the only way to meet the UK government requirement that any expansion of an airport requires climate obligations to be met, i.e. actual net zero by 2050 not the Jet Zero version of this with its attendant residual emissions.

In coming to this view, we have taken into account a number of UK government documents, documents from the aviation sector and technical reports by expert bodies such as Ricardo and others, such as the ICCT and the Royal Society. These cover aspects of the feasibility of decarbonising aviation whether that is through SAFs, or deployment of hydrogen power etc. We list these documents at the end of this submission.

More broadly we note the nature of the early-stage developments on carbon capture (and storage) technologies on which Jet Zero approaches rely to achieve net zero emissions as set out in various UK government documents including Flightpath to the Future and The Jet Zero Strategy – One Year On.

The expert assessments contain material that cast doubt on the Government's belief that Jet Zero can be achieved on the timescales hoped for, and hence whether planning requirements in relation to climate change can be met. It is striking how much of the ambition to reach net zero in aviation is based on technologies that have yet to be deployed at scale. For example, DfT's 2022 modelling framework, for example, contains estimates of engine efficiency improvements of about 30% by 2040 based on assumptions about fleet replacement with aircraft that are still in development. Likewise, Ricardo's report on Carbon Abatement in UK Aviation is hedged round with assumptions and uncertainties at many points. Significantly, they estimate that the penetration of biofuel based SAFs will make only a small difference to aviation emission with 10% penetration of the market by 2050 – in contrast Jet Zero Strategy documents push for 10% by 2030 – in under six years time. The Ricardo report estimates a very small emissions saving – perhaps as little as 2.5% by 2050 – from biofuel SAFs as emissions from aircraft will remain the same and savings will mostly arise from the supply chain side. Many assumptions and uncertainties exist within the Ricardo report not least with respect to the life cycle assessments that have been done to estimate emissions savings via use of SAF. As is clear from the Royal Society 2023 report on net zero aviation fuels, as well as issues in life cycle analysis (where more research is called for to improve methodology and

approaches) it is estimated that half of UK agricultural land would be needed to meet the aviation sector's biofuel needs. That must put the practicalities of some biofuel approaches in question.

We also found that the Jet Zero documents appear to overstate progress made on hydrogen powertrains. We feel the development of hydrogen-based powertrains could be a very helpful development although the resource, infrastructure and energy implications of deploying hydrogen technologies are still unclear. No aircraft has yet flown from A to B in the UK entirely powered by hydrogen powertrains. The implication of the Jet Zero documents is that this is the case. What has been achieved by ZeroAvia, are some short test flights with one engine of a Dornier 228 (a propeller driven aircraft) fitted out with a hydrogen powertrain. The pace at which this technology can move from the current pilot stage to commercial operations at scale important to the kind of aircraft that use Gatwick is a matter of speculation. Although they have yet to deploy a commercial flight ZeroAvia's website suggests they hope to have hydrogen powered twin-engined aircraft of the kind used at Gatwick for some flights by 2029 and 2032. It would be remarkable to achieve such a transformation of aviation. It may be more realistic to expect the impact of hydrogen to occur over a much longer time scale and be deployed in aircraft of a radically different design.

There was some 55 years between the first powered flights and the first scheduled transatlantic commercial service and the problem for decision-makers in this instance is that all the technologies and approaches – from the potential new power sources, through the alternative fuels all the way to carbon capture (and storage) – are technologies that are yet to move from pilot stages up to supply levels that would make a significant impact on emissions in the time necessary to meet the UK's national and international climate change obligations as set out in UK law (e.g. under the Climate Change Act) and international agreements (such as the UNFCCC COPs). There is a broad rule of thumb in innovation that it takes about 30 years for market-ready new technologies to be deployed globally. For example, wind and solar power were beginning to be market-ready around 2000 but are still being deployed at significant scale 25 years later and electricity generation has not reached Net Zero even yet. As many of the new technologies that would deliver net zero for aviation are not yet market-ready in terms of their position on the innovation chain a 30-year time scale for beginning deployment is not unrealistic. Thus, it may well be, given the lifetime of modern jets, and the costs and uncertainties of fleet replacement and the very high R&D costs of developing new aircraft that the aviation as a sector at its current size will struggle to meet net zero by 2050 let alone if it has expanded.

We would be delighted if the necessary technologies to achieve Jet Zero could be delivered within the timescales needed to be compliant with the Carbon Budgets set out by the CCC, but the evidence suggests this is unlikely.

In addition, any argument about expansion at Gatwick only being a small contributor to the 6th Carbon Budget should be set aside. Many sectors can make similar arguments and all sectors need a clear path to net zero. In any case, as transport overall is a significant contributor to carbon emissions it is important that surface transport emissions and emissions from associated activities and sources are included in climate change considerations. As it stands, the proposal does not really provide adequate information on the total impact of the development on UK carbon emissions. For example, the impact of the proposals on surface transport emissions has not, it seems, been built into the climate change section in a form that permits an overview. In terms of budgeting nationally it is important not to double count emissions so in that case surface transport and aviation might be dealt with separately. But in terms of considering an individual DCO application it is important that all associated emissions are accounted for. In any case, all sectors need to have a clear path to net zero and this does not yet exist for aviation except in terms of

ambition. This means it is very hard to make a decision on the application that is sound in terms of sustainability, policy or legal requirements.

All the above indicates why we concur with the way the CCC has recommended that “No airport expansions should proceed until a UK-wide capacity management framework is in place to annually assess and, if required, control sector GHG emissions and non-CO2 effects... After a framework is developed, there should be no net airport expansion unless the carbon-intensity of aviation is outperforming the Government’s emissions reduction pathway and can accommodate the additional demand”.

