



Department
for Transport

JetZero

Aviation Decarbonisation

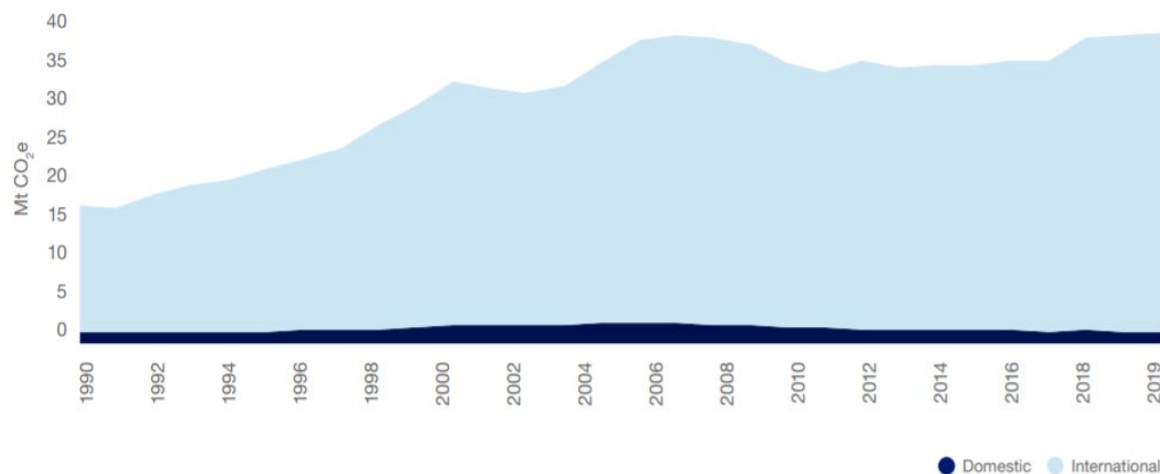
Delivering net zero aviation by 2050

June 2023

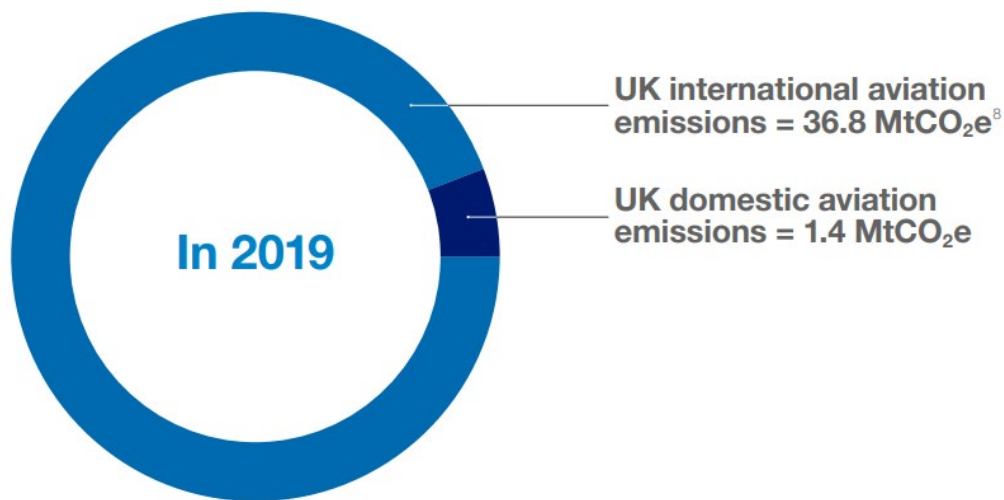
Decarbonising aviation is a significant challenge...

