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Sustainability:
An opportunity for aviation

A discussion paper series

Sustainability: An opportunity for aviation

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Recommendations

- **Greater airport data-sharing across carbon emissions and savings technology**
- **Promote cooperation amongst smaller & regional airports on instituting best practices**
- **Government incentives that encourage sustainability improvements across UK airports**
- **Joint investment in new technologies to position the UK as a global aviation leader**

A collective approach

The competitive nature of running airports has always been one of the industry's strengths – driving innovation, value for the consumer and promoting a diversity of players. But as the challenges of the pandemic have become more acute, it has become clear that the strength of the industry's recovery lies in its ability to respond collectively to the challenges it faces.

Since March 2020, the industry has been subject to rapidly changing government policy, with limited financial assistance to support implementation. Now, as vaccination programmes offer the renewed possibility of regular air travel, the industry should reflect on what it has learned from the pandemic in terms of the strength of collective endeavour to build other models and frameworks. None is more pressing than the environment, where the aviation sectors' activity is directly correlated to its impact.

> Airports are very much alive to the environmental challenges we all face. At London Southend Airport we have sought to drive a greener approach through, for example, our use of solar generated electricity and the ever-increasing proportion of our passengers using public transport.

Glyn Jones
CHIEF EXECUTIVE OFFICER, LONDON SOUTHEND AIRPORT

In December 2018, the government released its Aviation 2050 White Paper and work remains underway on its Aviation Strategy. It released its transport decarbonisation plan in March 2020, which noted that aviation is a relatively small contributor to UK greenhouse gas emissions, "equivalent to 1.5 megatonnes of carbon-dioxide." The plan also noted that "airport expansion is a core part of boosting our global connectivity and levelling up across the UK" projecting that aviation emissions will remain flat while passenger numbers will increase, counterbalanced by decarbonisation efforts. The aviation sector must proactively accelerate efforts, however, if it is to achieve the government's 2050 net-zero target.

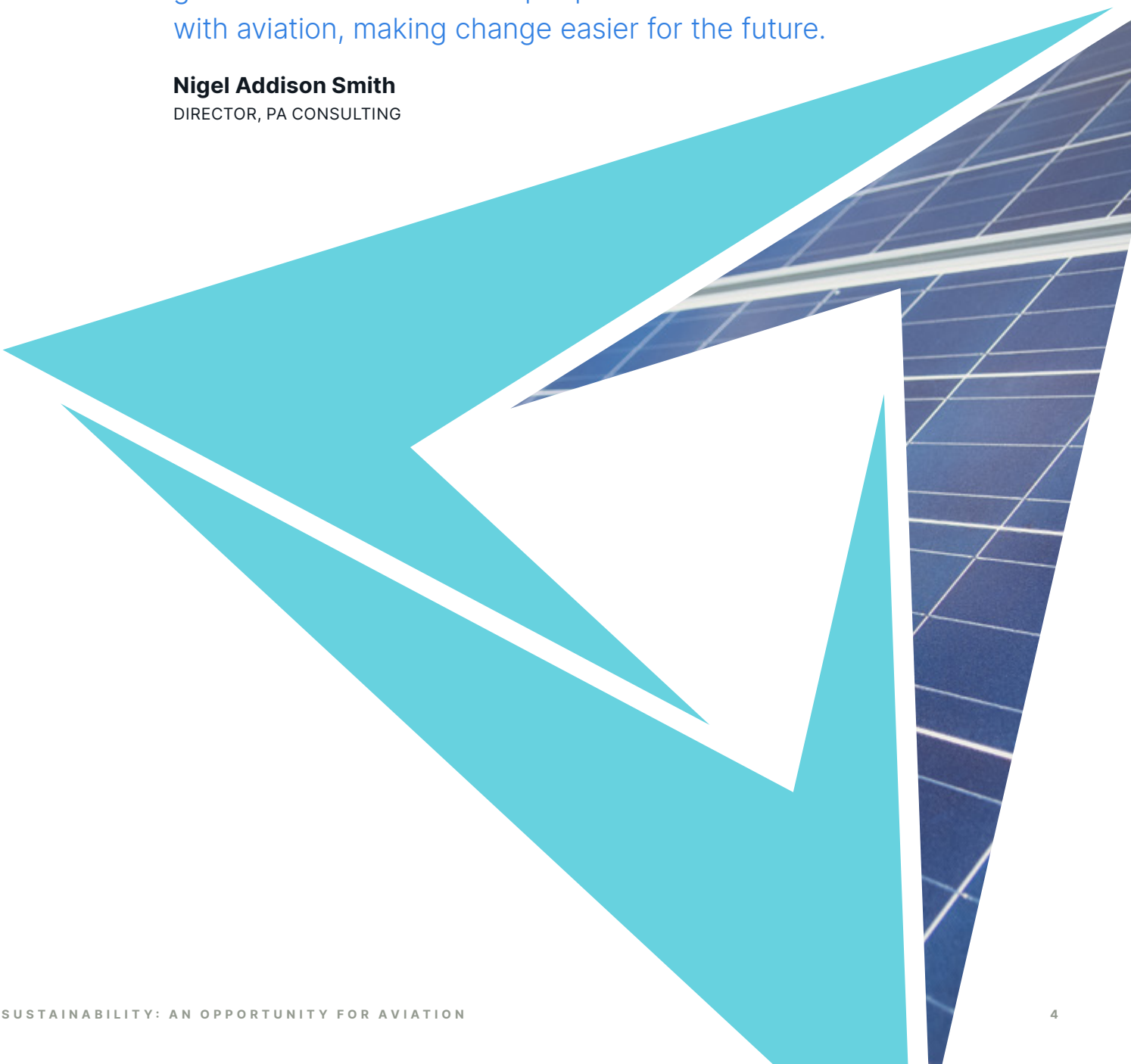
Despite this, Rishi Sunak's recent Budget for 2021 made no reference to the net-zero 2050 target. The budget did pledge to put green investment at the heart of the UK's economic recovery from Covid-19. But the Chancellor did not introduce any new policies that would act as an immediate catalyst for investment in cleaner aircraft engines. Indeed, fuel duty was frozen for a 12th consecutive year while the speech made no mention of key enablers of the Government's net-zero strategy, including its electric vehicle infrastructure plan. It seems for now, funding will be allocated on a competitive basis to sectors including long-duration energy storage; floating offshore wind; biomass and regenerative agriculture.

