

ishka View **EXTRA** ESG AND SUSTAINABLE AVIATION

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This is the ninth in a series of supplements delivering ‘The Ishka View’ on aviation’s Environmental, Social, Governance (ESG) and other Sustainability developments, including regulatory changes, green finance, sustainable aviation fuel (SAF), hydrogen propulsion, and other decarbonisation efforts.

This September 2023 issue covers developments during July and August 2023. Ishka Insights subscribers can access more regular updates through the weekly *ESG Five* series.

ESG issues permeate every aspect of aviation finance and the industry’s long-term strategies have a duty to improve in all three areas. At the same time, the worsening climate crisis has made environmental sustainability a key priority. The global share of greenhouse gas (GHG) emissions from flying has increased steadily, with global aviation emissions doubling since the mid-1980s. The industry has a responsibility to reduce its environmental impact whether through technological innovation and voluntary decarbonisation commitments, or regulator-led initiatives like green finance taxonomies, SAF mandates, taxes, or emissions criteria.

For feedback and news tips, please email eduardo@ishkaglobal.com.

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KEY TAKEAWAY: IN EUROPE, A SUMMER OF AVIATION TAX DEMANDS

THE ISHKA VIEW

- The French government's latest plans to increase air ticket prices and taxes follow the country's headline-grabbing ban on certain domestic short-haul routes on environmental grounds earlier this year. Like the short-haul flight ban (which ultimately only affected a minute part of all departures from French airports), the latest measures may also have a **limited impact on air travel demand** and therefore emissions. Nevertheless, like the short-haul ban, they set a **precedent** by a major European economy, lending weight to similar environmental proposals elsewhere.
- The proposal by the French government to ban cheap air tickets has two main weaknesses. First, it does not address the factors behind the price disparity in intra-European air journeys versus railway alternatives (taxation differences, prevailing lack of liberalisation in the railway sector, etc...). Secondly, it would **play into the interests of full-service carriers** like Air France, with higher fares. In 2019, Lufthansa CEO Casten Spohr echoed Clément Beaune's idea almost word-for-word: 'Flights for less than €10 shouldn't exist'. The counterpoint by LCCs is that carbon-intensive first and business class seating is where taxes should be raised if not restricted altogether.

The *polluter pays principle* continued to dominate aviation environmental policy headlines at the national level in Europe over the summer, even as unparalleled EU-level legislative actions (EU ETS reform, ReFuelEU Aviation, etc) are adopted (or soon-to-be-adopted) by the European Parliament. From the prospect of increased ticket levies in France and Belgium, to heightened scrutiny of aviation's tax exemptions by NGOs and a political battle over reducing flight frequencies (and potentially seat capacity) at the airport responsible for 87% of the Netherlands' commercial flights: Amsterdam Schiphol – commercial aviation in Europe is under growing political pressure.

France and Belgium look to increase taxes in 2024

Increased levies on companies managing France's highways and on airline tickets are likely to appear in the French 2024 budget due to be unveiled at the end of September, following [comments](#) by **French Minister of Transport Clément Beaune** at France's National Assembly in July. In a separate interview with [radio station RMC](#) (in French), Beaune said that air passenger **ticket taxes** would rise in 2024 to support €100 million (\$110 million) in additional railway project expenditure. According to the same reports, Beaune also intends to include provisions for a 70% increase in fuel tax for private aviation from 2024.

The **French National Aviation Merchant Federation (FNAM)** has [expressed disapproval](#), noting on 31st August that the 2024 budget proposals "threatened air mobility and slowed decarbonisation." "The FNAM is firmly opposed to this new tax project and is surprised by the form of this announcement, which was not the subject of any consultation or information gathering from stakeholders in the aviation sector." The association also threatened "possible legal recourse against the implementation of such a system" if it not abandoned.

In **Belgium**, the deputy prime minister and minister in charge of transport, Georges Gilkinet, has also [proposed](#) a tax on aviation fuel to be added to air tickets, following [the example of the Netherlands](#). Gilkinet also reportedly proposed a night flight ban at one of Brussels' airports, which [has drawn criticism](#) from IATA.

NGOs question current taxation 'exemptions', as EU fuel tax reform hits impasse

New reports over the summer reignited dialogue around European aviation taxation.

A study backed by NGO **Transport & Environment (T&E)** on 12th July [estimated](#) that **€34.2 billion** (\$37 billion) in tax revenue could have been raised in Europe in 2022 if it was not for "very low levels of taxation in the aviation sector." The analysis looked at the revenues that should have been raised from air travel pricing if the sector did not benefit from exemptions (mostly in fuel taxes and carbon pricing). "The UK and French governments would have cashed in an extra €5.5 and €4.7 billion if aviation was taxed adequately," the NGO noted.

Aviation's jet fuel tax exemption in the EU is currently in the process of being reversed, with efforts to legislate "progressing," according to comments by Beaune during the same interview with [radio station RMC](#). However, Beaune's comments contrast with a *Reuters* report days earlier noting that **EU plans to start taxing aviation fuel** (the last major aviation proposal under the Fit for 55 package) have hit an **impasse**. According to [the report](#), countries are at odds over issues including whether to introduce an EU-wide minimum



French Minister of Transport Clément Beaune. Source: European Commission

tax for fuels, with one diplomat saying progress was not expected during the Spanish presidency of the Council of the EU which runs from 1st July to 31st December (largely due to the looming EU elections in June 2024). Under the proposal, the minimum tax rate for aviation fuel for flights within Europe would gradually increase over 10 years and SAF would get a 10-year tax holiday.

As for the UK, think tank **New Economic Foundations** on 17th July also [questioned](#) “generous tax breaks” provided by the [current](#) UK government. The NEF report presented evidence that suggests the economic merit of expanding the UK’s air transport sectors has diminished since the UK government conducted a comprehensive assessment of the sector a decade earlier.

A “minimum price” for air tickets

France’s Beaune on 30th August also [floated](#) the idea of imposing a “**minimum price**” for air tickets within Europe, with the proposal set to be tabled to his EU counterparts in the coming days. “Air tickets for ten euros should no longer be possible in the era of ecological transition,” Beaune argued. “That does not reflect the cost to the planet.”

Beaune’s suggestion came off the heels of a [new study](#) by environmental NGO **Greenpeace** published on 20th July comparing the costs of flight and train tickets on 112 routes in Europe at 9 different points in time. Tickets for trains were on average twice as expensive as for flights (and four times in the UK and Spain), according to the report. On the London-Barcelona route, the cost of taking the train was up to 30 times as much as the cost of a flight, despite train journeys resulting in markedly lower emissions per passenger.

Only 23 European routes are almost always cheaper by train than by plane. An X (formerly Twitter) [thread](#) on 28th August by NGO **Transport & Environment** reflecting on the Greenpeace study points out that the ease of booking airplane tickets versus train tickets is also a factor. T&E noted that the European Commission is trying to alleviate this barrier through the Multimodal Digital Mobility Services Regulation but continues to [encounter hurdles](#) caused by train operators not wanting to relinquish their monopolies on the booking process.

