

## **Appendix 1 – Manchester Airport Group Report**

### **1 Introduction**

- 1.1 In 2022/23 Manchester Airport served 25.2 million passengers, equivalent to 89% of the 2019/20 pre-pandemic peak, and 65,400 tonnes of freight. In October 2023, the Airport served 2.6 million passengers, marking the first time it has overtaken pre-pandemic volumes.
- 1.2 As a major international gateway, Manchester Airport supports more than 20,000 jobs, generating £1.4 billion in Gross Value Added (GVA) directly through its operations to the national economy. Indirect employment through the supply chain and in the wider economy increases the impacts substantially, to more than 90,000 jobs, and over £6.6 billion in GVA in 2022. Within the local authority area of Manchester City Council, there are more than 17,000 aviation jobs either directly employed on site at Manchester Airport or indirectly through the supply chain.
- 1.3 Operations at the Airport take place within the context of a comprehensive Corporate Social Responsibility (CSR) Strategy. The 'Working Together for a Brighter Future' Strategy is founded on three themes: 'Zero Carbon Airports', 'Opportunity for All' and 'Local Voices'. Recently, Manchester Airport was accredited as a Real Living Wage employer and the Airport's commitment to be a good employer is enshrined in an Employment Charter.
- 1.4 Recruitment is focussed locally with regular jobs fairs and support for those who have found it harder to enter the workforce. In 2022, a first Meet the Buyer event, raised £2.3 million for local suppliers, with a focus on small and medium sized enterprises. This will now become an annual event. The CSR Strategy can be viewed [\[here\]](#) and a summary of the 2022/23 annual CSR Report with can be found [\[here\]](#).
- 1.5 Recognising the high standards that are upheld, in 2023, Manchester Airports Group (MAG) retained a 5-star rating in the GRESB index, a global environmental social and governance (ESG) benchmark for infrastructure businesses. In addition, in May 2023, MAG became the first airport group to be named as one of the Financial Times 'Climate Leaders' three years in a row. Manchester Airport was certified as a carbon neutral operator in 2016 and the Airport is accredited to the Airport Carbon Accreditation Scheme at level 3+ "Neutrality". Responding to the challenge of climate change, the MAG CSR Strategy commits to move beyond carbon neutrality to achieve net zero emissions for airport operations (scopes 1 and 2) no later than 2038.
- 1.6 Addressing the climate impacts of flying requires cross-sector collaboration and MAG is at the heart of the industry's programme to reduce the climate impact of flying and, with industry partners, works closely with the Government to develop the policy framework necessary to support the drive to net zero. This includes participation in the Government's Jet Zero Council. MAG supports the national commitment to make domestic flights net zero by 2040, and the global and national commitments to make international flights net zero by 2050.

- 1.7 Building on previous reports to the Committee, this paper sets out the current position with respect to decarbonising both airport and aircraft emissions.

