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Supporting the aviation sector to decarbonise

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INTRODUCTION

It is incumbent on every business to take action to decarbonise, in order to mitigate the effects of climate change. Research has shown that there are many steps businesses are already taking to lower their emissions and reduce their carbon impact. The aviation industry is no different.

Developing a sustainable aviation industry should be a principal aim of this government, and future governments, as well as being driven by the industry itself. Aviation is vital to the UK and world economies, enabling people to travel and experience different cultures, and connecting people for leisure and business. As a sector, aviation supports businesses of all sizes throughout its supply chain, and indirectly through the benefits it brings. Aviation is also critical to the movement of freight into and out of the UK, underpinning economic growth.

This paper has two principle aims. Firstly, to highlight the contributions of the aviation industry to the local, London and national economies. It will also show the importance of aviation to London businesses. Secondly, the paper will provide an insight into the efforts being made to decarbonise the sector, and the steps needed to further accelerate the transition to a more sustainable aviation industry.

ACKNOWLEDGEMENTS

LCCI has worked closely with member businesses who have contributed enormously to the evidence base and provided invaluable feedback on the paper. Their contribution is greatly appreciated.

RECOMMENDATIONS

Government should heed the advice of industry experts and public bodies and introduce price support schemes, such as a Contracts for Difference scheme, for Sustainable Aviation Fuels, to provide price stability to the market and support inward investment into a domestic SAF industry.

The Government should not delay any further its plans for developing SAF plants in the UK, and work with the aviation industry to rapidly upscale domestic production of SAF to avoid becoming a net importer of SAF fuels.

The aviation industry's contribution, both directly and indirectly, to the UK economy should be recognised by local and national governments.

Government should prioritise feedstocks for use in the production of SAF, in order to secure a domestic supply of SAF. LCCI recommends the Government to give priority to SAF production over Energy-from-Waste (EfW) plants when it comes to non-recyclable municipal solid waste (MSW) as a feedstock.

THE SIGNIFICANCE OF AVIATION TO LONDON'S ECONOMY IS TOO IMPORTANT TO IGNORE

The sector plays a vital role in supporting local businesses and communities

Polling by LCCI and Savanta highlighted that around four in five London business decision-makers surveyed agree that air connectivity is important to London's global competitiveness (83%), international trade (82%), the London economy overall (82%) and building and maintaining international business connections (79%). Just over half (52%) said it is important to the operations of their business.[1]

The impacts of COVID-19 have brought to the fore just how important aviation is to businesses in London. This has been felt palpably in the Central Activities Zone, where the retail, hospitality, culture, and leisure have been hit particularly hard. Research commissioned by the Greater London Authority (GLA) highlights the loss of international visitors as a key contributor to the disproportionate impacts of the pandemic on central London compared with elsewhere in the country.[2] Before the pandemic, international visitors' spending within Westminster, the City of London, Kensington and Chelsea amounted to as much as 40% of international spending in the whole of the UK.[3] Combined with a loss of footfall from workers and domestic visitors, the loss of international travel meant many businesses were either unable to reopen or earn a profit at all, even as restrictions were eased. It is estimated that over 130,000 workers in the CAZ were on furlough by November 2020, and that around 14,000 of its enterprises were left with little or no confidence that they would survive into spring of 2021.[4]

Fortunately, there are signs that tourism spending in London and the UK has rebounded as countries relaxed and removed COVID-19 restrictions. The number of inbound tourists to the UK totalled 21.6 million in the first three quarters of 2022, up from a total 11.1 million in 2020 and 5.9 million in 2021.[5] While the figure was still below 2019 levels (40.9 million), this is an encouraging upward trend. London received 50% of international visitors in the year to September 2022, and 50% of spending by tourists. International visitor spending reached £9.3 billion in the year to September 2022, still 17% below the same period in 2019.[6] It is worth noting that since the start of 2021, VAT-free shopping was removed following the end of the transition period. The loss of tax-free shopping for visitors from outside the European Union may be continuing to have an impact of the recovery of tourism, and LCCI has recommended repeatedly that the scheme be reintroduced to further support inbound international tourism.[7]

> *"Travel is critical to retaining and forging the trusted relationships many SMEs rely on. The loss of travel during the pandemic hit my clients – all SMEs. Firms have been keen to bounce back and grow their business overseas as international travel has returned. These SMEs rely on aviation to acquire new business and compete on a global stage, even beyond the borders of Europe. Meeting face-to-face offers my clients a chance to effectively communicate and understand different cultures of doing business."*
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> **Sarah Wilson, ACE Travel Management**

1 Savanta surveyed 500 London business leaders between 4 February and 16 March 2021. All data were weighted to be representative of all London businesses by company size and broad industry sector. Full data tables are available at www.comresglobal.com

2 GLA, The economic future of the Central Activities Zone (CAZ) Phase 1 report, 2021, p.5
3 GLA, The economic future of the Central Activities Zone (CAZ) Phase 1 report, 2021, p.60
4 GLA, The economic future of the Central Activities Zone (CAZ) Phase 1 report, 2021, p.58
5 Office for National Statistics, Overseas travel and tourism: June 2022 provisional results
6 VisitBritain, Regions and Nations Quarterly Inbound Update: Q3 2022

7 https://www.londonchamber.co.uk/news-and-insights/news/press-releases/vat-free-shopping-must-return-for-london-s-prosper/

Beyond this, business travel is vital to companies of all sizes across Greater London – from sole traders and micro-businesses to large corporates – who rely on the ability to undertake overseas site visits and project tasks to sustain existing business and build new client relationships. While virtual platforms enabled much international business activity to continue during the pandemic, cultural and time zone barriers were problematic for many. This has created significant concerns for businesses who fear losing, and have indeed already lost out, to competitors in other countries, particularly those benefitting from a much greater domestic or inter-continental market.