As such, we believe that Gatwick’s current proposal should not be permitted to proceed, at the very least without the CCC’s conditions being fulfilled. If the applicant and Government are genuinely confident that Jet Zero can be achieved, they should welcome Requirements on the DCO tying the consent to the meeting of the CCC’s conditions.

Gaps in the Applicant’s proposal

Aside from the problems with the wider plausibility of Jet Zero, a number of the ExA’s questions point up specific gaps or inconsistencies in the proposals to expand Gatwick. We make broad observations here on gaps in information we have not been able to fill from our reading of the documents as follows:

- a. We see little clear indication for provision of infrastructure to manage new aircraft types, such as those wide bodied or new wing designs that might be deployed to improve fuel efficiency, or new fuel types such as hydrogen or ammonia or any account of what are the most likely kinds of SAFs that could be used – would they all be able to be mixed freely or would they need to be stored separately? We note the unusually close separation of runways as being relevant here that contrasts sharply with the earlier second runway schemes put forward by the Applicant’s predecessor organisation.
- b. There is no provision for the carbon capture (and storage) in the proposals that the sector will require to meet net zero.
- c. We see little clear indication of changes to Terminals that surely would be required to accommodate the growth envisaged even under the baseline case. This may be an important gap in the proposal as presented and would have implications for estimating the carbon emissions arising from the whole development.

DCO Requirements

CPRE Sussex believe that the application should be completely rejected on grounds that include but go well beyond Climate Change.

That notwithstanding, if the Examining Authority were minded to recommend approval, and/or the SoS to grant it, we would suggest that a number of conditional Requirements are imposed on the DCO:

a. That the development should not start, and that the second runway could not be used as proposed, until the Climate Change Committee terms for aviation expansion are met, i.e. that “a UK-wide capacity management framework is in place to annually assess and, if required, control sector GHG emissions and non-CO2 effects” and that, under this framework “the carbon-intensity of aviation is outperforming the Government's emissions reduction pathway and can accommodate the additional demand”. This would be the most effective way of tying the consent to the achievement of Jet Zero’s high ambition to reach net zero in a timely fashion.

b. The Applicant should install carbon capture and storage technology systems on site after suitable discussion (this would be a more certain approach than relying on carbon markets or offsetting scheme of uncertain validity that are both in their infancy)

CPRE Sussex would also make the following points at this juncture on housing and water and sewage matters:

Response to ExA’s questions to Applicant and IPs on housing set out in questions GEN1.31

CPRE Sussex is also pleased to respond to the question on housing provision. This is a critical issue in terms of the impact on the wider Sussex and Surrey areas, and we note analysis by CAGNE showing that the thousands of jobs that Gatwick claims will be delivered by their proposal are unlikely to be completely filled by existing residents of the surrounding area.

The question of where new workers, many in low-income roles, could be housed is under-explored in the applicant’s proposal. The districts around Gatwick are already experiencing a crisis of housing affordability; Crawley District Council recently declared a ‘housing emergency’.

The districts of Crawley, Horsham, Lewes, Mid Sussex, Mole Valley, Reigate and Bansted, Tandridge, Tonbridge and Malling, and Tunbridge Wells, reported homeless figures of over 1500 between them in 2022-23, and social housing waiting lists of around 6000 in 2023. Total affordable homes completions in 2021-22 (the latest year for which we have data) were only just over 1000, of which homes for social rent were only a couple of hundred.

Local residents are already struggling to afford housing costs, and there is very limited new affordable housing being created. Given the constraints of National Landscapes, protected sites, biodiversity, water neutrality, etc, as well as the need to preserve our countryside more widely, there is limited scope for the volumes of housebuilding that would make a material impact on affordability, were it even in the interests of developers to provide it.

As such, the proposal is likely to make pressures on housing affordability even worse, even while it increases pressure for development on our precious rural landscapes.

At the very least, a credible modelling of the impact of the proposal on local housing markets must be shared, covering impacts on affordability and development pressure on the surrounding authorities.

Response to ExA’s questions to Applicant and IPs on the water environment set out in questions WE.1.1 to WE.1.11

CPRE Sussex is concerned about the impact of the proposed development and the flow of much high passenger numbers on the water environment as climate change has many impacts on the global hydrological cycle. This raises supply and wastewater treatment issues. There are a number of examples in Sussex of water supply issues arising when temperatures are very high or when rainfall is very high. Likewise, there can be problems with river flows and overflows of wastewater when rainfall is respectively very low or higher. The problems at the Horley treatment works have

already attracted national attention as have the financial woes of Thames Water and its owner. We feel the problems of supply and wastewater treatment will be substantially exacerbated should the recommendation be to grant the DCO. Many Sussex waterways are globally important as they are chalk streams and it is important to protect such environmental resources. CPRE Sussex would ask the ExA to ask for detail plans and timescales for urgent infrastructure enhancements that would ensure supply and wastewater treatment that does not cause overflows of sewage into the environment and people's local environment.

Documents used or referred to in compiling response

Ricardo (2017) Carbon Abatement in UK Aviation

Dft (2022) Jet Zero Modelling Framework

Dft (2022) Flightpath to the Future

International Council on Clean Transportation (ICCT) (2022) Vision 2050: Aligning Aviation with the Paris Agreement

Dft (2023) Jet Zero Strategy – one year on

Royal Society (2023) Net Zero Aviation Fuels: Resource requirements and environmental impacts

We trust that these responses will be helpful to the ExA and look forward to the hearing on climate change on 30 April for which CPRE Sussex will register.

Yours faithfully,

Prof Dan Osborn,

Chair, CPRE Sussex.