



## Jet Zero Council – Fourth Meeting

15:00 – 16:00, Monday 06<sup>th</sup> December 2021

### Virtual Meeting

#### Attendees

##### Ministerial Attendance

- Rt Hon Grant Shapps MP, Secretary of State for Transport, Joint Chair
- Rt Hon Kwasi Kwarteng MP, Secretary of State for Business, Energy, and Industrial Strategy, Joint Chair
- Lee Rowley MP, Parliamentary Under Secretary of State for Business and Industry
- Robert Courts MP, Parliamentary Under Secretary of State for Transport
- Trudy Harrison MP, Parliamentary Under Secretary of State for Transport

##### Jet Zero Council CEO

- Emma Gilthorpe, Chief Operating Officer, Heathrow Airport

##### Member attendance

- Anna Mascolo, President of Global Aviation, Shell – joined by Jan Toschka; due to replace Anna Mascolo as President of Global Aviation, Shell
- Chris Gadsden, Director of Government Affairs – deputising for Johan Lundgren, Chief Executive Officer, easyJet
- Colin Tattam, Application Director – deputising for Dr Alicia Greated, Chief Executive Officer, Innovate UK KTN
- Dom Hallas, Executive Director, The Coalition for a Digital Economy
- Gary Elliott, Chief Executive Officer, Aerospace Technology Institute
- Iain Gray, Director of Aerospace, Cranfield University
- Jacqueline de Rojas CBE, President, techUK
- Jennifer Holmgren, Chief Executive Officer, LanzaTech
- John Holland-Kaye, Chief Executive Officer, Heathrow
- Jonathan Hinkles, Chief Executive, LoganAir
- Jonathon Counsell, Group Head of Sustainability, International Airlines Group (and Jet Zero Council Sustainable Aviation Fuels Delivery Group Chair)



- Kyle Martin, Vice President, European Affairs, General Aviation Manufacturers Association
- Lincoln Taylor OBE, Air Vice-Marshal – deputising for Sir Mike Wigston KCB CBE ADC, Air Chief Marshal, Royal Air Force
- Louise Kingham OBE, UK Head of Country and Senior Vice President for Europe, bp
- Malcom Sutherland, Managing Director, TUI Airways
- Sir Martin Donnelly, President, Boeing Europe and Managing Director of Boeing U.K and Ireland
- Neville Hargreaves, Vice President, Waste to Fuels, Velocys
- Dr Nina Skorupska CBE, Chief Executive, The Association for Renewable Energy and Clean Technology
- Paul Stein, Chief Technology Officer, Rolls-Royce
- Peter Littlewood, Executive Chairman, The Faraday Institution
- Richard Moriarty, Chief Executive Officer, Civil Aviation Authority
- Russ Dunn, Chief Technology Officer and Head of Strategy, GKN Aerospace
- Sean Doyle, Chief Executive Officer, British Airways
- Shai Weiss, Chief Executive Officer, Virgin Atlantic
- Tim Hawkins, Chief Strategy Officer – deputising for Charlie Cornish, Group Chief Executive, Manchester Airports Group
- Tim Johnson, Director, Aviation Environment Federation
- Tony Wood, Chief Executive, Meggitt and ADS President
- Trevor Higgs, Vice President, Head of Engineering and UK General Manager – deputising for Julie Kitcher, Executive Vice President Communications and Corporate Affairs, Airbus
- Trevor Woods, Independent Consultant
- Val Miftakhov, Chief Executive Officer, ZeroAvia

Department for Transport official attendance

- Holly Greig, Deputy Director, Aviation Decarbonisation Division
- Rachel Solomon Williams, Deputy Director, Low Carbon Fuels

Department for Business, Energy and Industrial Strategy official attendance



- Paul Griffiths, Head of Aerospace Team

#### Additional Attendees

- Chris Gear, Project Director, FlyZero
- Jet Zero Council Secretariat
- Ministerial Private Secretaries

#### Apologies

- Andrew Griffith MP, UK Net Zero Business Champion
- Baroness Brown Julia King DBE FREng FRS, Crossbench Member of the House of Lords (and Jet Zero Council Adviser)

#### **Actions**

- Professor Iain Gray, Director of Aerospace, Cranfield University to provide an update at the next Council meeting with an academic overview of the technical challenges facing the different pathways towards net-zero aviation.
- The Jet Zero Council CEO to reach out to members in early 2022 to discuss priorities for the coming year.

#### **Summary of Meeting**

- The Secretary of State for Business, Energy and Industrial Strategy (BEIS) reflected upon the significant milestones since the third meeting of the Jet Zero Council (JZC) including COP26, the Spending Review and its relevant corresponding funding announcements, the volume of recent positive industry updates, and the progress of the FlyZero project.
- JZC representatives from ZeroAvia, easyJet and British Airways summarised recent activities that support the ambitions of the Council.
- There were also updates on the Zero Emissions Flight (ZEF) workstream and from the Sustainable Aviation Fuels (SAF) Delivery Group (DG) Chair.



## Readout

### 1. Opening remarks, actions from last meeting

The Secretary of State for Business, Energy and Industrial Strategy (BEIS) reflected on the key achievements since the last meeting, including the [partnership](#) announced at the Global Investment Summit between Bill Gates and the UK Government, the £10 million committed to support the development of technologies in carbon capture and storage (CCS) and offshore wind, the Government's [Net Zero Strategy](#), and commented on the outcome and implications of the Comprehensive Spending Review (CSR) on the Jet Zero agenda. He also highlighted the progress made at COP26 and the need to drive further ambition ahead of COP27.