- UK aviation carbon dioxide emissions **more than doubled between 1990 - 2019**, reaching 38.2 MtCO₂e
- Aviation emissions are **not easy to address** - technological solutions have long lead-times and are at an early stage of development
- Aviation is expected to become one of **the largest residual emitting sectors** by 2050

UK Aviation Emissions 1990–2019⁵



Total UK aviation emissions in 2019

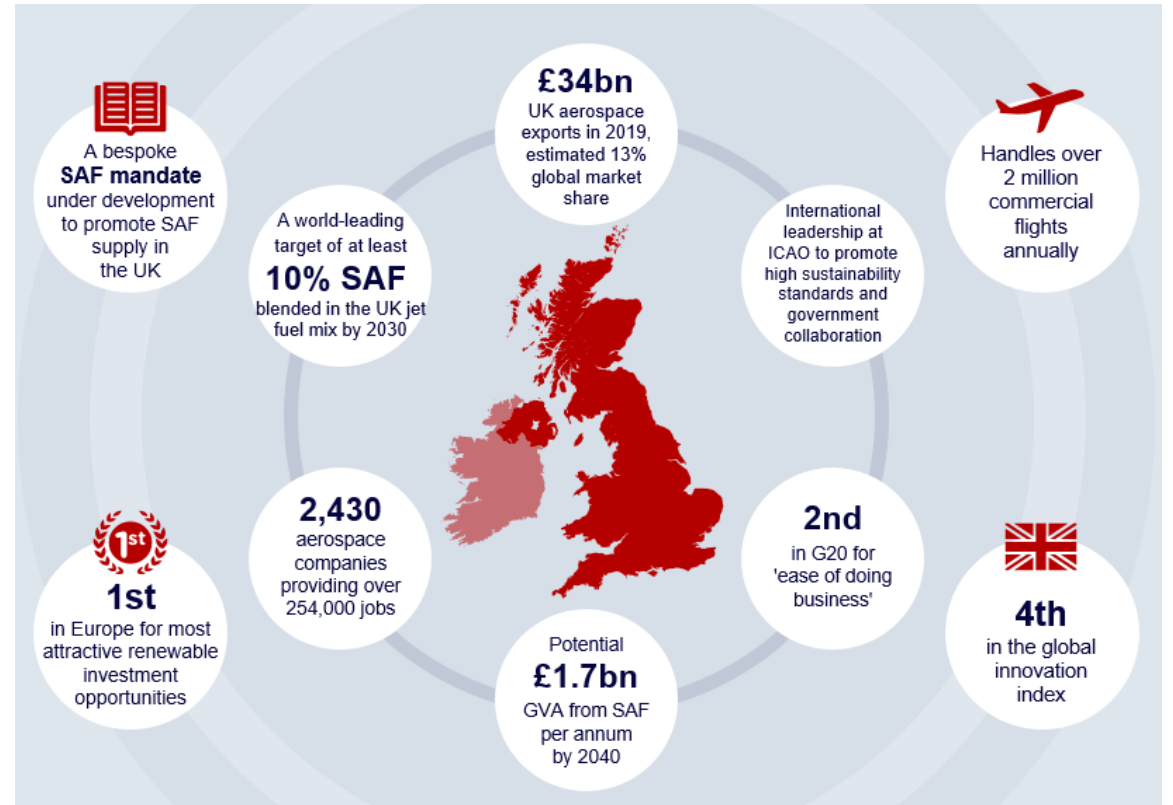


- The global nature of the sector means that international action is crucial in reducing aviation emissions - in 2019, **UK international aviation emissions accounted for 96% of total UK aviation emissions**
- If international ambition does not reflect the scale of the challenge, there may be limited domestic levers