Enforcing fewer flights at Schiphol

Meanwhile, a ruling on 7th July by the Amsterdam Court of Appeal [overturned](#) a decision favourable to airlines contesting a decision to reduce flight movements at Amsterdam Schiphol Airport, one of Europe’s largest air hubs. The Dutch State will be able to **reduce flights by 40,000 per year**, resulting in an annual total of 460,000. The new ruling allows the government to proceed with its plans for the 2023-2024 travel season, with an additional 20,000 flights to be cut the following year.

In response, airlines operating at Schiphol led by **KLM Group** have [announced](#) they will institute cassation proceedings against the judgement. “The current judgement by the Amsterdam Court of Appeal creates a lack of clarity and causes uncertainty for passengers and the aviation sector. This is because it is unclear how the experimental scheme will be applied, how it should be enforced and ultimately how the ruling will affect the number of aircraft movements at Schiphol Airport.” Unfazed, on 1st September the Dutch government [announced](#) it would **press ahead**, with the measure to go into effect in 2024 pending approval by the European Commission.

Even if flight movements at Schiphol never recover to 2019 levels of around 500,000 annually, mobility researchers at **TU Delft** university [have argued](#) that the airport could (and perhaps should) aim to become a **rail-flight hub**. Reachable train destinations Brussels, Paris, London, Düsseldorf, Frankfurt, and Berlin account for about 14% of flight movements at Schiphol, they point out.

SUSTAINABLE FINANCE

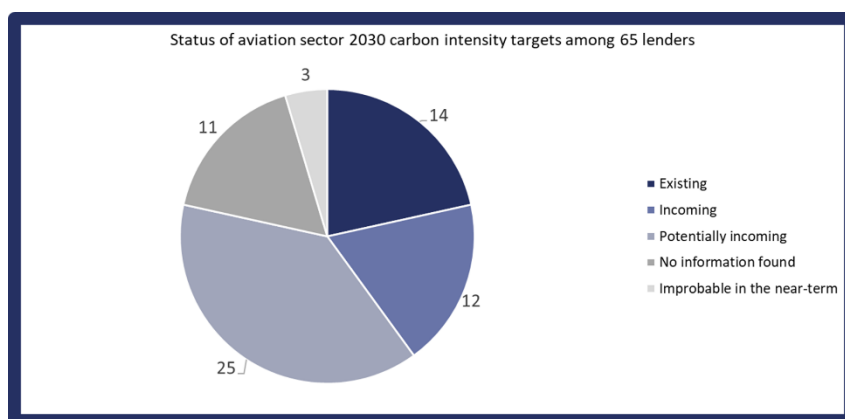
THE ISHKA VIEW

- Emissions reduction targets by banks for aviation are accelerating. The **14 banks with targets for aviation** identified by Ishka as of June 2023 compared to just nine identified by the UN Environment Programme Finance Initiative (UNEP FI) in the Net-Zero Banking Alliances 2022 Progress Report published in November 2022. They are testament to the banking sector's steadfast commitment to align their portfolios with Net Zero 2050 decarbonisation pathways.
- Ishka expects the number of banks with aviation targets to approximately double in the next year. Lenders who have already favoured best-in-class new-technology aircraft financings in the past few years may have a smaller hurdle to clear to achieve their 2030 objectives. For others, it could mean a significant realignment of their asset choices, with older aircraft or anything but the most fuel-efficient aircraft types at high seat densities considered for new financings.

-- For details on the EU Taxonomy, see Policy and Regulation section below --

14 banks have now set 2030 aviation emissions intensity targets –

New Ishka research published in July [revealed](#) that at least **14 global lenders** have published 2030 emissions intensity reduction targets for aviation lending, and a further 12 are expected to announce aviation targets soon. **Twenty-five other banks** are also looking at expanding sectoral targets with the potential of including transportation (and within it, aviation). The findings are the result of Ishka's analysis of 65 global banks and their sustainability reporting. The 14 banks with aviation decarbonisation targets are aiming to reduce the emissions intensity for their aviation lending portfolio by an average of -31% by 2030 versus 2019 to 2022 baselines, although how banks define emissions intensity for aviation varies.



Source: Disclosures by 65 banks analysed by Ishka.

Four new sustainable finance transactions in aviation – In a sustainable finance [update](#) published on 27th July, Ishka identified four new transactions involving three airlines (Jet2, EasyJet, and Japan Airlines) and one lessor **China Aircraft Leasing Group Holdings Limited (CALC)**, which issued its second low-carbon transition bond. **Jet2** became the first corporate client to use the Lloyd's Sustainability-Linked Derivatives (SLDs) product, **EasyJet** announced the signing of a \$1.75 billion Sustainability-Linked UKEF-guaranteed term loan facility, and **Japan Airlines** announced the issuance of its second unsecured Transition Bond to raise 10 billion yen (approximately \$71.3 million). The update also noted **Heathrow Airport's** €650 million 10-year 4.5% coupon bond in July, which featured an innovative KPI based on the level of "in the air" Scope 3 absolute carbon emissions from aircraft operating at the airport. Since this update, **TUI Group** on 9th August announced the successful extension of its revolving credit facility (RCF) with sustainability-linked features.

TNFD draft unveiled, with new air pollutants and transition risks as core metrics – Companies including airlines could soon be required to report nature-related financial risks under a framework mirroring the Task Force on Climate-related Financial Disclosures (TCFD) framework, which since its 2015 introduction has seen regulatory adoption in many parts of the world and become a sustainability reporting standard. The new **Taskforce for Nature-related Financial Disclosures (TNFD) draft** (final version expected to be released in September) includes five core metrics related to risk and opportunities, including exposure to transition risks, and 15 core disclosure metrics related to impacts, of which non-GHG air pollutants by type is one. Meanwhile, the UK on 2nd August [announced](#) it is to consider the endorsement of the **International Sustainability Standards Board (ISSB)** as part of the **UK Sustainability Disclosure Standards (SDS)** to be created by July 2024.

Impact publishes half-year report – Sustainability-focused aviation finance association **impact** (of which Ishka is a member), on 10th July [published](#) its half-year report 2023 containing updates on its activities, work progress, conference participation and introducing a new advisory board. The report also includes contributions by guest authors, Lynn Guiney, Anna Stukas, Caroline Jung, Nigel Addison-Smith and Ana Magdalena.

New Ishka+ Original on ESG metrics – In a [new Ishka+ Original webinar](#), Pegasus Airlines, MUFG Bank, and two pivotal industry associations (Impact and IATA) provide an update on the progress to harmonise ESG metrics for airlines and aviation sustainable finance, from efforts in the year so far to expectations for the 12 months ahead.