Again, the signs of improvement are welcome. The number of international business travellers to the UK totalled 3.4 million in the first three quarters of 2022, up from only 408,000 in the same period in 2021. Whilst the figures for 2022 are still 47% below 2019 levels, the sharp rebound as restrictions eased shows that businesses still see immense value in travelling overseas.[8]

COVID-19 highlighted the vital role aviation plays in local communities, namely in West London, where a significant number of businesses and jobs rely on the industry directly and indirectly. Oxford Economics analysis estimated that reduced operations at Heathrow Airport would cost west London over £4 billion and around 28,000 jobs by the end of 2021. Similarly, in the same forecast the local economy in the London borough of Hounslow was expected to lose up to £1 billion with over 40,000 jobs at risk as a consequence of the pandemic's impact on Heathrow.[9] The reverse of this negative impact is that airports are closely integrated with their local areas, and play an outsized role in job creation. London Stansted directly supports more than 12,000 on and off-airport jobs, while a further 23,000 indirect or induced roles are estimated to be in the East of England and London areas .[10]

> *"As an exporter of engineering services, the ability to undertake overseas site visits, see what work needs to be undertaken first-hand and meet our customers is critical to our business. This is a gap that virtual platforms cannot fill. The pandemic's impact on international travel has put a pivotal opportunity to work with a Government body in Africa on hold for over a year. As a small business, the prospect of losing out on such opportunities and contracts is a serious worry".*
>
> **Farzin Haghani, GEP UK**

London City Airport acts as a key asset and gateway in the East of the capital. The airport has played a vital role in supporting local regeneration in recent years, creating around 2,000 full time equivalent (FTE) jobs – 65% of which have been filled by local residents.[11] Additionally, its proximity provides pivotal business connectivity for the City of London and Canary Wharf, the two most significant employment areas for the capital's service sector.

A recent report into the impact of Airport Economic Zones (AEZs) highlighted the benefits of aviation to local areas. For example, the Joint Spatial Planning Framework (JSPF) which includes Heathrow Airport, generated £76.8 billion in 2019 in Gross Value Added.[12] GVA per hour worked in Hillingdon, located in the JSPF, was much higher than the average for England. In addition, residents within the JSPF had higher rates of educational attainment at degree, NVQ 4 and NVQ 3 levels when compared to the national average.

Aviation is key to London's global attractiveness and competitiveness

Aviation has played a pivotal role in London's competitiveness as a world-leading global city. Best Cities' report into the world's top 100 cities showed that London ranked first for 'product' in their 2023 World's Best Cities report,[13] which includes airport connectivity, with London Heathrow Airport placed top of the report's Connectivity sub-category in previous editions of the report. The Global Power City Index (GPCI) ranked London sixth in its Accessibility function for 2022[14]: this was down from first in the 2020 GPCI, reflecting the sizeable impact that COVID-19 had on international travel on London. Nevertheless, ACI Europe's Airport Industry Connectivity Report for 2023 suggested that London Heathrow's connectivity to North America is more than twice that of its closest competitor (Paris-Charles de Gaulle), while the report suggests London Heathrow also offers the best direct connectivity to the Asia Pacific region.[15]

London's status as one of the world's most connected hubs is well established. PwC's benchmarking of 30 global cities identified London as the world's foremost hub and a "supreme gateway" to Europe, the Middle East, Africa, and

8 Office for National Statistics, Overseas travel and tourism: June 2022 provisional results
9 https://wla.london/aviation-communities-summit-2020-from-the-ground-up/
10 'Airport Towns' in the South: the impact of the pandemic on airport-related local economies – and potential responses', SQW, July 2021
11 London City Airport, London City Airport Master Plan Socio-Economic Assessment Report, 2019
12 https://www.gatwickairport.com/globalassets/company/economy/2022/airport-economic-zones.pdf
13 World's Best Cities 2023, Best Cities, page 56
14 Global Power City Index, Institute for Urban Strategies, page 17, https://mori-m-foundation.or.jp/pdf/GPCI2022_summary.pdf
15 ACI Europe Airport Industry Connectivity Report 2023, page 14, https://www.aci-europe.org/downloads/publications/ACI%20EUROPE%20Airport%20Industry%20Connectivity%20Report%202023.pdf

the Americas. Alongside its economic clout and intellectual capital and innovation, this status put London in the lead against its global competitors. Within its air connectivity rankings, London came out on top for airport connectivity and incoming and outgoing passenger flows, ahead of Paris, Beijing and Dubai, and second for international tourists.[16]

This aviation connectivity plays a vital role in London's attractiveness to international tourism, which in turn brings a significant boost to the capital's economy. It is estimated that international tourists, whether travelling for work or leisure, contributed £15.7 billion to the capital's economy in 2019, with the average international tourist spend per visit in London amounting to over £720.[17]