...but presents

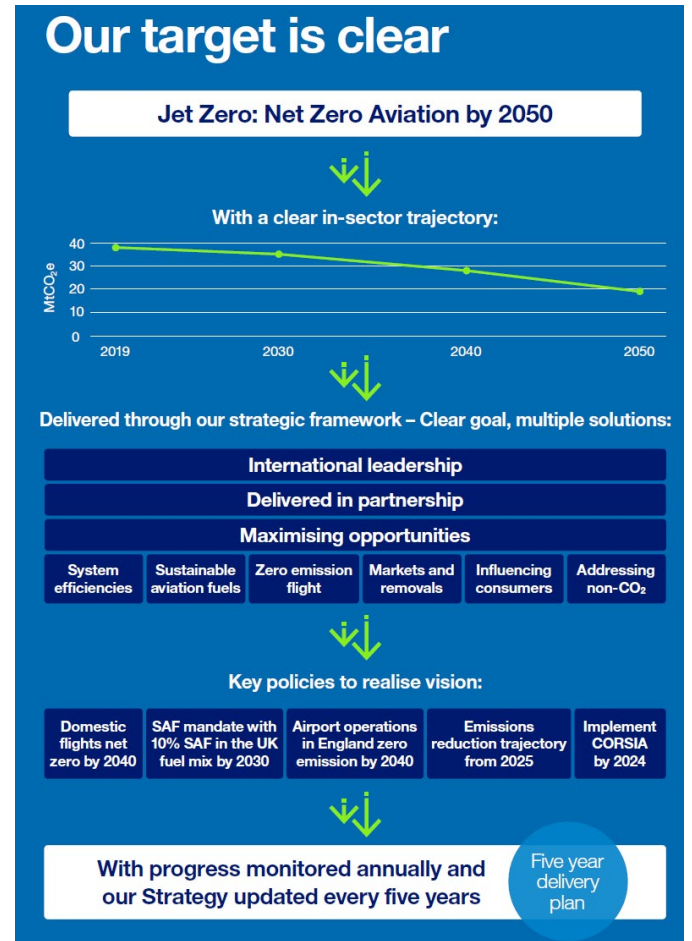
myriad opportunities

- The Jet Zero transition presents unique opportunities and will not only preserve the benefits of aviation but also unlock a significant prize.
- The transition to new fuels / powertrains represents a **significant industrial opportunity**
- For our world-class manufacturing sector, the transition provides the opportunity to develop **new low and zero emission aircraft technology**, with the potential to double aerospace's estimated contribution to the UK economy.
- Building a dynamic sustainable aviation fuels (SAF) industry brings opportunities to **employ people the length and breadth of the UK – supporting our levelling up agenda, whilst reducing our reliance on imported fuels.**



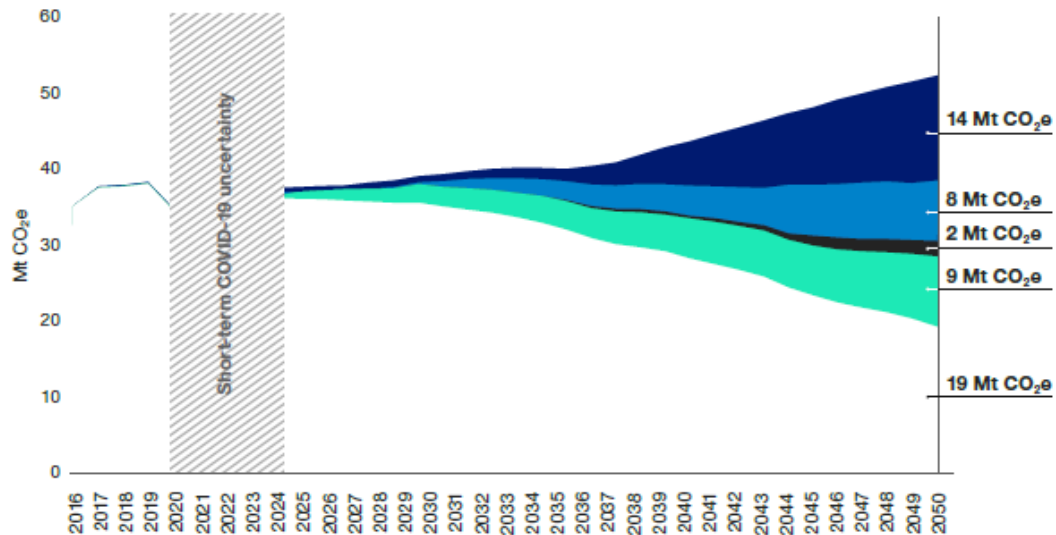
Our approach to decarbonise aviation is set out in the **Jet Zero Strategy**

- A commitment to achieve **net zero aviation emissions by 2050**
- Three overarching principles and six key measures
- An emissions reduction trajectory from 2025 to 2050 that sees **aviation emissions peak in 2019**
- 62 commitments including **2040 targets** for net zero domestic aviation, and zero emission airports and commitments to build a **UK SAF industry**

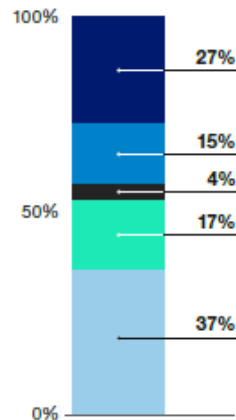


We will monitor progress against our emissions reduction trajectory...