## **2 Airports and ground operations**

- 2.1 All MAG airports have maintained carbon neutral accreditation. They are accredited to the Airports Carbon Accreditation Scheme at Level 3+ “Neutrality”. MAG also continues to fully disclose airport emissions, with a detailed carbon account published annually as part of a suite of corporate reports.
- 2.2 Since committing to achieve carbon neutrality in 2007/8, emissions (scopes 1 and 2) have reduced by 88%, though the rapid increase in passenger numbers in 2022 resulted in a year-on-year increase in residual emissions (see Figure 1 below for full detailed breakdown). All residual emissions continue to be addressed by carbon off-setting. In 2022/23 MAG purchased independently verified Gold Standard carbon off-sets generated through a combination of solar energy and low carbon cookstove projects, which provide environmental and social benefits, including employment in Sri Lanka and Uganda where the projects are based.
- 2.3 As we progressively reduce residual emissions, working towards our goal of net zero, we are developing a programme that balances the use of renewable fuels, alongside targeted capital investment in new zero emission assets. The principal sources of residual emissions that require capital investment are gas-fired heating boilers and diesel-powered ground support vehicles. In defining the programme, we are targeting a rate of emissions reduction sufficient to reduce residual emissions by around half over the period 2019 to 2030. This emissions trajectory is consistent with climate science, and progress will be reported annually. With the benefit of this trajectory and supporting programme of works, in 2024 we intend to upgrade our Airports Carbon Accreditation to Level 4+.
- 2.4 Moving beyond operational emissions, the MAG CSR Strategy also commits us to better understand the embodied carbon associated with investments in airport infrastructure. Working with our supply chain we have developed a methodology that enables us to estimate these emissions. By applying this to our investment in the transformation of Terminal 2, we have determined that the principal sources of embodied emissions are structural steels, heating and ventilation systems, and concrete for flooring materials. Applying these findings to our capital programmes is leading us to explore innovative construction techniques, including prefabricated piling.
- 2.5 Working with partners through our Surface Access Forum, we continue to promote more sustainable transport modes to access the airport. Though patronage has recovered following the pandemic, the proportion of passengers using public transport has plateaued at around 20%, and our travel to work survey suggest many colleagues do not consider public transport provides a viable option.

2.6 We welcome the engagement we have with TFGM and public transport providers and, having established a surface access fund in 2022, we are investing approximately £500,000 to enhance local bus services, including providing a new local bus link to the airport, providing a new coach link to South Yorkshire and trialling a car share scheme. To support people into work, we have also worked with Stagecoach and Metrolink to provide four weeks' free travel for all new starters at the airport.

### **3 Aircraft emissions**

#### **3.1 The Decarbonisation Roadmap**

3.1.1 The decarbonisation of flights requires collaboration between all parts of the aviation and aerospace industries and MAG remains a Council member of Sustainable Aviation (SA), the industry coalition. In 2020, SA published the Decarbonisation Roadmap, which set out a pathway to net zero flights by 2050. The plan is founded on a combination of measures including the continued improvement of aircraft efficiency, the modernisation of airspace arrangements, the use of alternative fuels and addressing residual emissions through enduring carbon removals. Given the pace of change, in 2023, SA published an updated Decarbonisation Roadmap. In addition to reaffirming the industry's commitment to reach net zero emissions by 2050, the updated roadmap presents a more optimistic forecast in several areas, including:

- Take up of SAF is assumed to be substantially higher.
- Residual emissions at 2050 are forecast to be significantly lower.
- The introduction of hydrogen aircraft is expected from the mid-2030s.

##### Aircraft efficiency

3.1.2 The new generation of single aisle aircraft are now widely used across MAG's airports. These aircraft are typically 16% more efficient than the aircraft that they are replacing. Prior to the pandemic, UK aviation passenger numbers had increased by 25%, whilst over the same period emissions fell by 3%. This decoupling of growth and emissions has been driven by the progressive renewal of the aircraft fleet. The SA roadmap forecasts continued improvement, with aircraft technologies saving 20Mt of emissions per annum at 2050 (See Figure 2 below for the detailed breakdown of emissions to 2050).

3.1.3 Modernising airspace arrangements will allow aircraft to operate more efficiently, also reducing delays for passengers, and allowing more opportunities to reduce aircraft noise to be explored. All MAG airports have now passed the second of four of the Civil Aviation Authority's substantive 'gateway' approvals and are making good progress in defining future airspace arrangements. Manchester Airport is working closely with other airports including East Midlands, Leeds-Bradford and Liverpool, to optimise airspace arrangements across the North.