London's air connectivity is also critical to its attractiveness to international students, making a significant contribution to London's universities and providing a further boost to the economy. Fees paid by international students contributed £1.5 billion to London universities, also generating an additional estimated spend of £180 million by students' visiting friends and relatives in the academic year of 2016-17.[18]

The significance of London's aviation industry extends beyond the capital

London's airports are vital to UK connectivity

London's airports play a key role in the UK's connectivity, both within the United Kingdom and between other parts of the UK and overseas destinations. This in turn supports regional economies and their local communities in the supply chain, impacting businesses' revenues, cashflow and investments.[19]

Research commissioned by the Department for Transport (DfT) for a review into the UK's regional connectivity has highlighted the significance of London's airports. In terms of population access, Heathrow, Gatwick, London City, Stansted and Luton are the top five airports providing the greatest catchment coverage in the UK. London City has the largest 60-minute catchment coverage, thanks to its central location in the capital. Heathrow has the largest 90-minute and 120-minute population coverage, with Gatwick providing similar 90-minute catchment coverage.[20] With approximately 70% of the UK able to access Heathrow's connections within 120 minutes of surface travel, this opened up substantial – at least daily – direct and indirect access to major destinations before the pandemic.[21]

The economic benefits of London's aviation sector are felt beyond its boundaries

London airports located outside of Greater London play critical roles in their local communities, both through direct job creation and by supporting business activity. With around 18% of the workforce in the borough of Crawley employed in the aviation sector and related industries at the start of the pandemic, for example, Gatwick Airport has been a major contributor to local employment.[22] Figures released by the All-Party Parliamentary Group (APPG) for the Future of Aviation during the pandemic highlighted an increase of 224% in the number of people claiming unemployment related benefits in Crawley, and an even higher increase of 228% in Saffron Walden, the constituency in which Stansted Airport is located.[23]

The sector plays a key role in imports and exports nationally, with air freight amounting to £181 billion in value and contributing £7.2 billion to the UK's economy in 2017.[24] Air freight accounted for up to 40% of UK imports and exports in 2019.[25] London is central to this commerce, with the UK's freight forwarder activity and freight consolidation heavily concentrated around Heathrow.[26] Air freight has played a particularly crucial role during the pandemic, supporting the just-in-time delivery of essential products and offering a solution for businesses affected by trade congestion at sea ports.

Furthermore, the afore-mentioned benefits of air connectivity to London's competitiveness and attractiveness extend beyond the capital to the rest of the UK. For instance, London "acts as a distributor to the rest of the country", with half of overseas visitors' trips to the UK including a trip to its capital.[27] In addition to this, it is estimated that the direct contribution of international students studying at London universities to the UK's economy amounted to £3.4 billion and supported nearly 40,000 jobs in the academic year of 2016-17.[28]

16 PwC, Cities of Opportunity 7, 2016
17 GLA, The economic future of the Central Activities Zone (CAZ) Phase 1 report, 2021, p.67
18 London & Partners, The Economic Impact of London's International Students, 2018
19 Unite the Union, UK Aviation: Flying into the Future, 2020
20 York Aviation, Department for Transport Regional Connectivity Review Final Report, 2018, p.41-44
21 York Aviation, Department for Transport Regional Connectivity Review Final Report, 2018, p.48
22 https://www.centreforcities.org/blog/what-does-the-covid-19-crisis-mean-for-the-economies-of-british-cities-and-large-towns/
23 https://www.futureofaviationgroup.org.uk/news/airport-communities-hit-by-covid-19-job-losses
24 Airlines UK, Assessment of the value of air freight services to the UK economy, 2018
25 https://s3-eu-west-1.amazonaws.com/assets.acog.aero/wp-content/uploads/2021/09/ACOG-One-Sky-One-Plan-brochure-Oct-2021.pdf p. 11
26 Airlines UK, Assessment of the value of air freight services to the UK economy, 2018
27 GLA, The economic future of the Central Activities Zone (CAZ) Phase 1 report, 2021, p.67
28 London & Partners, The Economic Impact of London's International Students, 201

AN AMBITION FOR BUILDING BACK GREENER

As a major contributor to employment, business activity and competitiveness, London's aviation sector is clearly too important for its recovery and future success not to be a key factor as the UK looks to build back greener. Aviation provides very significant economic and social benefits but it is unarguably harder to decarbonise quickly than other sectors. Supporting its path to net-zero must become a critical element in recovery and long-term planning.

This presents London with a real opportunity to develop a clear ambition to take the global lead on sustainable aviation among its world-city competitors, a goal which the capital should put its full weight behind by supporting the industry's need and drive to reduce carbon emissions. This will build on and cement the Government's welcome commitment – set out in its Ten Point Plan for a Green Industrial Revolution – for the UK to play a leading role in greener aviation.[29]

The publication of the Jet Zero Strategy in July 2022 was also an encouraging step, with the strategy setting out how the Government will deliver net zero in aviation by 2050.[30]

The capital has a positive foundation on which to build and is therefore well-positioned to take on this challenge. Its airports have already achieved significant progress in lowering their own carbon emissions. Alongside this, IAG, which is headquartered in London and is the parent company of British Airways, is playing an active role in driving forward the development of sustainable aviation fuel and carbon capture technology in the UK. London Heathrow has established a £38 million fund to encourage airlines to switch to SAF.[31]

While it is indisputable that supporting the sector's sustainability across the whole of the UK must not be undermined by this ambition, aviation's critical role in sustaining London's global position and reputation must be fully recognised and supported. Furthermore, the capital's success on the global stage will become ever-more important to the standing of Global Britain as it looks to redefine its position, building on COP26 and G7 presidency and bolstering our post-Brexit trading relations.