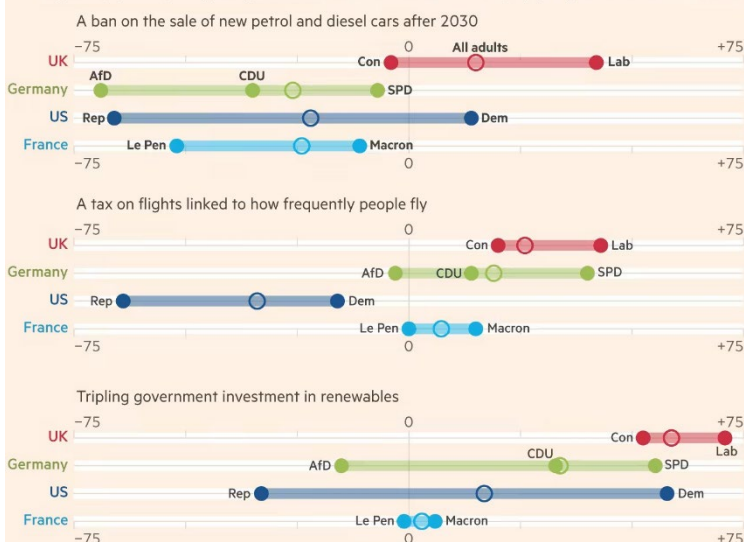
SUSTAINABLE AVIATION FUEL (SAF)

-- For details on SAF mandates and SAF policy, see Policy and Regulation section below --

Rishi Sunak talks up SAF as he fends off private jet use questions – UK prime minister Rishi Sunak during a [radio interview](#) on 31st July fended off a question on his use of private jets to travel to Scotland for a green energy announcement by alluding to government support for SAF and carbon capture projects and defending that people should not be expected to sacrifice holidays that involve air travel. Following the heated exchange on *BBC Scotland*, Sunak ended the interview. Sunak's answer is both a reflection of SAF entering the mainstream discourse of climate solutions, as well as an example of how politicians may leverage SAF in politically charged arguments on climate topics. This may be of particular importance for the UK, where according to [recent polling](#) both Conservative and Labour voters support taxes on flights linked to how frequent people fly (i.e. a frequent flyers levy). Despite Sunak's SAF claims, the UK government under his premiership has been accused of dragging its feet on climate progress ([including on aviation](#)) and sustainable finance policy. Additionally, Sunak announced in early August plans to authorise new oil and gas licenses to "max out" the UK's oil and gas reserves, threatening to derail the country's climate ambitions. On 28th August, the **UK Sustainable Investment and Finance Association (UKSIF)**, which represents £1.5 trillion (\$1.9 trillion) in assets under management, [warned](#) that the UK government's pro-fossil fuel rhetoric risks stopping the finance sector from making the transformative investments needed to reach net zero and grow the economy.

Britons are more supportive of green policies than people in peer countries, with UK Conservatives often as green as the centre-left elsewhere

Net support (% points) for green policies in selected western nations, by party or candidate voted for



Source: FT analysis of data from YouGov
FT graphic: John Burn-Murdoch / @johnburnmurdoch
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Source: FT

SAF investment: A near-\$1-billion guarantee, DG Fuels nears FID, airlines invest – SAF producer **Gevo's** [announced](#) on 7th August that its Net-Zero 1 ethanol-to-jet project has been invited by the US Department of Energy (DOE) to the due diligence and term sheet negotiation phase for a \$950 million loan guarantee under the Title 17 Clean Energy Financing Programme. Ishka believes the near-\$1 billion guarantee would make up a **third** of the \$3 billion in DOE LPO Title 17 guarantees announced in September 2021 as part of President Biden's [actions](#) to spearhead the SAF scale-up. The milestone signifies the commencement of the underwriting phase for Gevo's Net-Zero 1 project debt financing process. Meanwhile, US SAF start-up **DG Fuels** on 25th July [announced](#) the successful completion of a key financial milestone with the successful closing of investment transactions with Japanese firms aviner & co., inc. and Chishima Real Estate Co., Ltd. as well as an undisclosed investor. Following this milestone, DG Fuels expects that FID on its proposed \$4.2 billion, 180 million gallon per year SAF facility in Louisiana to occur in early 2024. Meanwhile, **IAG** [announced](#) on 24th July it has invested into **Nova Pangaea Technologies (NPT)**, a cleantech company developing advanced biofuels used to produce SAF from non-food agricultural waste and wood residues.

Are you buying or selling SAF? IATA has a new purchase model agreement – IATA in July released a new Aviation Fuel Supply Model Agreement incorporating supply of SAF blend. This is a generic model agreement that airlines and suppliers may consider using to streamline the process of purchasing and selling jet fuel. The full document is [available here](#) with the sections related to SAF highlighted in yellow.

Influencemap maps out US aviation lobbying on SAF policy – Influencemap, an NGO dedicated to examining corporate and industry association **lobbying** of climate policy around the globe, recently published a [new report](#) on the coordinated lobbying efforts of the US industry on SAF. The report – which regardless of its conclusions provides a helpful breakdown of lobbying actors – takes a critical view on many of these efforts. Overall, it suggests that the US aviation sector is pushing for amendments to SAF policy to the detriment of meaningful, science-based decarbonization. "The US aviation sector appears to be pursuing a policy engagement agenda to get SAFs incentivised at any cost, including promoting policy amendments that risk stimulating SAF production with little, if any, overall GHG emission-saving contribution. Such policy engagement could jeopardise the integrity of US SAF policy and efforts to decarbonise aviation." On a related update, a *Reuters* [report](#) on 2nd August pointed out that the **Biden administration** is "divided" over whether to grant a request from the US biofuel industry that would make it easier for SAF made from **corn-based ethanol** to qualify for Inflation Reduction Act (IRA) subsidies.

ITF releases SAF policy recommendations, Australia releases roadmap – The **International Transport Forum (ITF)** on 19th July [released](#) its *Sustainable Aviation Fuels: Policy Status Report* which highlights some key policy insights for regulators around the world.

world, namely: 1) invest in SAF now to lower production costs to levels that allow widespread use; 2) support all sustainable production technologies and feedstock types that deliver credible emission reductions; 3) expand existing SAF frameworks to help aviation deliver on international climate objectives; 4) capture opportunities for industrial development and energy supply resilience; and 5) create transport decarbonisation strategies that incorporate all transport sectors to maximise emission savings. Pages 29 to 32 also include a helpful breakdown of all countries with policies relevant to SAF. Another notable development is [the release](#) of a **new SAF roadmap** by Australia's national science agency, **CSIRO** and [Boeing Australia](#). The [roadmap](#) identifies opportunities to produce and scale SAF production using Australian feedstocks, which have the potential to produce almost 5 billion litres of SAF by 2025 or 60% of projected "local" jet fuel demand for that year – that is, if production plants were to be built by 2025, and there are currently none planned for that timeframe. In July, the **Australian Airports Association (AAA)** said [in a submission](#) to a parliamentary inquiry that the country **risks losing international air connectivity** in the coming decades if airlines decide to scale down long-haul routes to limit absolute emissions, making the scale-up of SAF supply in Australia an imperative.