## Alternative fuels

- 3.1.4 In November 2023, Virgin Atlantic flew the first ever transatlantic flight using 100% SAF. Global production of SAF is building momentum and it is estimated that airlines have already committed \$45 billion in forward orders. By the end of the decade there will be 150 SAF production facilities around the world. Across the UK, work commissioned by SA suggests that by 2030 SAF production could support 10,000 new jobs and support £1.8 billion in GVA to the UK economy.
- 3.1.5 In the North West, we continue to work closely with Fulcrum Bio-Energy. Their proposal to develop a SAF production facility is proceeding well, and in 2023 it was announced that Jet2 have made an investment in the project. This UK facility will benefit from the technology at Fulcrum's first production facility, which is in the United States. It is encouraging that this facility is now operating commercially, producing SAF and that the learning from it will be assimilated and incorporated into the UK project.
- 3.1.6 One of the key enablers of the Fulcrum Bio-Energy project will be access to relatively large amounts of waste material, which will act as the feedstock for SAF production. Whilst SAF production will not affect the reuse or recycling of waste, upon completion of these priority processes relatively large volumes of residual waste material remains. For municipal waste, this residual material is often consigned to incineration with energy recovery. Within Greater Manchester, diverting some of this residual waste material to SAF production would both reduce the emissions from flights at Manchester Airport and make best value of the waste material. The Fulcrum Bio-Energy Team are engaging with the Greater Manchester Waste Disposal Authority to explore how SAF production might be accommodated within future waste strategy and waste tenders.
- 3.1.7 In addition to SAF, the SA Roadmap is informed by work that has been undertaken to assess the potential for hydrogen powered aircraft. When the 2020 iteration of the Roadmap was published, SA members felt there was insufficient confidence to take account of the potential savings from hydrogen aircraft in the Decarbonisation Roadmap, however, with the substantial progress that has now been made by the aircraft manufacturers, there is increasing confidence that commercial operations by hydrogen powered aircraft will begin in the 2030s and that, over several decades, hydrogen aircraft will make up an increasing proportion of flights.

## Carbon Removals

- 3.1.8 With the greater optimism set out in the 2023 SA Roadmap, the forecast for residual emissions from UK flights at 2050 has reduced substantially. When publishing the roadmap to net zero in 2020, SA forecast residual emissions of 26Mt. In the updated plan published in 2023, this forecast of residual emissions has reduced to 9Mt. These residual emissions will need to be addressed by the purchase of carbon credits in the form of durable and additional greenhouse gas removals, in line with best practice on net zero.

3.1.9 Though durable removals represent only a small proportion of carbon credits in today's carbon market, the situation is changing rapidly. The geology of the UK is particularly well suited to carbon sequestration and the Government is investing substantially to support the scale up of greenhouse gas removals (GGR). Analysis by SA shows that UK aviation can expect to access 19.3Mt CO<sub>2</sub> supply of GGRs by 2050 (1Mt CO<sub>2</sub> in 2030). As aviation is forecast to be one of the largest customers of GGR, the industry has a role to play in helping to stimulate supply of carbon credits and in the updated roadmap. To this end, SA members have announced their intention to bring forward an advanced market commitment. This would see the industry working together to agree the contractual future purchase of carbon credits at an agreed volume and price, supporting investment in new GGR capacity.

## **3.2 Policy**

3.2.1 Our last update to the Committee set out the global agreement that commits international aviation to achieving net zero emissions by 2050. This global agreement was an important development and is consistent with the UK position, as set out in the Government's Jet Zero Strategy. At an international level, work is ongoing to create the framework of agreements that will support the implementation of the net zero commitment and, as an important early step, in November 2023 the third Conference on Aviation and Alternative Fuels (CAAF/3) convened by the International Civil Aviation Organisation agreed to work towards a goal of a 5% reduction in carbon intensity by 2030, through the use of sustainable fuels.

3.2.2 In summer 2023, the Government brought forward a one year on review of the Jet Zero Strategy. The review reaffirmed the Government's commitments to make domestic flights net zero by 2040 and international flights net zero by 2050. Interim emissions targets set for 2030 and 2040 were also reaffirmed. Policy development by the UK Government is both influenced and supportive of actions put forward by the SA Roadmap.