Public sector support will be absolutely critical to realising this ambition for London, and the Mayor should put his weight behind this opportunity for the capital. There is a road ahead to achieving this ambition, and it will only be reached through effective collaboration to ensure the sector has the right tools and infrastructure to build on progress at the scale needed. The Mayoral team should engage closely with the industry to ensure measures to help it reach net-zero targets are built into post-COVID recovery and statutory planning.

The Government should also recognise and support the importance of London's world-city status to its ambitions for the UK's global lead on green aviation, and work with London governance to support the capital's pivotal role in reducing the industry's carbon emissions. This should not be treated as an effort that is counter to the Government's commitment to 'levelling up', particularly as London's aviation sector is vital to connectivity beyond London and supports economies outside of the capital through the supply chain.

Financial and non-financial backing from the public sector will be vital and should be viewed as a crucial investment in our economy's green recovery. A concerted approach across the public and private sectors will be key to making this ambition a reality. Many moving parts will be required to bring into place the necessary measures and innovation, therefore holistic planning and collaboration will be key.

Airspace modernisation

In 2018, the Civil Aviation Authority (CAA) published an airspace modernisation strategy[32], which focusses on the need for making significant changes to the way British skies are organised. Wholesale adaptations to British airspace would be needed to support the Government's net zero 2050 ambitions, whilst factoring in the continued expected expansion in air travel.

As set out by the Airspace Change Organising Group (ACOG), there are a number of reasons for modernising British airspace.

Whilst the number of people flying is still recovering from the lower levels reached during the pandemic, passenger numbers are still expected to increase by 2050. This rise will see greater levels of flight traffic, and delays are forecast to increase sharply if the airspace is not modernised[33]. The redesign of airspace will reduce the need for stacking, where aircraft join a circular queue to land at busy airports.[34] This also means they use less fuel and passengers will not need to spend time waiting in holding patterns.[35]

Low level stack holding is the preferred method of operation today to manage arrival delay when runway demand exceeds the capacity available at that time. The capacity of the runways with high demand for their slots have been managed by building in an average delay criteria to maintain a consistent demand pressure on the runway and allow air

29 HM Government, The Ten Point Plan for a Green Industrial Revolution, 2020
30 Jet Zero Strategy: delivering net zero aviation by 2050
31 https://www.greenairnews.com/?p=3971

32 https://www.caa.co.uk/commercial-industry/airspace/airspace-modernisation/airspace-modernisation-strategy/about-the-strategy/
33 https://s3-eu-west-1.amazonaws.com/assets.acog.aero/wp-content/uploads/2021/09/ACOG-One-Sky-One-Plan-brochure-Oct-2021.pdf p.8
34 https://s3-eu-west-1.amazonaws.com/assets.acog.aero/wp-content/uploads/2021/09/ACOG-One-Sky-One-Plan-brochure-Oct-2021.pdf p. 13
35 https://s3-eu-west-1.amazonaws.com/assets.acog.aero/wp-content/uploads/2022/05/UK-Airspace-Change-Masterplan-Iteration-2-FINAL-v2.3.pdf p. 17

traffic controllers to manage the arrival stream to deliver an efficient flow onto the runway. In the current operation, this has proved to be a highly efficient method to maintain runway throughput but is not environmentally efficient, with both fuel burn, emissions and noise impacts.[36]

The expected reduction in the operational need for stack holding is likely to have beneficial noise impacts as well.[37]

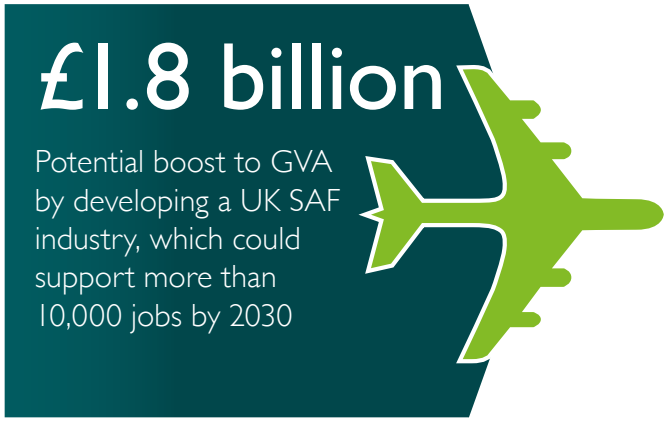
Airspace modernisation crucially offers a pathway to help aviation in its efforts to reach net zero. Upgrading airspace is projected to help the government meet its 50% reduction in net emissions target while accommodating a doubling of passenger numbers by 2050.[38] In the latest Jet Zero Strategy, airspace modernisation remains a key pillar of improving system efficiencies, which combined with upgrades to best-in-class aircraft and operations could deliver 12-15% in CO2 savings by 2050.[39] However, the Government must not take its foot off the pedal and ensure that the airspace modernisation programme in a timely and efficient manner.

