Alliance for Zero-Emission Aviation

PREPARING EUROPE FOR HYDROGEN & ELECTRIC FLIGHT

Dear Readers,

Welcome to the second issue of the AZEA newsletter! In the following pages, you will discover the **latest news and updates concerning the Alliance for Zero-Emission Aviation (AZEA)**, including information on the **5th AZEA General Assembly held last Monday, 27 January 2025, at EUROCONTROL in Brussels.** We would like to thank you for your participation and strong engagement during the 5th General Assembly!

This was a great opportunity to present the **recently published Work Plan 2025-2026 of AZEA** and to update the Alliance on **the ongoing process for the delivery of the AZEA Roadmap by the end of the year.**

DG DEFIS will be soon launching a call for expression of interest, open to all membership, to establish Focus Groups in order to provide specific inputs to the Roadmap per aviation market segment. The extent to which specific market segments will be covered in the Roadmap will very much depend on the engagement of the members of the related Focus Group. Once the call is closed, DG DEFIS will proceed with the selection of members and with composition of the Focus Groups. **Stay tuned for more information!**

NEWSLETTER FEBRUARY 2025

Updates from the Alliance 1

Fifth General Assembly of the Alliance for Zero-Emission Aviation

The **5th General Assembly of the Alliance for Zero-Emission Aviation (AZEA) took place on 27 January at EUROCONTROL in Brussels**, chaired by the **Director for Defence Industry in DG DEFIS François Arbault** and **gathering 123 participants in person. Tânia Cardoso Simões, Director for European Green Sky at EUROCONTROL**, delivered the **Opening Remarks** (see press release **here**).

The event served as an opportunity for DG DEFIS to present to the totality of the AZEA members the **Work Plan 2025-2026**, which proposes new areas of interest for the Working Groups (WGs), as well as horizontal new activities to support the objectives of AZEA **(see a summary of the Work Plan under the section Highlights on…).**
During the General Assembly, DG DEFIS also provided an update on the process to deliver **on a Roadmap for the entire ecosystem** by the end of 2025. **The Roadmap will be the main instrument to implement the Vision presented in June 2024 and prepare the aviation ecosystem for the deployment of electric and hydrogen-powered aircraft.**
The **Roadmap** should be a **communication tool**, fostering a coherent implementation of the actions required by all private and public stakeholders in the industry, policy and finance domains, while it should also provide to the sector **a clear path on how electric and hydrogen flights can be progressively deployed in Europe, specifying the different milestones up to 2050.** This Roadmap should be regularly updated, to monitor the progress towards AZEA objectives.

The Roadmap should consist of a high-level integrated action plan, but also include more detailed storylines for selected market segments. These storylines will be supported by the establishment of dedicated focus groups per market segments. The work on the Roadmap will be supported by an external consultant, while it will be based on the inputs from AZEA members and WGs. DG DEFIS will closely monitor this work.
The meeting also provided the **Working Groups (WGs)** with the opportunity to present relevant updates on their ongoing work and deliverables. The WG updates were provided by their respective Chairs or Vice-Chairs, representing the AZEA members Airbus and GAMA, CENA Hessen, SEA Milan Airports, EASA, EUROCONTROL and AURA AERO. **VZLU Aerospace also delivered a presentation on the support that the AREANA project is providing to the Alliance (see AREANA press release here).**

WG 4 on ''Aviation regulation, certification and standardisation'', chaired by the European Aviation Safety Agency (EASA), presented its recently adopted **Standardisation Gap Analysis report.** Complementing and updating the first analysis of the existing standardization landscape, this new analysis proposes a structure to guide the industry-wide standardization efforts that are required to support the certification of newly electric, hybrid-electric, and hydrogen-powered aircraft. It gives for each main technology a clear mapping of the ongoing standardization activities or the ones to be planned to support regulations at the level of both the aircraft and the system (including sub-system and components).

The General Assembly also counted with relevant presentations by external speakers from the **Norwegian Civil Aviation Authority (CAA Norway) on the International Test Arena for Zero and Low-Emission Aviation** currently under development in the country, as well as from different **European Commission services** (DG CLIMA, DG RTD and DG GROW) **on the funding and support opportunities provided by the Innovation Fund, the European Innovation Council (EIC) and the Enterprise Europe Network to the zero-emission aviation ecosystem.**

Airports Infrastructure Factsheet Tool prepared by WG 3 "Aerodromes" is adopted

On 28 February, AZEA adopted the Airports Infrastructure Factsheet Tool developed by WG 3 "Aerodromes", chaired by ACI Europe. The aim of this document is to provide practical guidance to airports on how to develop actionable plans for the integration of zero-emission aircraft. This new tool will be published shortly in the AZEA website as a delivery under the Milestones section.

To achieve this purpose, the Factsheet tool has into account the challenges and impacts that airports are likely to face when adapting their operations and infrastructure to accommodate the use of electric, hybrid-electric and hydrogen-powered aircraft over different time horizons.This guidance document is a catalogue composed by multiple factsheets addressing various aspects that need to be considered by airports in terms of planning. **The tool includes two sets of factsheets looking at infrastructure and operational issues for the integration of zero-emission aircraft.**

The infrastructure factsheets provide general guidelines by looking at different supply chain set-ups for electric and hydrogen aircraft. Each factsheet includes an overview of the targeted airport categories, a general description of the given scenario, an overview of requirements and preliminary steps to ensure the required infrastructure capabilities, an attribution of roles and responsibilities for the airport and an identification of key involved stakeholders.