Eurocontrol sees SAF as the only path to decarbonise long-haul – With a conclusion that will surprise no-one, **Eurocontrol** in its recently-published [Think Paper #21](#) addresses the question of whether cutting-edge energy and propulsion technologies can make a difference in decarbonising long-haul flight. For the foreseeable future, 'no' is the simple answer. The paper examines the volumetric and energy needs of applying zero-tailpipe emission propulsion solutions to an Airbus A380 travelling from Paris to Singapore. It estimates unrealistic requirements such as Li-ion batteries and a liquid hydrogen tank larger than the A380's fuselage, or a solar panel stretching 7.4 km behind the aircraft. In a teaser for its upcoming Think Paper #22, Eurocontrol concludes that in the "short to medium term" SAF, fleet renewal, and other operational solutions are more feasible options.

SAF firsts: Air China, El Al, Transatlantic preparations, and more... – **Air China** [flew](#) an Airbus A350 with 10% SAF in July, a first for the airline and signalling growing ambitions for Chinese aviation to use SAF. Israeli flag carrier **El Al** also [flew](#) one of its aircraft with SAF for the first time in August during the delivery of a new Boeing 787 as did **Fiji Airways** during the [delivery](#) of an Airbus A350 via Singapore. From July onwards, **Airbus** is [offering](#) up to 5% blended SAF free of charge on delivery flights to customers taking delivery of aircraft in Toulouse and Hamburg. Meanwhile, **Virgin Atlantic** [has set](#) 28th November as the date in which the world's first 100% SAF flight will travel across the Atlantic from London Heathrow to New York JFK on a Boeing 787.

Ishka SAF Tracker update – On 8th August, **Ishka** [published](#) an updated ESG data sheet offering context on the SAF offtake progress of 24 major airlines (all frontrunners in SAF investment) from 2023 onwards. The list of airlines has increased from 19 airlines in the previous update with the addition of Air Canada, Hawaiian Airlines, SAS, and Qatar Airways. By far the most notable addition to Ishka's SAF offtake tracker in the past two months is the deal by **Qantas** to access to up to 500 million litres (up to 80 million per annum) of SAF as part of an order for Airbus and Boeing widebody aircraft. The deal has the potential to meet up to 90 per cent of the Qantas' interim SAF target for 2030.

POLICY AND REGULATION

THE ISHKA VIEW

- The adoption by the EU of the ESRS is a major milestone in the harmonisation of ESG reporting practices. Global aircraft lessors, most of which have a presence or subsidiaries in Europe – often in Ireland –, will be well advised to pay attention to the final requirements. An upcoming guest piece by PwC to be published on Ishka Insights aimed at aircraft lessors will provide detailed context on CSRD, ISSB and the US SEC's climate-related disclosures approaches.



EU adopts ESRS, a milestone in CSRD implementation - The European Commission [adopted](#) on 31st July the **European Sustainability Reporting Standards (ESRS)** for use by all companies subject to the **Corporate Sustainability Reporting Directive (CSRD)**. This marks another step forward in the transition to a sustainable EU economy. The standards cover the full range of ESG issues, including climate change, biodiversity and human rights. They provide information for investors to understand the sustainability impact of the companies in which they invest. They also take account of discussions with the International Sustainability Standards Board (ISSB) and the Global Reporting Initiative (GRI) to ensure a very high degree of interoperability between EU and global standards and to prevent unnecessary double reporting by companies. Some amendments to the final set of standards water down some disclosures from mandatory to voluntary. Of relevance to lessors, companies with **fewer than 750 employees** do not have to disclose Scope 3 emissions data in the first year they apply the standards.



Brussels, 31.7.2023
C(2023) 5303 final

COMMISSION DELEGATED REGULATION (EU) .../...

of 31.7.2023

supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards

(Text with EEA relevance)

Source: European Commission

A law firm's take on the EU Taxonomy criteria for aviation – Law firm **Norton Rose Fulbright** on 26th July published [a webinar](#) detailing the aviation criteria under the **EU Taxonomy**, including how it fits within other EU regulation. The webinar follows the approval in principle by the European Commission in June of a delegated act introducing aviation criteria (see [Ishka's coverage](#)). Meanwhile, during a European Parliament Committee on Transport and Tourism presentation by the Commission on the Taxonomy including the aviation criteria on 19th July, **Green MEP Ciarán Cuffe** continued to [criticise](#) aviation's inclusion. Days earlier, association **Airlines for Europe (A4E)** on 12th July published a position paper on the Taxonomy's aviation criteria which welcomes the regulation whilst calling for a comprehensive strategy for the deployment and development of a European SAF industry.

European airline association warns against prematurely adding non-CO2 effects to EU ETS – European airline association **Airlines for Europe (A4E)** on 29th August [published](#) a position paper with recommendations on non-CO2 monitoring, verification, and reporting (MRV) under the EU ETS. Following the [reform](#) of the EU's Emissions Trading System (ETS) rules for aviation and shipping approved in April, airlines covered by the EU ETS will be expected to **start reporting non-CO2 effects** (harmful gases, soot particles, contrail formation) from 2025, with a legal proposal in 2027 to codify an extension of the ETS to cover non-CO2 effects. In its latest position paper, A4E outlines a four-stage process for establishing an MRV as well as a series of warnings. The association argues there is "no scientific basis" or calculation model for establishing an MRV for non-CO2 effects, no scientifically agreed CO2 equivalent for non-CO2 effects, and an absence of required data. "To provide the right incentives for airlines to minimise non-CO2 effects, the MRV should first set common rules for all flight operators in Europe via a single source of truth [...], then set the right incentives for operators." Meanwhile, on an ETS-related update, Ishka in July published an [EU ETS cost estimate per aircraft](#) through 2030 comparing new versus old: Airbus A320ceo and A320neo (based on EasyJet flights) as well as Boeing 737 NG and 737 MAX (based on Ryanair flights). Ishka used data powered by PACE and BloombergNEF EUA price forecasts.

EU Green Tsar Timmermans replaced as he heads for Dutch elections – Although not strictly an aviation-related development, European Commission Vice-President **Frans Timmermans** [handed in his resignation](#) in August to stand as a candidate in the forthcoming Dutch general election. Timmermans has been the main architect of the European Green Deal, a set of environmental policy initiatives including many for aviation (EU Taxonomy criteria, EU ETS criteria revision, and ReFuelEU Aviation to name the main ones). **Timmermans** has also been a proponent of global levies on aviation, shipping, and fossil fuels to fund the Loss and Damage facility agreed at last year's COP27 conference. Vice-President **Maroš Šefčovič**, a Slovakian politician who has held several Commissioner portfolios since the late 2000s, will be taking over Timmermans' role. Meanwhile, European Commission chief Ursula von der Leyen has [proposed](#) former Dutch Foreign Minister **Wopke Hoekstra** for the post of EU Commissioner for climate action, where he would be under the guidance of Šefčovič.

Council of the EU formally adopts AFIR law – The Council of the EU (which is made up of EU government ministers who meet to discuss, amend, and adopt laws) on 25th July [adopted](#) the **alternative fuel infrastructure regulation (AFIR)**. For aviation, AFIR targets for airports to provide electricity to stationary aircraft at all gates by 2025, and at all remote stands by 2030. The use of an external electricity supply would allow aircraft to reduce the use of the engines when stationary at airports, reducing fuel burn, pollutants, and noise emissions. AFIR is to be published in the EU's official journal after the summer and will enter into force the twentieth day after its publication.