Alongside industry efforts to develop more fuel-efficient engines, cleaner synthetic fuels and with strides being made to electrify aircraft, modernising the UK's skies could also mean reduced holding and fewer miles flown per aircraft. This results in less fuel being burnt and carbon emitted – helping the aviation sector to meet its strict climate targets.[40]

The role of sustainable aviation fuels (SAF)

Developing and investing in sustainable aircraft technology is important, and it is right that London has already started playing its part as home to NAPKIN, which has been awarded Government funding.[41] But alongside this, sustainable aviation fuels (SAF) will be key to reducing aircraft carbon emissions, as they currently present the only viable solution for long-haul flights. The significant role London's air connectivity plays as a global hub and gateway makes the need to support the delivery of SAF all the more vital to greening the capital's aviation sector.

According to Sustainable Aviation, SAF can reduce lifecycle carbon emissions by at least 70% compared to fossil fuels. It presents an opportunity to start having an immediate impact on UK aviation emissions by the mid-2020s and reduce aviation emissions by "at least 32% in 2050". Sustainable Aviation's roadmap from 2020 suggested this could be achieved by rolling out commercial plants and undertaking ongoing fuel testing and qualification by 2025, with the aim of producing around 1 million tonnes of SAF per year across 14 UK plants by 2035 and around 4.5 million tonnes of SAF a year by 2050.[42] Sustainable Aviation has published an updated roadmap for 2023, upgrading these estimates to 5.4 million tonnes of SAF per year by 2050.[43] Developing a SAF industry in the UK could contribute £1.8 billion to Gross Value Added and support more than 10,000 jobs by 2030, potentially rising to £10.1 billion and 60,000 jobs by 2050.[44] With SAF also being a 'drop-in' fuel, there is little additional training required and brings an opportunity for the UK to become a leader in sustainable aviation.



However, progress towards developing sustainable fuels needs to move at a much greater pace. The risks of the UK missing out on developing a domestic SAF industry are significant, and would lead to a far greater reliance on SAF imports in the future. The Inflation Reduction Act in the US and the EU's Fit for 55 policies are attracting investment in SAF at the expense of the UK, and urgent action is needed to realise the benefits of developing a domestic SAF industry and preventing the UK from being left behind. It was therefore encouraging to see that SAF is a key pillar in the Jet Zero Strategy published by Government in 2022, which sets out how net zero aviation will be delivered by 2050. The policy objectives set out by Government, which includes mandating that 10% of jet fuel be SAF by 2030, and supporting the development of SAF through funding competitions, could help to accelerate the progress towards transitioning to SAF.[45] With that being said, a recent independent report commissioned by the Government has identified that for the UK to have any chance of meeting its aviation decarbonisation targets, the development of a domestic supply base will be essential at a quicker pace

36 NATS feasibility report into airspace modernisation in the South of the UK and the CAA assurance into the NATS feasibility report (publishing.service.gov.uk) p.28
37 NATS feasibility report into airspace modernisation in the South of the UK and the CAA assurance into the NATS feasibility report (publishing.service.gov.uk) p.28
38 https://s3-eu-west-1.amazonaws.com/assets.acog.aero/wp-content/uploads/2021/09/ACOG-One-Sky-One-Plan-brochure-Oct-2021.pdf p. 13
39 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1095952/jet-zero-strategy.pdf p.28
40 https://www.ourfutureskies.uk/why-modernise/environment/
41 https://www.heathrow.com/company/about-heathrow/future-flight-challenge/napkin
42 Sustainable Aviation, Decarbonisation Road-Map: a Path to Net-Zero, 2020
43 Sustainable Aviation, Net Zero Carbon Road Map, 2023, page 39
44 Sustainable Aviation, Net Zero Carbon Road Map, 2023, page 40
45 Jet Zero Strategy: delivering net zero aviation by 2050, HMG, 2022

than set out in the Jet Zero Strategy.[46] The independent report highlighted that SAF has a key role to play in aviation decarbonisation for at least the next two (fifteen year) investment cycles. Further, the UK has the potential to play a leading role – particularly in the development and deployment of SAF made from carbon-containing waste streams ("second generation/2g SAF").

In the Jet Zero Roadmap, Government committed to supporting 5 SAF plants in the UK under construction by 2025, but this is yet to materialise. The industry need urgent government support – including a price stability mechanism – to help scale up domestic plants and to ensure that the UK does not become dependent on important SAF. A huge scale of increase in domestic SAF production is critical for the UK to achieve net-zero aviation. The US government's subsidies have resulted in SAF plants being rapidly developed which are able to produce fuel from first generation feedstock (essentially used cooking oil). The EU is making billions of euros available to invest in SAF production including providing free allowances under its Emissions Trading System for airlines that purchase SAF. By encouraging second generation SAF from feedstocks such as municipal solid waste (MSW), the UK has an opportunity to leap ahead.

The Ten Point Plan for a Green Industrial Revolution pledged to establish a SAF clearing house to enable the certification of new fuels, consult on a Sustainable Aviation Fuel mandate to blend greener fuels into kerosene, and a £15 million competition to support SAF development.[47] This is a welcome step in the right direction, but much more action and support will be required – particularly from Government.