3.2.3 The review highlighted the Government's continued investment in emissions reduction, including £165 million to support the production of sustainable aviation fuel (SAF), £9 million support to airspace improvements and £4.2 million to investigate airport readiness for the introduction hydrogen aircraft in the future. The Government targets five SAF production facilities under construction in the UK by 2025. Government's investment in sustainable aviation continues with a recent £10 million call for research bids to better understand aviation's non-CO<sub>2</sub> emissions and their mitigation, and a further £975 million investment in the Aerospace Technology Institute, to develop the cutting edge technologies that will support sustainable aviation.

3.2.4 The principal area of policy development reported in the review of the Jet Zero Strategy is the progress that has been made to support the use and UK production of SAF. In addition to the £165 million investment in UK SAF producers, a SAF mandate is being finalised. This will set a legally binding commitment that, by 2030, at least 10% of fuel used by UK flights must be SAF. The Government has also announced its intention to further support UK SAF

production by introducing a revenue certainty scheme, which will reduce the risk to those investing in SAF production.

3.2.5 Overall, the implementation of the Jet Zero Strategy is building momentum, supported by the work of the Jet Zero Council, a collaboration between Government and Industry. MAG is one of just two airports represented at the Council, and we have been pleased to support new sub-committees which will consider airport infrastructure requirements to support zero emission flights, non-CO<sub>2</sub> emissions from aircraft and the role of carbon removals. Underpinning the policy development led by Government is the continued efforts from industry to reach net zero through the SA Roadmap.

## **4 Engaging with stakeholders**

4.1 The Jet Zero Strategy commits the Government to making environmental information available to consumers at the point of booking and the Civil Aviation Authority (CAA) is undertaking work to consider consumer's interest in and access to information on aviation's environmental impacts. This work confirmed that consumers would like to see greater information on airline emissions, and it is expected that the CAA will bring forward proposals to allow consumers to see the emissions associated with their flight prior to booking, to inform their buying decision. MAG welcomes this work, which will ensure that consumers have clear, consistent and unambiguous information available to them.

4.2 To support the introduction of the Jet Zero Strategy, MAG announced five pledges, including a commitment to provide educational materials on the decarbonisation of flights. In 2023, the first of several planned education modules was launched. Delivered through the airports' on-site Aerozone education centres, this module provides an interactive experience that takes young people through the production process required to manufacture SAF. Further modules addressing different aspects of aviation decarbonisation are being developed and will be launched in 2024. Also in 2024, having engaged with several universities, we expect to commission several PhD research projects targeting specific aspects of aviation decarbonisation, fulfilling another of our Jet Zero commitments.