Aviation & sustainability

Sustainability and climate change are the primary challenges facing aviation. The sector is already adapting to the new consensus that economic growth must be weighed with consideration of environmental impact. This is particularly pertinent given that the COVID-19 pandemic has drawn significant attention to the reduction in emissions owing to the decline in aviation - the Global Carbon Project noted that carbon dioxide emissions from the sector fell by as much as 75% during the peak of 2020 COVID-19 lockdowns.

> Aviation is no longer an industry in denial, they are aware of the challenge they face. The pandemic has helped in the sense that it caused more polluting aircrafts to be prematurely grounded and it has made people more aware of the issues with aviation, making change easier for the future.

Nigel Addison Smith
DIRECTOR, PA CONSULTING



As air travel resumes in the COVID-19 recovery, the sector's environmental impact will attract even greater scrutiny. Growing attention on the impact of high-frequency fliers, the industry's most loyal customers, and calls for private 'high-emitting' flight travel to be potentially taxed put these issues at the forefront of the sector's post COVID-19 agenda. Swedish environmental campaigner Greta Thunberg has campaigned against aviation's carbon emissions as well, shining an international spotlight on the sector.

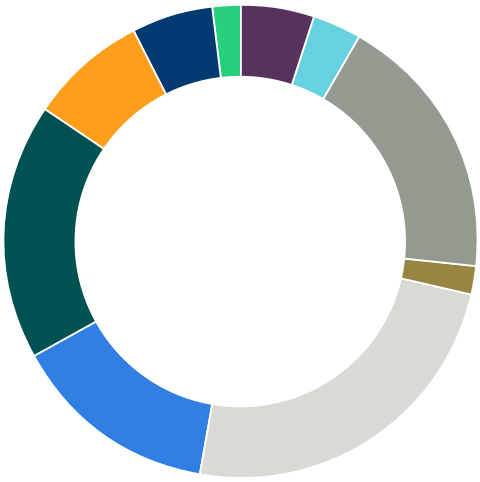
> Environmental concerns are increasingly prevalent and consumers, particularly the under 50s, are demanding more stringent actions.