LCCI believe price support mechanisms such as a buyer of last resort system and Contracts for Difference could help to unlock the next wave of investment into SAF. A buyer of last resort system would provide a Government guarantee system in the event of a SAF market failure.[48]

We urge the Department for Transport and HM Treasury to work together on implementing a scheme that protects passengers from higher costs.[49] A recent report from the House of Commons Transport Committee also highlighted the need for the Government to introduce Contracts for Difference to support investment into SAF.[50]

In addition, the Government's commitment to working in partnership with the financial community to understand how best to target interventions – both from the public and private sectors – should help to reduce the risk of investment in SAF and help to scale up the industry here in the UK.

However, in view of the critical role London and the UK can play in the industry's path to net-zero, government should also look to support the development of SAF though investment. London's private sector is playing its part and its public sector should build on this effort. International Airlines Group (IAG), which is headquartered in London – and the first airline group worldwide to set its own carbon emissions targets and report its carbon footprint, is driving forward crucial innovation. Its partnership with Velocys to deliver Europe's first waste to jet fuel plant will see sustainable fuel produced from household and commercial waste destined for landfill by 2028.[51]

Additionally, Heathrow Airport has supported a partnership between Virgin Atlantic and LanzaTech to develop SAF from recycled waste industrial gases, in addition to consulting with airlines on the use of its landing charges to encourage take-up.[52]

To support the development of SAF plants, an adequate supply of feedstock will need to be supplied. Non-recyclable municipal solid waste (MSW) is a widely available waste feedstock for SAF, which at the moment is prioritised for use in Energy-from-Waste (EfW) plants used for electricity generation. The Department for Energy Security and Net Zero (DESNZ) plans to reward EfW by offering two Contract for Difference (CfD) schemes; one to produce energy, bolstering energy security; and the other if EfW uses carbon capture and storage (CCS).[53] This will increase its advantage relative to SAF.

LCCI recommends that the Government look to give priority SAF production over EfW when it comes to MSW as a feedstock given it is the only near-term decarbonisation solution for aviation, unlike electricity generation, which has other zero-carbon options available (such as wind and solar). This recommendation also features in the Phillip New report – an independent report and government response regarding the UK's potential for producing SAF.[54]

The Department for Transport (DfT)'s recent consultation also proposes a restrictive cap on the use of used cooking oil which makes up the bulk of SAF available today, first generation, HEFA SAF. While more advanced technology including that to provide SAF from MSW provides a greater opportunity for net carbon reductions, the use and development of SAF relies on access to HEFA. LCCI encourages the government not to set such a restrictive cap on HEFA that the main source of SAF available today is removed from the UK market since it can provide an important contribution while new technology is developed and plants are built.

46 Developing a UK sustainable aviation fuel industry: independent report, Philip New, page 12
47 HM Government, The Ten Point Plan for a Green Industrial Revolution, 2020
48 Sustainable Aviation, Net Zero Carbon Road Map, 2023, page 40
49 https://ktn-uk.org/news/study-highlights-the-need-for-a-contracts-for-difference-mechanism-to-grow-a-uk-saf-industry/
50 https://committees.parliament.uk/committee/153/transport-committee/news/186465/government-must-pick-winners-by-investing-in-lowcarbon-fuels-for-aviation-and-rail-says-transport-committee/
51 https://www.altalto.com/2023/05/10/altalto-immingham-project-update
52 https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/heathrow-target-net-zero.pdf
53 DESNZ (formerly BEIS) consulted on introducing a CfD for BECCS in 2022.
54 Developing a UK sustainable aviation fuel industry: independent report (publishing.service.gov.uk) pages 14-15.

A concerted effort: spearheading global cooperation

The global interconnectedness of the sector means that local and national efforts will need to be complemented by international solutions. The Mayor of London also has a role to play in driving forward cooperation with the Mayors of other leading world cities. As Chair of the C40 Cities organisation, which brings together mayors from cities across the world to lead on climate change actions, the Mayor of London has a significant opportunity to bring together global cities and work together to accelerate the transition to sustainable fuels.[55] It will take time for sustainable fuels and aircrafts to become available and used at the scale needed. These solutions will not be sufficient by themselves and other mechanisms will be required to incentivise decarbonisation.

Carbon emissions trading offers "one of the strongest policy instruments available for tackling climate change", according to the global Carbon Pricing Leadership Coalition (CPLC), whose secretariat is the World Bank.[56] Carbon emissions trading enables businesses to reduce carbon emissions when appropriate in order to sell leftover carbon permits at a later date. London is one of the world's leading centres for emissions trading and is contributing to reducing carbon emissions within a free market system. Carbon emissions trading, which is a voluntary system, provides a financial incentive for behaviour change, driving investment towards measures such as sustainable fuels and greener technology. Polling undertaken by LCCI and Savanta highlights London business support for such an approach. Two thirds (65%) agree that carbon emissions trading is more effective than a carbon tax system, with only one in five (19%) disagreeing with this statement.[57]

Such a scheme already exists. The UN's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is the world's first sector-specific market-based initiative aimed at addressing an industry's CO2 emissions. Under the scheme, operators with annual emissions of more than 10,000 tonnes of CO2 are required to report their emissions, keeping track of individual flights' fuel use in line with approved monitoring methods. To ensure data accuracy, reports must be verified by an independent, accredited third-party body.[58]