Getting up to speed with EU SAF regulation – The **International Council on Clean Transportation (ICCT)** on 26th July published a [policy update](#) summarising the status of EU Fit for 55 initiatives for transportation, including aviation – in particular the status of EU SAF regulation. The update is particularly useful to understand how the final revision of the recast Renewable Energy Directive (RED III) impacts the eligibility of feedstocks for SAF covered by the ReFuelEU Aviation, the law introducing an EU SAF mandate. Meanwhile, for an airline's take on ReFuelEU Aviation's impacts, **Lufthansa's July Policy Brief** estimates the cost on ticket prices versus competing non-EU hub-and-spoke airlines. According to Lufthansa, a flight from Barcelona to Tokyo with a layover in Frankfurt and a return trip will cost approximately **230 euros** extra per ticket in 2035 compared to a competitor flying via Istanbul.



US

US senators propose raising \$19bn in 'luxury aviation' surcharges – While the debate on whether to tax or restrict private aviation is prevalent in Europe (from the [UK's Labour Party](#) to the environment ministries of [Austria, France, and the Netherlands](#)), there has been limited political traction for similar arguments in the US, the world's largest business aviation market. That could be changing. Ishka learned in mid-August that at the end of July, a bill to impose surcharges on private jet travel and certain first class and business tickets was introduced to the US Congress by Democrat Senator Sheldon Whitehouse (the same sponsor of the 2021 Sustainable Aviation Fuel Act, which served the basis for SAF incentives later introduced under the Inflation Reduction Act). [Bill S.2599](#) (labelled the **Air Fair Act**) is co-sponsored by two other Democrat senators and would aim to raise an estimated **\$19 billion annually in surcharges**. It would do so mainly through a \$190/tonne CO2 levy for private domestic flights (and equivalent based on flight duration for private international flights) and a surcharge on first and business class tickets. The revenue would be reinvested into aviation decarbonisation, air pollution control, and transportation infrastructure. The proposal follows growing scrutiny both within and outside the US of private jet usage. Most recently, singer Taylor Swift was reported to have spent [166 hours crisscrossing the US](#) during her recent tour.

US ethanol SAF producers tax credits in limbo over accounting methodologies - The Biden administration is divided over whether to grant a request from the US biofuel industry that would make it easier for SAF made from corn-based ethanol to qualify for subsidies under Inflation Reduction Act (IRA), according a *Reuters* [report](#) on 2nd August citing sources familiar with the discussions. Midwest ethanol producers have asked the administration to adopt a model (the Greenhouse Gases, Regulated Emissions and Energy use in Transportation, GREET) that would enable ethanol-based SAF to qualify while environmentalists want standards (ICAO CORSIA SAF standards) that would favour other feedstocks. This 25th July [article](#) by *GreenBiz* breaks down the dispute in detail.

Other countries

Recordings of ICAO's CO2 stocktaking and pre-CAAF/3 meeting – The recordings of the 2023 ICAO Stocktaking on Aviation in Sector CO2 Emissions Reductions and Pre-CAAF/3 Policy and Finance Consultation hybrid [meetings](#) are now available via [ICAO TV](#). The meetings took place from 11th to 13th July to take stock of progress to decarbonise aviation and, perhaps most crucially, to prepare for the quinquennial *Third Conference on Aviation Alternative Fuels (CAAF/3)* to be held in November 2023. CAAF/3 will bring together high-level officials from ICAO member states to generate SAF scale-up policy recommendations. It has **the potential to shape SAF policy** by governments in years to come by setting “a global framework on aviation clean energy.” According to a presentation during the meetings’ closing session, a draft document on the possible outcomes for CAAF/3 will be circulated in September ahead of a pre-conference consultation to bridge potential differences between member states. On a related note, the **Association of Asia Pacific Airlines (AAPA)** in August [called](#) for greater “government legislation” and “incentives” to encourage SAF adoption, a timely reminder that SAF policy is a growing priority outside of Europe and North America. One of the countries best positioned to lead SAF progress in the region is **Singapore**, as concisely summarised in this 19th July *World Economic Forum (WEF)* [article](#).

1.5C pledge removed from 60-country IACAC declaration – A commitment to decarbonise aviation by 60 national governments including aviation heavyweights EU, Japan, UK and US was updated on 14th August to eliminate a commitment to work together to advance ambitious actions to reduce aviation CO2 emissions “at a rate consistent with efforts to limit the global average temperature increase to 1.5C.” The **International Aviation Climate Ambition Coalition (IACAC)**, [agreed in November 2021](#) during COP26 in Glasgow, was [updated](#) on 14th August 2023 by the UK’s Department for Transport (which, as the COP26 co-host in 2021, led its drafting). In its place, a commitment to advance actions consisting in line with “the goal for international aviation of net-zero carbon emissions by 2050, in support of the Paris Agreement’s temperature goal” was added. The change was spotted by environmental campaigning group *Stay Grounded Network*, which [highlights](#) that this could imply a toned-down commitment of 2C.

CORSIA’s first phase starts in 2024, what does it mean for offset purchases? - Law firm **Vedder Price** on 27th July published an article assessing [recent changes](#) to ICAO’s CORSIA international emissions offsetting scheme and their implications for airlines starting next year. In March, the body responsible for determining the eligibility criteria for CORSIA Eligible Emissions Units (EEUs) carbon offsets updated its rules for CORSIA’s First Phase (2024-2026). One of those rules, a requirement for EEUs to have Corresponding Adjustments (a mechanism to avoid the double-counting of emission reductions or removals), suggests there may be a shortage of eligible EEUs airlines can purchase given “there are currently no EEUs with a Corresponding Adjustment in the market.” The law firm expects the change to have an impact on their availability and price.

CO2 EMISSIONS

-- For details on CORSIA or EU ETS, see Policy and Regulation section below --

Airlines release new sustainability reports, Wizz in the lead for CO2/RPK – A number of major airlines release their annual sustainability reports through July and August. The recovery of passenger demand following the Covid-19 Pandemic as well as fleet renewal efforts have enabled most carriers to continue improving their emission intensity metrics – usually expressed as CO2 per revenue passenger kilometre (RPK) or CO2 per revenue tonne kilometre (RTK). Once again, European LCC **Wizz Air** [continues](#) to **lead the industry in carbon intensity**. In its 2023 financial year, Wizz Air says it had the **lowest carbon emissions in the industry** expressed in CO2/RPK at 53.8 grammes, an 11.3% decline versus its 2022 financial year. Nevertheless, the airline is currently **not on target** to reduce CO2/RPK by 25% until 2030 or 42.6 grams (versus a 2020 financial year baseline of 57.2 grams). Wizz’s CO2 per RPK glidepath as of financial year 2023 is 51.1 grammes, below the 54.8 grammes it reported.