Andy Jefferson
AVIATION CONSULTANT, AVIATION CONSULTANT, A&G JEFFERSON LIMITED

During COVID-19, passenger aviation is estimated to have fallen by 75% in 2020. While rebuilding passenger numbers to pre-pandemic levels is a priority, this cannot be done at the expense of the environmental impact. Aviation has seen exponential growth in the last 20 years from 1.7 billion passenger journeys in 2000 to 4.4 billion in 2018. University of Milan Professor Stefano Iacus estimates the impact on global GDP may be as high as 1.67%[2] and the pandemic could threaten as many as 46 million jobs globally according to the Air Transport Action Group[3]. The post-pandemic economic recovery will be based on a major resumption of air transport activity. There is reason to remain confident, according to London Southend Airport CEO, Glyn Jones, who notes that "globalisation, geo-economic and demographic dynamics will drive demand for flying over the long-term but we must all learn to balance growth with sustainability. Our industry should therefore take the opportunity to place the environmental, social and governance (ESG) agenda at its core".

The aviation sector is preparing for the post-pandemic recovery. However, the sector's success over the coming years will not just be measured by economic gain or passenger numbers but by decarbonisation efforts and work towards ensuring the sustainability of air travel. To achieve net-zero emissions by 2050, major efforts must begin now. Aviation Consultant, Andy Jefferson, notes the key role of airports in this effort, "environmental challenges will come after COVID, airports need to address these challenges now in preparation for post-COVID. So far firms are maintaining commitments to targets. The real challenge is unlocking green investment. The industry can't fund it themselves."

Aviation as a percentage of global GHG emissions



Direct industrial processes	5.2%
Waste	3.2%
Agriculture, forestry and land use	18.4%
Aviation	**1.9%**
Energy use in industry	24.2%
Non-aviation transportation	14.3%
Energy use in buildings	17.5%
Unallocated fuel combustion	7.8%
Fugitive emissions from energy production	5.8%
Agriculture and fishing	1.7%

[2] "Estimating and projecting air passenger traffic during the COVID-19 coronavirus outbreak and its socio-economic impact. "Stefano Maria Iacus, et al. Safety Science, Volume 129, September 2020. https://www.sciencedirect.com/science/article/pii/S0925753520301880

[3] "Aviation Benefits Beyond Borders," Air Transport Action Group, 30 September 2020. https://www.atag.org/component/attachments/attachments.html?id=954

UK airports' role

British airports are (not yet) global leaders in addressing the climate crisis. For the UK to maintain its status as a leading travel hub, demonstrating this shared environmental commitment and collaboration will be key. As the two largest airports, Gatwick and Heathrow undoubtedly have a significant role to play. It is also incumbent on other London and regional airports, such as London Southend Airport, to drive forward this agenda. The airport has already done so by pushing for passengers to arrive by public transport and through its installation of solar panels, thermal insulation glass and rainwater reuse. However, London Southend Airport CEO, Glyn Jones, notes a one-size fits all approach will not suit, "there are 51 airports in the UK and 51 airports have the right to be heard" but it is the responsibility of the entire industry to work together to advance the global initiative towards a greener future.

> 2050 isn't that far away and we need to start change now, starting with putting policies in place to provide clear direction.

Ian Lewis
OPPORTUNITY SOUTH ESSEX

The short-haul focus of London Southend Airport and others means they have a starkly different environmental footprint to airports such as Heathrow and Gatwick that are responsible for nearly 45% of UK passenger traffic. However, the widespread adoption of environmental standards and best-practices is necessary on an industry-wide basis to achieve the environmental and climate crisis impact required.

Passenger centric competition will be significant at the UK's airports in the aftermath of the COVID-19 pandemic to create the safest, most health secure facilities. It makes sense that the pursuit of environmental progress should be harnessed alongside such improvements, working with the government to create an incentive structure that rewards the implementation of carbon reduction technologies in airport maintenance, construction and modernisation. While emissions reduction targets are welcome, harnessing the industry's competitiveness to achieve them will turbo-charge airports' contribution to environmental sustainability.

> Climate change only really hit the aviation in 2019 so it is still early days for the industry. Airports have embraced the challenge and doing what they can.

Nigel Addison Smith
AVIATION DIRECTOR, PA CONSULTING

Best in class examples

Delhi's Indira Gandhi International Airport was awarded a Level 4+ accreditation, the highest possible, by the Airports Council International, in November 2020. In recent years it has incorporated a storm drainage system with 300 rainwater harvesting stations, instituted a fleet of battery-powered passenger transport vehicles, and a greening programme. It has pledged to achieve net-zero carbon emissions by 2030.