CORSIA also includes a phased approach to introducing offsetting requirements, with all international flights, excluding those to/from developing states and Least Developed Countries (LDCs), expected to be subject to these requirements by 2027. Member states' offsetting measures must comply with a list of emissions units approved by the International Civil Aviation Organisation (ICAO), meet its criteria for ensuring they deliver the necessary environmental impact, and align with carbon offset certification standards.[59]

Alongside CORSIA, the European Union's Emission Trading Scheme (ETS) requires all airlines operating in Europe, to monitor, report and verify the emissions, and surrender allowances against those emissions.[60] Airlines receive a proportion of 'free' allowances, while some are auction. The number of free allowances is due to be steadily reduced, until all aircraft operators will have to bid for allowances under an auction system by 2027.[61] The UK's ETS operates on the same basis and has recently adopted a similar phasing out of allowances[62]

Zero emission aircraft

Sustainable aviation fuels are considered to be the most suitable option for decarbonising transport in the short and medium term and for the foreseeable future for long haul flight, given that SAF can be mixed in with current fuel supplies. SAF will not be the only solution to decarbonisation in the aviation sector, and there are projects underway to develop zero-emission aircraft and hydrogen technologies that can accompany SAF.

These new technologies, such as Airbus's ZEROe[63], utilise other forms of energy to power the aircraft. In the case of the ZEROe, the aircraft are powered by hydrogen combustion, using liquid hydrogen as fuel.

The drawbacks of using hydrogen aircraft are that the pace of development is unlikely to match the need to reach sustainable aviation targets by 2050 for long-haul flights. Indeed, in their recent roadmap, Sustainable Aviation made the assumption that a wide-body hydrogen powered aircraft is "not envisioned" before 2050.

Hydrogen aircraft may play a role in short-haul flights. In the UK's case, this may prove useful for connecting regions where other more sustainable forms of transport, such as rail, are not as reliable particularly for business travel (e.g. routes from London to Scotland), or for routes to Northern Ireland. In his independent review of union connectivity, Sir Peter Hendy identified an opportunity to encourage decarbonisation of domestic aviation in the UK by utilising tax incentives and benefits, recognising that domestic aviation is vital to union connectivity.[64]

55 https://www.c40.org/leadership/the-chair/
56 https://www.carbonpricingleadership.org/who-we-are
57 Savanta surveyed 500 London business leaders between 4 February and 16 March 2021. All data were weighted to be representative of all London businesses by company size and broad industry sector. Full data tables are available at www.comresglobal.com

58 https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet---corsia/
59 ibid
60 https://climate.ec.europa.eu/eu-action/european-green-deal/delivering-european-green-deal/aviation-and-eu-ets_en
61 https://climate.ec.europa.eu/eu-action/european-green-deal/delivering-european-green-deal/aviation-and-eu-ets_en
62 https://www.gov.uk/government/news/tighter-limit-on-industrial-power-and-aviation-emissions-as-uk-leads-the-way-to-net-zero#:~:text=In%20another%20move%20towards%20decarbonising,result%20of%20the%20UK%20ETS%20

63 https://www.airbus.com/en/innovation/zero-emission-journey/hydrogen/zeroe#:~:text=Airbus%20reveals%20hydrogen%2Dpowered%20zero,30%20November%202022
64 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036027/union-connectivity-review-final-report.pdf page 68

It is encouraging to see that the Government is supporting zero emission aircraft projects, and zero emission aviation does have a role to play in the industry's push to decarbonise. LCCI would like to continue to see the Government support efforts to develop zero emission aircraft going forward.

Surface level access

In the discussions with stakeholders, one of the most overlooked elements of decarbonising aviation is enabling passengers to travel to and from airports in a sustainable method.

For many of London's airports, sustainable travel via public transport is fortunately possible. However, it is not ubiquitous and indeed, in some cases, only limited to travel in and out of the capital. The level of service to each airport by rail, for example, varies, with services from London to Gatwick Airport running at a far greater frequency than from London to Stansted Airport. Heathrow Airport is arguably the best connected by rail, served by a London Underground connection, the Heathrow Express, and more recently the Elizabeth line.

It was raised by airport members that connectivity to areas outside of central London are less prevalent. For example, issues were flagged around the frequency of bus services in the areas around Gatwick Airport which do not have access to rail connections. Residents around Sussex and Surrey without access to frequent bus services are much more likely to drive to the airport.

The public sector has a sizeable role to play in supporting sustainable surface level access. Local and national government should be taking steps to enable passengers to travel to airports in a more sustainable fashion and reduce the reliance on vehicles.