ANA buys carbon capture credits through 1PointFive – Japanese airline **All Nippon Airways (ANA)** on 1st August [announced](#) it has become the first airline in the world to sign a purchase agreement with carbon capture, utilisation, and storage firm **1PointFive**. 1PointFive has agreed to sell 10,000 metric tonnes of carbon dioxide removal (CDR) credits per year for three years from 2025 enabled by its Stratos plant in Texas, which is currently under construction. The CO2 captured for ANA will be sequestered in saline reservoirs that are not used for oil and gas production. In 2022, 1PointFive also [announced](#) the sale of 400,000 tonnes of CDRs to Airbus (100,000 per year for four years).

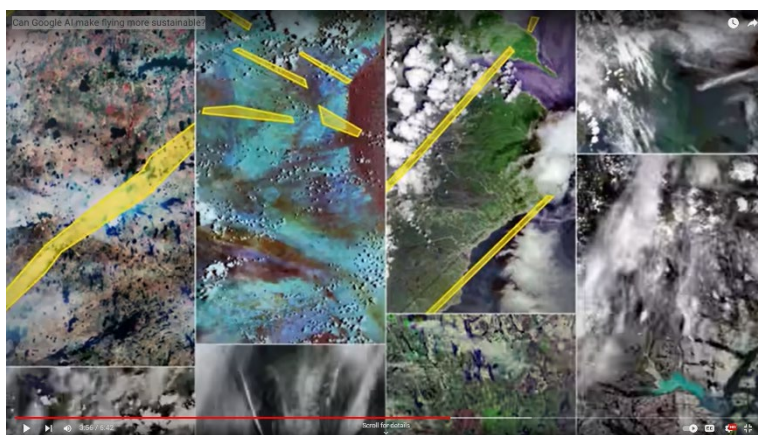
United CEO criticises carbon offsets as ‘fraud’ – **United Airlines** CEO Scott Kirby criticised carbon offsets [during an event](#) hosted by *Politico* in July, where he claimed that most of the emissions offsets used by airlines “are either forests that were never going to be cut down or trees that were going to be planted anyway,” calling “the vast majority” of carbon offset projects “fraud.” “They don’t do anything to net change the climate, and even if that wasn’t the case, they’re not scalable [...] I think the biggest problem we have is that

everyone is using carbon offsets as the easy way to check the box and say ‘I’ve done my part’ for climate change ‘I’m Net Zero’ – they’re not, and they haven’t done their part, and it’s wrong.” To get up to speed with some of the issues affecting voluntary carbon offsets, [this recent article](#) by climate non-profit magazine Grist is an excellent summary.

A recap of basics – free eBook on the paths to decarbonise aviation – Toulouse-based provider of fuel efficiency software **OpenAirlines** has published an [87-page eBook](#) containing introductory information to the environmental footprint of aviation and available levers to decarbonise the sector. The eBook contains multiple expert interviews on various subjects and is a good starting point for anyone looking to start understanding the environmental challenges facing aviation. On 28th August, *Reuters* also published a short [commentary piece](#) summarising the main ESG concerns of the aviation industry and recent regulatory efforts.

NON-CO2 EMISSIONS

High-profile new contrail evidence as Google partners Breakthrough and American – Google has revealed details on a project to address contrail mitigation in a bid to showcase its AI and machine learning capabilities. In a [sleek video](#) on Google’s YouTube channel, the tech company showcases the ‘big data’ use of satellite imagery to spot contrails and identify contrail avoidance zones. “Kind of like machine learning algorithms that help pick out a cat or pick out a cappuccino in your photos,” describes Erica Brand, senior programme manager at Google Research. It is arguably the most high-profile effort to date exposing the non-CO2 effects of aviation. The project was co-led by [Breakthrough Energy](#), supported by [American Airlines](#), and received exclusive [coverage](#) by *The New York Times*. To real-world-test Google’s AI predictions, a small group of **American Airlines** pilots flew 70 flights over six months making small modifications to routes that were projected to create contrails. The avoided contrails were then verified by satellite imagery, the first proof of its kind. For more details, see [Project Contrails](#).



Screengrab from Google's Project Contrails video showcasing satellite contrail monitoring

SATAVIA lays down plans for non-CO2 avoidance credits – **Gold Standard Foundation**, the Swiss non-profit managing the leading eponymous emission reduction project certification programme, on 4th August [announced](#) it has approved a methodology concept developed by **SATAVIA**, a UK firm specialised on contrail monitoring and avoidance technology, to deliver credits for mitigating climate warming caused by aircraft contrails. The methodology will enable issuance of provisional **Certified Mitigation Outcome Units (CMOUs)**, a new tradeable unit for non-CO2 aviation emissions – in this case avoided via contrail management activity. SATAVIA [hopes](#) that trading of CMOUs by airlines implementing contrail management can enable a new source of revenue for carriers in a “win-win” for both climate and airlines as businesses. CMOUs would be issued against declared aviation non-CO2 climate impact inventories, and therefore would not serve to abate CO2 emissions – a [concern raised](#) by environmental NGOs.

Pinning non-CO2 effects’ avoidance on ANSPs – In an [opinion piece](#) published on EU policy news site *Euractiv* on 18th August, sustainable aviation researcher Denis Bilyarski makes the case for air navigation service providers (ANSPs) to – in future – play a role in helping reduce the non-CO2 effects of aviation, including limiting the formation of radiative forcing contrails. Bilyarski says recent evidence of contrail avoidance by routing changes “validate the concept” and “show” that European ANSPs “can play an outsized role in tackling the climate impacts of flying.”

AIRCRAFT LESSORS AND ASSET MANAGERS

THE ISHKA VIEW

- Aircraft lessors spent much of the last two years pondering in sustainability forums how they may be able to support the SAF scale-up. The initiatives announced this year show the sector is moving from ideas to action, from investing directly (or indirectly) into SAF production or, in the case of SMBC Aviation (pending further announcements by the lessor), supporting R&D. The developments are not only important contributions to the decarbonisation of aviation, but also mark a new direction for the sector, where most companies have traditionally only derived revenue from aircraft leasing and trading.

SMBC Aviation Capital plans Dublin office SAF research facility – Dublin-based lessor **SMBC Aviation Capital** has filed an application with the Dublin City Council to convert part of a Dublin office building on Fitzwilliam Street into a SAF research facility. The filing, first uncovered by *Aviation Week*, is [available to view](#) on the council’s website. According to the document, the research and

development facility will be approximately 100 square metres in size and located on the internal ground floor. According to [further information](#) obtained by the *Irish Independent* on 30th August, the facility will be operated in collaboration with researchers from Trinity College Dublin (TCD) and will be an analytical chemistry laboratory which will perform microscopic testing in support of research towards SAF.

ACG makes investment in United Airlines's sustainability fund – California-based lessor **Aviation Capital Group (ACG)** on 25th July [announced](#) an investment in the **United Airlines Ventures Sustainable Flight Fund**, which is focused on supporting SAF start-ups. It is the first leasing company among the 13 corporate partners in the fund and with its investment (and the addition in July of [seven other corporate partners](#)) increases its size to nearly \$200 million from \$100 million at launch. "ACG is honoured to be a part of the UAV Sustainable Flight Fund," said Gordon Grant, Vice President and Head of ESG at ACG.