Our High Ambition Scenario

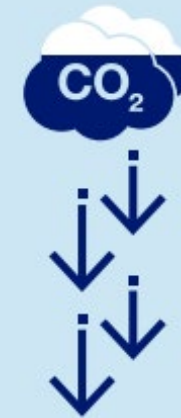


% abatement from each measure in 2050



● ETS and CORSIA ● Fuel efficiency improvements ● Zero Carbon Aircraft ● SAF ● Abatement outside aviation sector

In-sector interim targets



38.2 MtCO₂e in 2019
35.4 MtCO₂e in 2030
28.4 MtCO₂e in 2040
19.3 MtCO₂e in 2050

- Our “High ambition” scenario has in-sector interim targets and **fewer residual emissions in 2050 than pathways set by the Climate Change Committee**
- We have committed to more timely **reporting of aviation emissions** data from 2023 and will review progress against our trajectory from 2025.

International action is crucial

with a recent breakthrough comes opportunity to accelerate progress...

- At the 41st ICAO Assembly (27 Sept – 7 Oct) the UK played a key role in adoption of **new long-term goal for the sector of net zero by 2050**, aligning it with the Paris Agreement for the first time. The focus now turns to international measures to deliver the goal.
- We also **defended and strengthened ICAO's existing global offsetting scheme** – the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA).



- A key risk of the UK acting alone is that emissions simply move elsewhere, impacting the UK's **competitiveness** without reducing overall emissions – **carbon leakage**.
- This is particularly true in such an **inherently international** sector as aviation.
- International approaches can mitigate these risks, and also allow us to **influence many more emissions** than those over which we have direct control.

...building on our well-established

International leadership



- We are funding the CAA to **build the capacity** of other governments to implement the CORSIA offsetting scheme, starting with six east African states and jointly delivered with Kenya.

We are now considering expanding this to other states in 2023-24 and to cover sustainable fuels

- We established the **International Aviation Climate Ambition Coalition** to support strong outcomes from the ICAO Assembly. Launched under the UK Presidency of **COP26** in Glasgow, it has since grown to 60 member states from around the world.
- We also formed the **SAF Ambassadors** group of six governments working with the World Economic Forum to support worldwide SAF deployment.

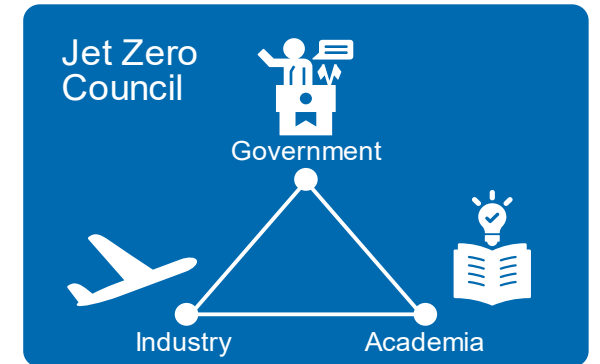
We are working on advice on the future of both these initiatives

- We attended **COP27** in Sharm el-Sheikh and spoke at various stakeholder-organised aviation events to promote the UK's recent success.
- We will shortly start scoping our input to COP28 next year in the UAE.

...we have put emphasis on

delivering through partnerships...

