

UK hydrogen alliance established to accelerate zero carbon aviation and bring an £34bn* annual benefit to the country

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- The Hydrogen in Aviation (HIA) alliance of major players across aviation will work to accelerate the delivery of zero carbon aviation
- The UK is currently in a strong position to become a global leader in hydrogen-powered aviation, but further steps must be taken to capture the opportunity, secure long-term employment and economic benefits, as well as meet critical decarbonisation targets.
- HIA aims to assist Government and policymakers by mapping out the milestones to ensure infrastructure, regulatory and policy changes keep pace with the ground-breaking technological developments in carbon-free flying
- It is critical that the supply of hydrogen, and the infrastructure needed to support zero carbon flying, are prioritised if the significant social and economic benefits of flying are to be preserved
- New research shows that 81% of the British public believe hydrogen is the best option to decarbonise aviation with 91% supporting the UK government investing in hydrogen production and use in the aviation sector.

London, 5 September 2023 – A group of leading companies in the UK aviation and renewable energy sectors including easyJet, Rolls-Royce, Airbus, Ørsted, GKN Aerospace and Bristol Airport, have today established the Hydrogen in Aviation (HIA) alliance to accelerate the delivery of zero carbon aviation. HIA will work to ensure the UK capitalises on the huge opportunity hydrogen presents to both the aviation industry and country as a whole.

While there are various options for decarbonising the aviation sector, including sustainable aviation fuels (SAF), synthetic fuels or batteries, HIA believes that more attention should be paid to the potential of the direct use of hydrogen.

Hydrogen is a very promising alternative-fuel option for short-haul aviation. Airbus is developing new hydrogen powered aircraft with the aim of entering commercial service from 2035 and Rolls-Royce has already proven that hydrogen could power a jet engine following successful ground tests in 2022. Furthermore, many smaller operators are making rapid progress on hydrogen-powered aircraft, notably ZeroAvia and Universal Hydrogen who have already carried out flight tests.

The group will be drawing on their considerable expertise to propose a clear and deliverable pathway to achieving hydrogen-powered aviation. HIA will work constructively with Government, local authorities, and the aviation and hydrogen sectors to enable the UK to fulfil its potential as a global leader in this critical application of hydrogen technology. This will include setting out the pathway for scaling up the infrastructure and the policy, regulatory and safety frameworks needed so that large scale commercial aviation can become a reality.

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The alliance will set out that Government needs to be focused on three key areas which are; supporting the delivery of the infrastructure needed for the UK to be a global leader; ensuring the aviation regulatory regime is hydrogen ready; and transforming the funding for hydrogen aviation R&D support into a 10 year programme, if the UK is to see the economic benefits and meet decarbonisation targets.

Johan Lundgren, CEO of easyJet and first Chair of HIA, said:

“There is no doubt that the UK has the potential to become a world leader in hydrogen aviation, which could bring with it a £34bn per annum boost to the country’s economy by 2050, but in order to capture this opportunity, rapid change is needed and the time to act is now.

“We must work together to deliver the radical solutions required for a hard to abate industry like aviation so we can protect and maximise the benefits that it brings to the UK economy and society and that we know British consumers want to be preserved.

“HIA looks forward to working with the UK Government to ensure the right funding, regulatory and policy changes are implemented to accelerate the delivery of zero carbon aviation.”

Grazia Vittadini, Chief Technology Officer at Rolls-Royce, said:

“Collaboration is key when it comes to achieving our net zero ambitions as an industry, which is why we are proud to be part of the Hydrogen in Aviation Alliance. Our contribution to HIA is the capability and experience we have in pioneering new technologies and solutions - we have already tested a modern aero engine on green hydrogen and we strongly believe it is one of the solutions that will help decarbonise aviation in the mid to long-term.”

Sabine Klauke, Chief Technology Officer at Airbus said:

“As Airbus continues to mature the aircraft technologies needed to deliver hydrogen-powered flight, a united industry voice is needed to secure a robust ecosystem of renewably-sourced hydrogen. Joining our peers from across the UK aviation landscape in a targeted approach to policy and investment action brings us closer to a decarbonised future of flying.”

Olivia Breese, Senior Vice President and Head of Power-to-X for Ørsted, commented:

“Ørsted is fully committed to renewable hydrogen as a key solution to defossilise hard-to-electrify sectors such as aviation. Our long experience in developing and deploying new technologies has taught us that collaboration across policy makers, developers, customers and supply chain - and considerable investment from each of them – is critical to bring down costs and drive a new sector to scale. Alliances such as the HIA are essential to bring together different actors across the value chain to support and accelerate the role hydrogen can, and must, play in the UK.”