Willis Lease announces project to produce PtL SAF – Engine lessor **Willis Lease Finance Corporation** announced on 17th July a project to develop and produce Power-to-Liquid (PtL) via a new UK subsidiary **Willis Sustainable Fuels (UK) Limited**, along with financial and strategic partners. According to the [announcement](#), the subsidiary and its partners are advancing plans toward a new SAF refinery in northeastern England. Austin C. Willis, CEO of WLFC, said this positioned Willis "as one of the first aviation leasing companies to spearhead a SAF initiative of this magnitude". WLFC expanded its UK in 2019 with an aircraft technical services business at Teesside International Airport, Darlington, UK. The planned PtL SAF refinery will also be located Teesside, which will be home to the UK's [first SAF handling terminal](#).



Source: Tess Valley Combined Authority, Willis Sustainable Fuels announcement

Leasing association ALI announces ESG e-learning platform – **Aircraft Leasing Ireland (ALI)** in mid-August [announced](#) a collaboration with industry contributors to develop an ESG e-Learning platform for the aircraft leasing and aviation industry in Ireland. ALI, the world's largest aircraft leasing association, said the platform will be structured in line with the [ALI sustainability charter](#) and will provide modules covering Climate Action & Net Zero, Technology & Innovation, Waste & Circular Economy, Diversity & Inclusion, Ethical Business Practices, Employee Wellbeing, Community Engagement, Industry Leadership, Standardisation and Accountability & Reporting. Launch is targeted by early Q4 2023.

OEM FUTURE PROGRAMMES

Report: COMAC set to develop fixed-wing electric aircraft – According to sources speaking with Chinese business news site Yicai Global, Chinese aircraft OEM **COMAC** has plans to develop a fixed-wing electric aircraft. The plan is reportedly at initial stages of development at the COMAC Beijing Aircraft Technology Research Institute and "there is a long way to go before it becomes a reality," [the report](#) on 21st July says. According to the report, a joint venture, COMAC Times (Shanghai) Aviation, was set up by Contemporary Amperex Technology Co., Limited (CATL), a global leader in lithium-ion battery development and manufacturing, and COMAC as well as third party Shanghai Jiao Tong University Enterprise Development Group on 19th July with a registered capital of CNY600 million (\$83.6 million), according to corporate registration data. The shareholding ratios were not given. The legal representative of the JV, Qian Zhongyan, which the report says is the director of the COMAC research institute and was the deputy chief designer of the COMAC C919 narrowbody jet.

Economics of ATR72 hydrogen retrofit favourable: ICCT research – Despite limitations on range, payload, seat capacity, and a higher fuel cost, a [new analysis](#) by **The International Council on Clean Transportation (ICCT)** has found that an **ATR72** retrofitted with a hydrogen fuel-cell propulsion system would still be able to operate 90% of the missions the aircraft is today deployed on around the world and, in a market like the US, it could operate with a fuel premium to Jet A-1 of only 29%-40% in 2030. The 40-page ICCT analysis [published](#) on 2nd August is one of the most in-depth assessments to date on the economics of hydrogen-retrofitted turboprops. An 11-tweet summary of the findings is also available on the [author's Twitter account](#), Jayant Mukhopadhyaya. The findings are particularly important for any lessor or operator considering the retrofit products of ZeroAvia and Universal Hydrogen, both of which target large turboprop conversion including the ATR72. On a related note, **ZeroAvia's** Head of External Affairs & Marketing on 17th July published an article comparing the emissions intensity of hydrogen-powered aircraft versus other forms of transportation. According to the analysis, using hydrogen produced using electrolysis powered by the grid (in this case, the UK grid) at the projected carbon intensity for 2050 would mean a total climate impact "significantly lower" than by travelling by a full car or on a UK rail line. For a less upbeat view on hydrogen's potential, **Michael Barnard** – a corporate advisor and strategist focused on electric aviation – expressed in [a piece](#) on *CleanTechnica* published on 3rd August his primary arguments against hydrogen-powered aircraft.

US airlines to support NASA X66-A aircraft, the precursor to the 737 replacement – Boeing and NASA on 25th July [announced](#) they were to collaborate with US airlines to advise the Sustainable Flight Demonstrator (SFD) project and development of the **X-66A** research aircraft. Alaska Airlines, American Airlines, Delta Air Lines, Southwest Airlines, and United Airlines will provide input on operational efficiencies, maintenance, handling characteristics and airport compatibility. The X-66A will test the Transonic Truss-Braced Wing (TTBW) airframe configuration and will be built from a modified MD-90 aircraft, [which was ferried](#) to the site for modification in mid-August. It is expected to reduce fuel consumption and emissions by up to 30% relative to current aircraft and it is NASA's first X-plane focused on helping achieve its goal of net-zero aviation greenhouse gas emissions. On a NASA-related development, **GE Aerospace** on 25th July [unveiled](#) the paint scheme of the hybrid electric aircraft it will fly as part of NASA's Electrified Powertrain Flight Demonstration (EPFD) project.



NASA and Boeing unveiled the new X-66A livery at EAA AirVenture Oshkosh. (Image: Boeing)

US Air Force to invest \$235 million in JetZero blended wing start-up – The **US Air Force** on 16th August [selected](#) JetZero for the next phase of a blended wing body prototype, with the Department of Defense to invest \$235 million over four years to fast-track its development, with additional private investment expected. The announcement is a major boost for [US start-up JetZero](#) (not related to the UK's Jet Zero strategy or Jet Zero Council), which is aiming for an entry-into-service of 2030 with 100% SAF compatibility, and “the internal volume to accommodate zero-carbon emissions hydrogen.” The company claims the blended-wing design can achieve 50% less fuel burn and more range with the same payload (approximately 250 seats) as equivalent ‘traditional’ tubular designs. A full-scale demonstrator is targeted to fly in 2027 powered by Pratt & Whitney GTF engines.

Air New Zealand nears decision on low-emission demonstrator as airport EOI launched – **Air New Zealand** will announce by early 2024 which type of lower emissions commercial demonstrator aircraft will be flying with the airline from 2026. The carrier in December 2022 announced Cranfield Aerospace Solutions (CAeS, since merged with Britten-Norman), VoltAero and Eviation as the initial partners of its Mission Next Gen Aircraft, with Universal Hydrogen, Embraer and Heart Aerospace joining as partners in February 2023. The airline [recently opened](#) an Expression of Interest (EOI) to airports around the country as part of selecting a route to fly its commercial demonstrator aircraft from 2026, initially flying cargo only services. The EOI documents [can be found here](#).