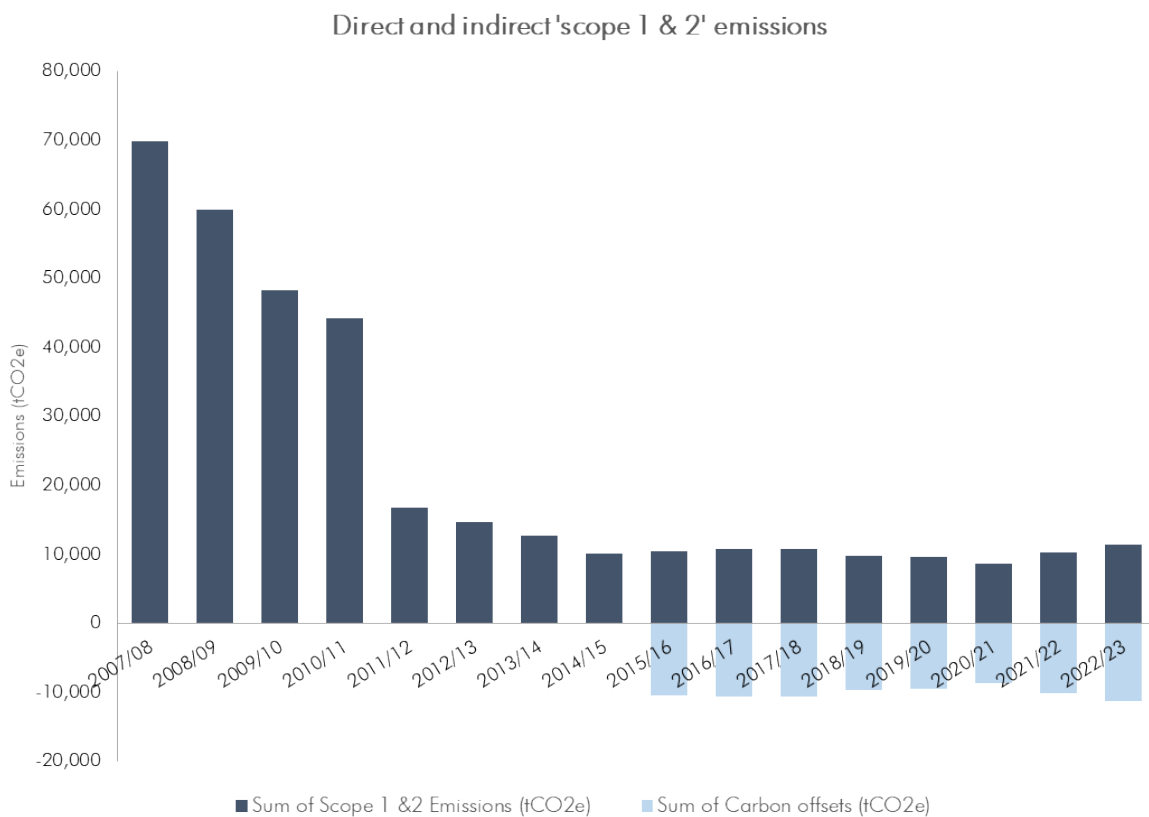
4.3 As part of SA, MAG and the wider industry is committed to engaging with stakeholders to provide education on how aviation will decarbonise. Across MAG this includes focussing the newly created Youth Forums at each airport on sustainability for the next year. The groups have recently held sessions with the Project Director of Fulcrum BioEnergy UK.

## **5 Conclusion**

5.1 Working within the context of the CSR Strategy 'Working Together for a Brighter Future', MAG is making good progress to meet its commitment to make its airport operations net zero no later than 2038. Through a balanced programme of renewable fuels and capital investment, emissions will be reduced by around half by the end of the decade.

- 5.2 The pathway to decarbonising flights requires continued improvements in the efficiency of aircraft operations, a transition to SAF and, for unavoidable emissions, access to durable carbon removals. The pathway is set out in the SA Decarbonisation Roadmap which, following the 2023 review and update, represents the most up to date assessment. By working in partnership with Government, through the Jet Zero Council, and its sub-committees, good progress is being made to develop the policy framework that will be necessary to achieve net zero flights.
- 5.3 The current policy priority remains the production of SAF, to meet the 2030 mandate and deliver emissions reductions with today's generation of aircraft. Regionally, there is a significant environmental and economic opportunity to develop a SAF cluster in the North West, and MAG is working closely with Fulcrum BioEnergy UK to help to secure the first SAF plant in the North West. This facility will benefit from a regional partnership, potentially including access to residual waste material generated by Greater Manchester.
- 5.4 MAG will continue to prioritise decarbonisation as a corporate priority and to provide regular reports and performance disclosures.

**Figure 1: Manchester Airport direct and indirect scope 1 & 2 emissions, 2007/8 – 2022/23**



**Figure 2: Sustainable Aviation Carbon Road-Map, detailing how the industry will achieve net zero carbon emissions commitment by 2050, reducing CO2 output from around 39 million tonnes to zero whilst still growing UK aviation by**

## Sustainable Aviation Carbon Road-Map: A path to Net Zero