Hydrogen is key to UK industry, jobs and net zero ambitions:

Experts suggest that hydrogen powered aviation will not only be critical in delivering net zero, but also provide a significant boost to the UK economy.

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The DfT's Jet Zero Strategy states that rapid investment in hydrogen aviation could see the UK securing 60,000 new jobs and recent projections from Hydrogen UK** predicts that hydrogen could contribute to £18bn GVA and help meet up to 50% of our energy demand by 2050.

The rate of research and development within the UK means that the aviation sector is already in an advanced position to take advantage of this significant opportunity. For instance, last year saw the first ground test of a fully hydrogen-powered jet engine and the first hydrogen powered narrow-body aircraft is expected to be ready for short-haul flights across the UK and Europe by 2035.

The benefits of hydrogen-powered flight are many and varied:

Decarbonising aviation is a significant challenge which will require the successful deployment and implementation of multiple technologies and approaches, including SAF, as well as hydrogen. However, the use of hydrogen (particularly green hydrogen) has potential as an aircraft fuel as it produces no carbon emissions, compared to other technologies.

It will help to preserve an industry that is a key part of our economy. The UK aviation industry contributes more than £22bn directly to GDP, plus £34 bn from exporting aerospace components. The industry directly employs over 230,000 people.

Investing in hydrogen will also help to preserve the social benefits of flying, continuing to connect consumers to business, loved ones and new destinations.

And lastly it will create jobs. In terms of hydrogen, a consultation from the government in 2021*** revealed that developing a UK hydrogen economy could support over 9,000 jobs by 2030 – and up to 100,000 jobs by 2050 – across our industrial heartlands and across the UK.

The UK is in a strong position to lead the global roll-out of hydrogen in aviation. If we maximise this potential we can transition and upskill existing workforces, whilst creating thousands more jobs through exporting UK-made technologies and knowledge.

The public support for hydrogen in the UK is strong:

New research**** of consumer attitudes towards zero-carbon emission solutions has revealed that 81% of the British public believe that hydrogen is the best option to decarbonise aviation. Four in 10 think it's the most important factor while a similar number say they understand it will take hydrogen combined with other solutions such as Sustainable Aviation Fuel and Direct Air Carbon Capture (DACC) to reach net zero.

The overwhelming majority of Brits (91%) would support the UK government investing both in hydrogen's production and use in the aviation sector, and a similar proportion (89%) think that the use of hydrogen should be prioritised for hard to abate sectors like aviation. The nationwide study of 2,000 Brits conducted by HIA founding member easyJet, revealed that half 50% of those surveyed wanted to see the ability to travel the world protected and almost three quarters (71%) are excited to fly on hydrogen planes in the future.

A third also said they believed the aviation sector plays a critical role in helping boost the UK's economy, while a fifth of people (20%) agree the sector plays a critical role in people's

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livelihoods and 92% agree there is a potential to create many new jobs across the UK if the government invests more into new zero carbon industries and 87% are excited for the economic potential of a new sustainable energy economy.

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Notes to editors:

References:

* The Jet Zero council has projected that rapid investment in hydrogen aviation could see the UK securing up to 19% global aerospace industry share of a benefit valued at £178bn per annum in 2050, which means this could generate around 34bn per annum for the UK.

**According to research from Hydrogen UK

*** [UK government launches plan for a world-leading hydrogen economy - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/uk-government-launches-plan-for-a-world-leading-hydrogen-economy)

****The consumer research was conducted by 3gem among 2,000 UK households in August 2023

About HIA members:

About Airbus

Airbus pioneers sustainable aerospace for a safe and united world. The Company constantly innovates to provide the most efficient and technologically-advanced solutions in aerospace, defence, and connected services. In commercial aircraft, Airbus offers the most modern and fuel-efficient airliners. Airbus is also a European leader in defence and security and one of the world's leading space businesses. In helicopters, Airbus provides the most efficient civil and military rotorcraft solutions worldwide.

About Bristol Airport

Bristol Airport is England's third largest airport outside of London, connecting our region with more than 120 destinations, including vital economic links to European cities and parts of the UK that cannot be easily reached by train. We have taken a leading position on sustainability, aiming to be the first airport in the country to achieve net zero carbon operations by 2030. Our operations were independently accredited as being carbon neutral in 2021, four years ahead of our target.