- Achieving Jet Zero requires all parts of the sector to work together to develop, test, implement, and invest in the solutions we need.
- In July 2020, **we established the Jet Zero Council (JZC)**, a partnership between government and industry with the aim of delivering at least 10% SAF in the UK fuel mix by 2030 and zero-emission transatlantic flight within a generation and this work is supported by two delivery groups.
- The Council has been **jointly chaired by the Transport, Energy & Net Zero and Business & Trade Secretaries and supported by Junior Ministers**. Ministers are supported by an industry CEO, Emma Gilthorpe (Chief Operating Officer at Heathrow Airport).
- The JZC complements existing industry partnerships and initiatives:
 - Sustainable Aviation
 - Civil Aviation Authority
 - Aerospace Growth Partnership
 - Airspace Change Organising Group
 - Aerospace Technology Institute (ATI)



...and we want to ensure that decarbonisation will

maximise UK opportunities

- We will use the transition to SAF to build a new UK SAF industry, **providing £180 million of new funding between 2022-2025** to support the development and commercialisation of UK SAF which could **support up to 5,200 UK jobs, a GVA of up to £2.7bn from UK production and global exports by 2035, and many more in the years to come.**
- We will continue to invest in our world-leading aerospace sector through the ATI programme where the Government has committed to providing **£685m of (BEIS) funding over the next three years.** There is huge opportunity in aerospace, with **39,000 new aircraft to be built over the next 20 years**, worth nearly \$3tn and we will seek to capitalise on these opportunities.



We have set out a suite of policies across six key measures...



System efficiencies

Improving the efficiency of our existing aviation system: our aircraft, airports and airspace.

Our ambition is for all airport operations in England to be **zero emission by 2040**.

Huge aerospace opportunity, with **39,000 new aircraft** to be built over the next 20 years, worth nearly **\$3tn**.



Sustainable aviation fuels

We will be providing **£180m of funding** to support a UK SAF industry. We have committed to having at **least five UK SAF plants under construction by 2025** and a SAF mandate in place with a target of at **least 10% SAF in the UK fuel mix by 2030**.

A UK SAF industry could potentially support up to **5,200 UK jobs**.



Zero emission flight

We are supporting aerospace R&D with **£685m funding** over the next three years.

Our aspiration is to have **zero emission routes** connecting different parts of the United Kingdom by 2030.

Rapid investment in hydrogen aviation could see **60,000 jobs** working on zero-carbon aircraft by 2050.



Markets and removals

We are working with the UK ETS Authority to enhance the ambition and effectiveness of the **UK Emissions Trading Scheme (UK ETS)**.

We plan to legislate for the long-term approach to **Carbon Offsetting and Reduction Scheme for International Aviation (CORSA)** no later than 2024, establishing the relationship between UK ETS and CORSA.



Influencing consumers

We want to **preserve the ability for people** to fly whilst supporting consumers to make sustainable aviation travel choices.

We will work with the Civil Aviation Authority to **publish a Call for Evidence** on our proposal to provide consumers with environmental information at the time of booking flights.



Addressing non-CO₂

Tackling the climate impact of aviation is not just about reducing CO₂ emissions, there are other non-CO₂ impacts that also affect the climate and local air quality.

Our focus is to **increase our understanding of non-CO₂ impacts** as the exact scale of their effect remains uncertain.

Summary of next steps

Summer 2023

Launch the UK SAF Clearing House

Announce the winners of the second application round of the Advanced Fuels Fund

Further progress the consideration of revenue certainty options for supporting the development of a UK SAF industry. If required, following further engagement, we will launch a formal government consultation this summer

Autumn 2023

Ninth meeting of the Jet Zero Council

October 2023

Respond to the CCC's 2023 progress report aviation recommendations

November 2023

Negotiate to secure strong outcomes from the ICAO 3rd Conference on Aviation Alternative Fuels (CAAF/3)

By the end of 2023

Publish the government response to the second SAF mandate consultation

Support Virgin Atlantic to successfully operate the world's first transatlantic flight on 100% SAF, from London to New York

2024

Consult on our proposals for implementing the Zero Emission Airport Target

All legislation for CORSIA in place

Publish a second consultation on implementing CORSIA in the UK, including its interaction with the UK ETS

Analyse responses to the Zero Emission Airport Target Call for Evidence and publish the Government response

Work with the CAA to consult on environmental information provision

Launch a Call for Evidence on our target for domestic aviation to reach net zero by 2040

2026

Implement Free Route Airspace over London and the Southeast

2027

First review of the overall strategic approach set out in the Jet Zero Strategy

2025

First review of progress against our emissions reduction trajectory

Implement Free Route Airspace across the Midlands

At least five commercial-scale UK SAF plants under construction

UK SAF mandate introduced