Denver International Airport hosts four on-airport solar arrays and annually composts more than 200 tonnes of waste. Plug-in energy sources available to aircraft enabling them to shut down auxiliary power units.

Stockholm Arlanda Airport became the first carbon neutral airport in 2009 and is the only airport in the world with a cap on carbon dioxide emissions.

Much of the criticism of the aviation industry's environmental footprint has come from concerns over its growth. Yet these headline figures are largely driven by the expansion of larger airports, and in particular growing passenger capacity and usage. The construction of a third runway at Heathrow is estimated to result in a 19% passenger capacity increase, some 52 million people. In contrast, already-approved expansions of Stansted and Leeds-Bradford airports will add just 20 million passengers in production capacity.

Growing capacity and traveller numbers will increase emissions. To counterbalance the industry's growth, commensurate carbon dioxide and greenhouse gas emissions reduction efforts should be encouraged. The aviation industry should approach government to establish a regulatory framework that can allow for competition in this sphere alongside their traditional territory of growth and expansion.

> Any additional support that government could provide to support decarbonisation would be helpful as the industry will be hard pressed to find capital whilst recovering from the effects of the pandemic. That would be a great way for the government to share the burden.

Willie McGillivray
CHIEF OPERATING OFFICER, LONDON SOUTHEND AIRPORT

There is an unequivocal need to incentivise decreases in emissions. This could take several forms, and the development of an effective policy will require the engagement of airports across countries working alongside national governments and local authorities. The core principle is that the authorisation of expanded passenger capacity should be alongside investment in aviation carbon reduction. This could range from the improvement of fuel standards, to supporting the installation of electric vehicle charging facilities at airport parking lots, to investing in on-site renewable power production. Such incentives could be structured to boost investment outside of London and its two major airports, bringing the UK's regions and nations to the fore and supporting the 'levelling up' of infrastructure across the country.

Airports & technological innovation

While investment into carbon and greenhouse gas reduction at existing airports would be welcomed, it alone is not sufficient to meet the UK's goal of carbon neutrality by 2050. Aviation and airports have more to contribute than limiting outputs. Airports are well-placed to act as centres for debate and experimentation for the development of new fuels, green infrastructure, and technology. As PA Consulting's Claire Mulloy notes "if there's one thing that the government needs to get behind, it is sustainable aviation fuel." This approach will require coordination across the sector (and amongst competitors), but it is only through collaboration that any new technology will be successful. Working together from the outset, airports can proactively drive the environmental agenda forward. Mulloy points out the importance of ensuring such efforts are spread across the sector noting that "so far collaboration on sustainable aviation fuel has been done at a national level, overlooking the needs and interests of regional airports."

> Airports need to continue to innovate and look at their approach to climate change. Aviation are aware that it's a business essential and will rise to the challenge in a really strong way.
>
> **Kate Willard OBE**
> THAMES ESTUARY

The successful implementation of any new aviation technology requires availability, as a minimum, at the destination and the point of departure. The UK, through scale testing and cooperation, will be at the head of any technological revolution. This will boost domestic interconnectivity and the continued attractiveness of the UK as an international hub. Experimenting with, and adopting, new technologies will prove instrumental in the solutions for climate change.

European airplane manufacturer Airbus has, for example, been at the forefront of developing hydrogen-powered flight and aims to launch the first zero-emission commercial aircraft by 2035[4]. It has called airport-associated ground transport to be decarbonised towards 2030, with the aim of developing hydrogen power infrastructure and supply networks. Airbus acknowledges that the "one main challenge is developing the large-scale transport and infrastructure solutions required to supply airports with the necessary quantities of hydrogen needed to fuel aircraft."

Investment into hydrogen will require state support, given the absence of realisable real returns over the next decade (at least). Support for such efforts will reap long term rewards for the environment, and investors, if the aviation sector collaborates to adopt the relevant technologies and supply networks. The UK's airports can act as a hub for scientific experiment and green innovation. This should by no means be limited to the development of hydrogen as an alternative fuel. Working together with government, local stakeholders, scientists and business, the unique supply chains that support airports and the availability of space to develop new technologies can put Britain's airports at the fore of the green development conversation.

[4] "Airbus reveals new zero-emission concept aircraft," Airbus, 21 September 2020. https://www.airbus.com/newsroom/press-releases/en/2020/09/airbus-reveals-new-zeroemission-concept-aircraft.html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