Achieving net zero operations at UK airports

All UK airports have made commitments to reaching net zero either at the same time or before the Government's own target of 2050. These efforts to decarbonise are underway, with London Stansted receiving permission to develop a 14MW solar farm next to its airport which will support the growing electricity demand.[65] London Gatwick has already brought forward its net zero target from 2040 to 2030, and is seeking to source 50% of its electricity and 50% of its heat network from domestic renewable sources.[66] London Gatwick is also seeking to enhance biodiversity and habitats on the airport estate, and commit to zero use of herbicides by 2030.[67]

Similar to London Gatwick, London City Airport is seeking to achieve net zero carbon by 2030 [68]and has set out its own plans for reaching this target.[69] The plan includes procuring energy from renewable sources and upgrading vehicle fleets to zero emission alternatives.[70]

London Heathrow is seeking to reduce carbon emissions from its ground operations by 45% by 2030, by halving emissions from surface access and cutting supply chain emissions by 35%.[71] Vehicles used at the airport are being decarbonised through replacement with zero emission alternatives, while emissions from the airport's buildings are to be cut by 39% by 2030 through the decarbonisation of heating supplies and progressing solar panel installations. [72]

Challenges for the industry

Decarbonising aviation is an essential effort if the UK is to meet its net zero targets by 2050. However, it is likely to prove one of the most difficult elements of the Government's net zero ambitions, given that there is still much work to be done and that today's propulsion systems, jet engine, relies on hydrocarbon fuel. Some of the new technologies that are cited as being part of the aviation industry's plans to decarbonise are also not close to being commercially viable, and some do not even exist at this stage in time. Investment in SAF and other sustainable aviation technologies are being driven by the industry itself as outlined throughout this report, but the Government has a significant role to play by supporting decarbonisation through policy support.

There does however remain the debate of the level of growth which is needed to be in alignment with net zero targets in the absence of SAF. Growth in passengers while relying on fossil fuels is likely to push emissions up.

The industry's calls for greater support in SAF development and investment in zero emission aircraft are recognised, but so too should the need for sustainable growth in passenger numbers to meet net zero. For instance, the Climate Change Committee (CCC) has recommended in its Balanced Net Zero Pathway for aviation that passenger numbers grow by a maximum of 25% by 2050 (compared to 2018 levels).

Whilst the CCC does not advocate for a net increase in airport capacity, the industry believes that with Government

65 https://mediacentre.stanstedairport.com/london-stansted-receives-planning-permission-for-airport-solar-farm/
66 https://www.gatwickairport.com/business-community/sustainability/topic/emissions/
67 https://www.gatwickairport.com/business-community/sustainability/topic/biodiversity/
68 https://assets.ctfassets.net/jaqmIntr8b50/2eRiiJ3r680nd90iWF2GAK/4102c2ee41dd2dd74d978c91fb79f170/LCY_Sustainability.pdf
69 https://assets.ctfassets.net/jaqmIntr8b50/2eRiiJ3r680nd90iWF2GAK/4102c2ee41dd2dd74d978c91fb79f170/LCY_Sustainability.pdf
70 https://assets.ctfassets.net/jaqmIntr8b50/2eRiiJ3r680nd90iWF2GAK/4102c2ee41dd2dd74d978c91fb79f170/LCY_Sustainability.pdf p. 12
71 https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/futher-reading/Heathrow%20Net%20Zero%20Plan%20FINAL.pdf p. 30

72 https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/futher-reading/Heathrow%20Net%20Zero%20Plan%20FINAL.pdf p. 40

support aviation will be able accelerate development of the technologies required to meet the demand for growth whilst staying on course to meet net zero targets. [73]

Within the aviation sector, whilst there is a debate as to the conclusions of this independent committee, there is no doubt that the industry must rise to meet the climate change emergency. Consequently, a genuine public-private partnership between the aviation industry and Government is needed for sustainable aviation to become a reality. The examples of action being taken in the United States and the European Union are precedents for the UK Government and the aviation industry to jointly act on.

Short-haul flying in particular has come under scrutiny for its impact where it is considered that there are surface alternatives. The French government has recently passed new laws banning domestic flights on routes where the journey can be taken by train in under two-and-a-half hours.[74] France benefits from having a bigger high-speed rail network compared to the UK, enabling passengers to use train services as opposed to flights. Such a law in the UK would be unworkable in the medium term, given that the differential in train times between key UK cities and the devolved nations in particular. For example, a train from London to Edinburgh is estimated to take between 4 hours 20 minutes and 6 hours. By contrast, flights from London airports (Gatwick, Heathrow, Stansted and London City) are all in the region of 1 hour 10 to 1 hour 30 minutes. For business travellers in particular, this differential in journey time is crucial.

Addressing travel times by adding high-speed rail capacity to the UK could help to lower the emissions from transport and assist the UK in its push to net zero – as well as improving the travel mix for all business sectors.

It is clear that there is already significant work underway by the aviation industry to decarbonise and meet net zero targets, whether that is through investment in more efficient aircraft, research and development of zero emission technologies, or establishing SAF networks. The Government's Jet Zero Strategy must deliver on its aspirations to support the sizeable

Nevertheless, addressing these travel times by adding high-speed rail capacity to the UK could help to lower the emissions from transport[75] and assist the UK in its push to net zero. It would also help to reduce the number of short-haul domestic flights.

73 https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/futher-reading/Heathrow%20Net%20Zero%20Plan%20FINAL.pdf p. 30

74 https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/futher-reading/Heathrow%20Net%20Zero%20Plan%20FINAL.pdf p. 40

75 Climate Change Committee, Progress in reducing emissions: 2023 Report to Parliament, June 2023, page 276 https://www.bbc.co.uk/news/world-europe-65687665

Liz Giles
Policy and Communications Director
lgiles@londonchamber.co.uk

Stuart Pick
Head of Partnerships
spick@londonchamber.co.uk