Sustainable airlines: Surf Air Mobility completes listing, Ecojet launches, and Air Cahana updates – One of the most ambitious aviation projects seeking to provide low-emission regional air travel has recently crossed two key milestones. **Surf Air Mobility (SAM)** [announced](#) on 2nd August that its acquisition of **Southern Airways**, a US commuter airline with a fleet of around 51 sub-regional aircraft, closed ahead of SAM's [listing](#) in the New York Stock Exchange on 27th July. The company has seen its [stock value plunge](#) since its listing, opening at \$5 a share on 27th July and going down to \$1.20 by mid-August before rebounding to \$1.70 per share on 1st September. A good feature summarising the turnaround of Surf Air was [published](#) by the *Los Angeles Business Journal* on 4th September. SAM intends to accelerate the adoption of green flying by developing hybrid-electric and fully-electric powertrain technology to upgrade existing fleets and by creating a financing and services infrastructure to enable this transition at an industry-wide level. According to **Ishka's alternative propulsion order and commitment tracker** (see [most recent update](#)), SAM and its subsidiaries have commitments for up to 20 REGENT electric seagriders as well as plans to convert up to 150 sub-regional aircraft to electric and hybrid-electric propulsion. Separately, on another low-emission regional airline market development, British green energy industrialist Dale Vince has [announced](#) it is planning to launch the UK's first electric airline. According to *The Guardian*, the airline **Ecojet** would launch next year with a 19-seater aircraft initially running on kerosene before being retrofitted to hydrogen-electric. The article does not mention what aircraft type the airline will operate, but renders show a Twin Otter aircraft, one of the aircraft types which **ZeroAvia** is working to retrofit to hydrogen-electric propulsion. Meanwhile, US sustainable regional airline **Air Cahana** [reportedly](#) plans to launch of operations with Pilatus PC-12 aircraft before transitioning to SAF-powered ATR turboprops and eventually **ZeroAvia**-retrofitted hydrogen-electric aircraft.

Alice's electric nine-seater takes a step towards production – Electric aircraft manufacturer **Eviation** on 2nd August [announced](#) it has appointed leading Seattle-based engineering company **TLG Aerospace** for the design of the **production configuration** of the nine-seater Alice commuter aircraft. The announcement is an important milestone for Alice but also for sub-regional aircraft manufacturers in the clean propulsion space. Alice is the world's first clean-sheet all-electric aircraft, it performed its first flight in September 2022, and it is ahead of other clean-sheet aircraft projects in its road to certification.

New investments: United in batteries, Ampaire takes over e-VTOL, and more... - United Airlines on 21st July [announced](#) an investment in **Electric Power Systems**, a company producing battery technology that can potentially be used for a broad suite of aerospace applications. The versatility of the technology could allow United to consider EPS's modules for near-term applications, and as part of its longer-term operations that support decarbonization. This is United's second investment in electric battery technology, after sodium-ion battery-maker **Natron**. Meanwhile, hybrid-electric aircraft developer **Ampaire** [announced](#) on 20th July that it has "substantially acquired" all of the assets of e-VTOL firm **Talyn**. Meanwhile, leading aerospace OEMs Marshall, GKN Aerospace, and Parker Aerospace [have signed an MoU](#) to collaborate on liquid hydrogen fuel systems with funding from the H2GEAR programme by the UK Aerospace Technology Institute (ATI). In Norway, electric seaplane developer Elfly [will receive](#) NOK 87 million (\$8.1 million) in funding from **Enova SF**, a state enterprise owned by the Ministry of Climate and Environment investing in the energy transition. Meanwhile, although not exactly a round of investment or grants, a number of aviation corporates in August supported the launch of the **Sustainable Aviation Challenge** in collaboration with the First Movers Coalition (FMC), a joint initiative between the World Economic Forum (WEF) and the U.S. Department of State. Proposals by innovator companies were to be accepted from 24th August through 2nd October and "Top Innovators" are to be announced later in the year. They will benefit from a network for brand-building, visibility, and peer-to-peer learning.



Source: ZeroAvia

New orders and commitments: Air Nostrum, and more... - Hybrid

Air Vehicles (HAV), the UK-based manufacturer of hybrid airship Airlander 10, on 31st August [announced](#) that **Air Nostrum Group** agreed to double the number of Airlander 10 under reservation to a total of 20 aircraft. Hydrogen-electric retrofit propulsion kit developer **ZeroAvia** on 2nd August [announced](#) that Canary Islands airline **Surcar Airlines** signed an agreement to retrofit Twin Otter aircraft with the ZA600 powertrain. On a ZA600-related development, ZeroAvia on 19th July [announced](#) it has completed the initial test campaign of the powertrain using a Dornier 228 aircraft. The firm on 10th August also [unveiled](#) a high-performance compressor for fuel cell-based propulsion systems, including the ZA600. Supporting up to 900kW fuel cell systems, the compressor is many times more powerful than any existing fuel cell compressors and offers superior power density.

OTHER DEVELOPMENTS

New Nature paper questions European e-SAF and DACCS scalability – A new academic article published in the prestigious scientific journal *Nature* on 6th July argues that the most efficient way to limit the scale of European aviation's climate impacts is to reduce air traffic. The paper, authored by seven researchers from Swiss and German universities, argues that with a continuous increase in air traffic (1.8% annual growth), synthetic jet fuel produced with electricity (which the researchers' model as delivering the total SAF demand generated by the ReFuelEU SAF mandate targets, not just sub-targets) from renewables would exert excessive pressure on economic and natural resources. To produce the required synthetic jet fuel, **1.3 times the current annual electricity output in the EU-28** would be needed each year between 2050 and 2100. Approximately 200 to 250 million hectares-year of land would be required, while the freshwater needed would correspond almost to the annual consumption of the EU-28. Alternatively, compensating climate impacts of fossil jet fuel via direct air carbon capture and storage (DACCS) would require massive CO2 storage volumes and prolong dependence on fossil fuels. Using (fossil) jet fuel and offsetting the climate impacts via DACCS would decrease the use of electricity, land, and freshwater by 50 to 60%, relative to using syn-jet fuel complemented with DACCS. However, this would prolong Europe's dependence on fossil energy and require a CO2 storage capacity larger than the proven storage capacity of the Norwegian continental shelf.

Frequent flyer, steady polluter – argues new Possible report – Environmental UK NGO **Possible** (the same NGO that in May 2022 [brought attention](#) to aviation's record of missed sustainability targets) in mid-August published [a new report](#) addressing the climate impact of frequent flyer status. Titled *Pointless*, the report highlights **the negative side of frequent flier rewards**: an increase in travel emissions by incentivising a carbon-intensive activity and carbon-intensive seating options. The report assesses the different levels of frequent flyer membership by **British Airways** and **Virgin Atlantic**. Flying enough to qualify for FFP membership requires emissions between 7 and 112 times higher than the average UK air travel footprint. The NGO is calling for an end to frequent flyer programmes by UK airlines.

Negative climate perception of airlines could threaten marketing efforts – In a new article by airline sustainability PR consultancy Simplifying [published](#) on 22nd August, head of sustainability Dirk Singer makes the argument that airline event sponsorship could soon become a frequent target of environmental groups. Singer's argument is backed by the threat of disruption by environmental group Just Stop Oil at this year's London Pride Festival, on account of being sponsored by **United Airlines**. In a related

note, American law firm **Jones Day** on 16th August [published an article](#) summarising recent examples of greenwashing litigation against airlines across the US, Europe, and Australia.

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