### 2. Industry updates and challenges

The JZC CEO welcomed Sir Martin Donnelly, President of Boeing Europe and Managing Director of Boeing UK and Ireland, as a new member. She also thanked Anna Mascolo, President of Global Aviation, Shell who would be succeeded by Jan Toschka.

The JZC CEO highlighted key industry achievements including the Aerospace Technology Institute's (ATI) pioneering [concept](#) for a liquid hydrogen aircraft and the funding confirmation for the Green Fuels, Green Skies (GFGS) competition.

Council members updates:

- Val Miftakhov, Chief Executive Officer, ZeroAvia, highlighted ZeroAvia's aim of developing the "world's first" hydrogen fuel-cell powered commercial aircraft. ZeroAvia expected to demonstrate a 19-seater hydrogen powered aircraft by 2024 and a 100-seater aircraft within a decade.
- Chris Gadsden, Director of Government Affairs, easyJet, gave an overview of their recent work to remove carbon from airport turnarounds at Bristol Airport using electric equipment. easyJet were also looking at hydrogen-powered equipment and hydrogen distribution at airports.
- Sean Doyle, Chief Executive Officer, British Airways, gave an overview of their 'Perfect Flight' which took place in September 2021. This pioneered the use of a 35% SAF blend, data optimization and efficient flight paths. CO<sub>2</sub> emissions were reduced by 62%, with remaining emissions being offset. BA had also signed a partnership with Phillips 66 to supply SAF from their refinery in Humber, North Lincolnshire in the following year.

### 3. Zero Emission Flight update

Gary Elliott, Chief Executive Officer, ATI, said that the ATI were investing in a range of solutions to decarbonise the sector to give the UK the best chance of success to meet its net-zero ambitions. He highlighted the opportunity for the UK to lead in this area following the CSR and extension of the ATI Programme to 2031.

Chris Gear, Project Director, FlyZero, provided an overview of the FlyZero project's progress on identifying the most viable options for ZEF and flagged that three concept aircraft designs would be proposed in the following year. Chris suggested



that SAF would be the most important solution in the short to medium term, with hydrogen needed in the long-term, and that by 2035, hydrogen aircraft could be directly competing with conventional kerosene powered aircraft, but investment in the infrastructure would be fundamental in making this viable. He stated that hydrogen had the potential to support 50,000 jobs in aviation by 2050, alongside a further 60,000 indirect jobs.

Key discussion points included:

- The enormous progress on hydrogen production technologies and the policies around them. However, Council members flagged consumer acceptance needs to be considered during commercialisation.
- The need to focus on SAF in the near-term, alongside other longer-term solutions. Council members flagged the need to ensure the wider ecosystem of manufacturing and distribution of fuels, including green hydrogen and Power to Liquids (PtL) SAF was also supported.
- The investment needed to turn innovative ideas into reality. Council members flagged the reduction of emissions throughout the aircraft maintenance process is a commonly overlooked area. Boeing are working to address this by opening a 'green hanger' at Gatwick airport.
- Professor Iain Gray, Director of Aerospace, Cranfield University offered to provide an overview of the academic work on Jet Zero at the next Council meeting.

#### **4. Sustainable Aviation Fuel update**

Jonathon Counsell, Group Head of Sustainability, International Airlines Group (and Jet Zero Council Sustainable Aviation Fuels Delivery Group Chair), provided an overview of the SAF Delivery Group's priority areas.

He outlined the good feedback he received on a comprehensive SAF Mandate consultation and was pleased to see the Government's £180 million of new funding for the development of UK SAF plants. He was keen for 100% SAF use to be approved within the next few years.

Jonathon said that a mandate would be critical, but it would not be sufficient on its own and a price stability mechanism would also be needed. He added that industry consultant Nic Rigby had highlighted that £10 billion of finance would be needed to build plants by 2030.

He summarised progress made at COP26: BA conducted 498 flights with a SAF blend and easyJet carried out 42 flights with SAF.

Rachel Solomon Williams, Deputy Director, Low Carbon Fuels, Department for Transport, said that the Department was completing the review of SAF mandate consultation responses. She noted all winning projects from the Green Fuels, Green Skies competition were underway. She thanked industry for funding Nic Rigby's secondment into her team.



Key discussion points included:

- The need for cross-Government work to ensure the use of waste for SAF was prioritised, but it was flagged that Government did not want to lock in waste streams that should be avoided in the first place.
- Council members suggested the biggest challenges would be the scaling up of SAF production and commercialisation, rather than technological innovation. There were real opportunities in Power to Liquids, but cost-effective renewable energy would be key.
- Council members said that finding new pathways to SAF production would be a huge global industry that the UK would need to be part of, with a high level of interest already being expressed from the agricultural sector.
- The Secretary of State for Transport said that getting the market prepared for the delivery of SAF is the most important task and he appreciated that the Government had a significant role in that.

#### **5. Closing remarks & AOB**

The Secretary of State for Transport summarised the achievements since the third meeting of the Council, highlighting the steps made towards hydrogen aircraft, the commitment of the International Air Transport Association (IATA) representing 290 airlines to Net Zero by 2050, COP26 which acted as a building block towards the International Civil Aviation Organisation (ICAO) Assembly in the following year, and the launch of a SAF policy toolkit. The UK could be proud of its contribution to the global effort, but it needed to lead on this work, particularly getting SAF plants up and running in the UK.

He concluded by stating that work was ongoing to formalise the ZEF Delivery Group, which would consider the infrastructure, regulation and commercial support required for ZEF. The Department would be publishing the response to the Jet Zero Consultation in the following year.