About easyJet

easyJet is Europe's leading airline offering a unique and winning combination of the best route network connecting Europe's primary airports, with great value fares and friendly service.

easyJet flies on more of Europe's most popular routes than any other airline and carried more than 69 million passengers in 2022 – with 9.5 million travelling for business. The airline has

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over 300 aircraft on nearly 1000 routes to more than 150 airports across 35 countries. Over 300 million Europeans live within one hour's drive of an easyJet airport.

easyJet aims to be a good corporate citizen, employing people on local contracts in eight countries across Europe in full compliance with national laws and recognising their trade unions. The airline supports several local charities and has a corporate partnership with UNICEF which has raised over £16m for the most vulnerable children since it was established in 2012.

The airline joined the UN-backed Race to Zero in November 2021 and has published its roadmap to net zero carbon emissions by 2050, with a focus on new technology and the ultimate ambition to achieve zero carbon emission flying across its entire fleet, which the airline is working on together with its partners including Airbus, Rolls-Royce, GKN Aerospace and Cranfield Aerospace Solutions. The roadmap also features a combination of fleet renewal, operational efficiencies, airspace modernisation, Sustainable Aviation Fuel and carbon removal technology. Additionally, it includes an interim carbon emissions intensity reduction target of 35% by 2035 (versus 2019). Since 2000, the airline has already reduced its carbon emissions per passenger, per kilometre by one-third through continued fleet renewal, efficient operations and aiming to fill most of its seats.

Innovation is in easyJet's DNA – since launching over 25 years ago, easyJet changed the way people fly to the present day where the airline leads the industry in digital, web, engineering and operational innovations to make travel more easy and affordable for its passengers.

About GKN Aerospace

GKN Aerospace is the original aerospace innovator. For decades, GKN Aerospace technologies have inspired and industrialized the aerospace industry, combining engineering excellence and technology leadership.

Today we are truly global, with 15,000 employees in 38 manufacturing locations in 12 countries around the world. All major aircraft and engine manufacturers rely on our advanced technologies. Our aerostructures, engine systems and special products improve the performance of more than 100,000 flights every day.

By working closely together with universities, knowledge institutes, suppliers and customers, we lead the industry in developing new technology to improve aircraft efficiency: lowering aircraft cost, weight and emissions.

We set the standard in highlighting the unlimited possibilities of additive manufacturing (AM) for the aerospace industry and are currently at the cutting-edge of technology leadership worldwide. Today, GKN Aerospace has five global centres of excellence that enable the most advanced aircraft to take to the sky with ground-breaking AM components.

GKN Aerospace's operational excellence and high volume production capabilities are now driving the global development towards more automation, higher performance and smart industry solutions. The result is shorter production lead times and more affordability for our global customers.

Every day, around the world, we help aircraft fly further, faster and greener.

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About Rolls-Royce Holdings plc

Rolls-Royce develops and delivers complex power and propulsion solutions for safety-critical applications in the air, at sea and on land. Our products and service packages enable our customers to connect people, societies, cultures and economies together; they meet the growing need for power generation across multiple industries; and enable governments to equip their armed forces with the power required to protect their citizens.

Rolls-Royce has customers in more than 150 countries, comprising more than 400 airlines and leasing customers, 160 armed forces and navies, and more than 5,000 power and nuclear customers. We are committed to making our products compatible with net zero carbon emissions to meet customer demand for more sustainable solutions.

The annual underlying revenue was £12.69 billion in 2022, and the underlying operating profit was £652m.

Rolls-Royce Holdings plc is a publicly traded company (LSE: RR., ADR: RYCEY, LEI: 213800EC7997ZBLZJH69)

About Ørsted

The Ørsted vision is a world that runs entirely on green energy. Ørsted develops, constructs, and operates offshore and onshore wind farms, solar farms, energy storage facilities, renewable hydrogen and green fuels facilities, and bioenergy plants. Ørsted is recognised on the CDP Climate Change A List as a global leader on climate action and was the first energy company in the world to have its science-based net-zero emissions target validated by the Science Based Targets initiative (SBTi). Headquartered in Denmark, Ørsted employs approx. 8,700 people. Ørsted's shares are listed on Nasdaq Copenhagen (Orsted). In 2022, the group's revenue was DKK 132.3 billion (EUR 17.8 billion). Visit orsted.com or follow us on [Facebook](#), [LinkedIn](#), [Instagram](#), and [Twitter](#).

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