The operational factsheets analyse the required adaptations in infrastructure, safety measures and workflow processes that airports will need to consider when enabling the integration of hybrid-electric and hydrogen-powered aircraft. Among others, these aspects cover the assessment of the refuelling safety zones for hydrogen-powered aircraft, the configuration and design of stands, the required conditions for battery charging and refuelling with passengers on board, the analysis of thermal and climate conditions, the establishment of weight and balance limitations and the adoption of protocols for firefighting, rescue and emergencies.

Updates from Working Groups (WGs)

The six Working Groups of the Alliance have continued progressing in their activities over the last months and all of them presented relevant updates at the 5th General Assembly held on 27 January:

- **WG1 "Roll-out scenario and figures of reference"** has completed the annual EU-27 hydrogen and electric requirements. Under the Flight Network Task Force, the WG has identified key regions in the EU-27 as most relevant for hydrogen aviation and has estimated their projected demands for 2030, 2040, and 2050. Revised hydrogen analysis results were presented at the 5th AZEA General Assembly. In the second phase, the work of the Task-Force will complete a similar analysis for electric aircraft with existing routes. It will then explore new routes for eVTOLs and regional air mobility.

- **WG2 "Green electricity and hydrogen supply"** is currently incorporating the last round of feedback received on its latest draft report, which analyses the regulatory landscape supporting the supply of electricity and hydrogen at EU airports. This report also identifies gaps in existing pieces of legislation. The report identifies the European hydrogen pipeline backbone as a potential cornerstone for aviation hydrogen supply, noting that initial phases will rely on truck transport until pipelines are constructed to major airports. WG2 also recognizes the challenges of hydrogen purity, as the bulk of hydrogen demand lies outside aviation. The report also concludes that, while electricity legislation is not expected to pose major hurdles by 2050, the potential scale of new power generation needed per airport for hydrogen liquefaction represents a considerable infrastructural challenge. Separately, based on the ongoing work under the Flight Network Task Force under WG1, WG2 has continued progressing its work on future distribution CAPEX estimates for hydrogen deployment at airports.

- **WG3 "Aerodromes"** has just finalised the Airports Infrastructure Factsheet Tool described above, which was adopted by the Alliance on 28 February.

- **WG4 "Aviation regulation, certification and standards"** has just published its Standardization Gap Analysis report, which were adopted by the Alliance ahead of the 5th General Assembly on 27 January. The Subgroup on Certification has continued advancing the work on a draft of the report on Gap Analysis and Functional Hazard Analysis to support the certification CS-23 zero emissions hydrogen-electric powered aircraft. Based on AZEA Work Plan 2025-2025, WG 4 has also launched a Task-Force to review its mandate.

- **WG5 "Integration into the European network"** has continued progressing the work its simulation activities leveraging EUROCONTROL Network simulation (R-NEST) tools to include replacement strategies for zero-emission aircraft. The development of these tools to perform operational network impact assessment is nearly finished, and the next step will be to start with the work on the definition of network scenarios for specific aircraft configurations and replacement. After this, modeling activities will include presentation of the European flight network, associated airport energy requirements, environmental assessments, and WG 5 will undertake operational simulation to, if required, update the AZEA CONOPS. Assessments with these new tools will provide essential inputs to WG1 for network simulation work on both hydrogen and electric flights.
  The future releases of the EUROCONTROL Flying Green portal could be aligned to reflect latest AZEA findings with regards to replacement strategies for zero-emission aircraft. In addition, not linked specifically to WG5, the FlyingGreen portal could support AZEA and provide transparency to stakeholders to identify public and private funding opportunities.

- **W6 "Incentives"** has produced two draft issue papers on Public Service Obligation as a kick-starter of new aircraft technologies and on Modulating airport charges to incentivize Zero Emission Aircraft. WG 6 has also been working on a concise document that maps policies and incentive schemes, as well as on a mapping of funding opportunities for zero-emission aviation. Work has also been initiated by WG 6 on recommendations for the upcoming revision of the 2014 Guidelines on State aid to airports and airlines (known as the Aviation State aid Guidelines).

New members

The Alliance is currently composed by 197 members. Since November 2024, 11 new members have joined. Below you can find an overview of these new members.

Member	Description
Aéroport de Bordeaux	Aéroport de Bordeaux in France is actively engaged in strategic planning and exploratory initiatives to prepare for the adoption of zero-emission technologies, with a particular emphasis on electric and hydrogen-powered aircraft. As part of its "Ressources 27" strategic plan, the airport aims to become a hub for the production and consumption of decarbonized energy, while playing a key role in the decarbonization of the aviation sector. The airport is currently conducting feasibility studies to develop hydrogen infrastructure, while also evaluating the necessary safety measures and operational adaptations required for its deployment. The airport has also initiated the production of photovoltaic electricity and is exploring how to support the integration of electric aircraft into airport operations.
AeroVecto	AeroVecto (formally SkyCrest Aviation SPC) is an aircraft manufacturer based in Oman specialising in the production of hybrid-electric eVTOLs. AeroVecto is currently developing Shuttle, a line of eVTOL aircraft specifically designed for mass public transport within high-density cities, as well as cargo and air ambulance use cases.

Member	Description
Airport Wroclaw	Wroclaw Airport in Poland is currently preparing a long-term sustainable development strategy until 2050, preparing the project "Zero emission airports - electrification of airport ground services at Wroclaw Airport". This project includes the electrification of the airport's ground service and a photovoltaic installation.
BETA Technologies	BETA Technologies is a United States-based aircraft manufacturer developing cutting-edge electric aircraft and scalable charging infrastructure to accelerate the transition to zero-emission aviation. BETA Technologies works closely with operators, regulators, airports, and other aircraft manufacturers to conduct real-world operations, validating the viability of electric aviation. Its multimodal, interoperable charging ecosystem integrates seamlessly with broader clean energy networks and supports other EV and aircraft manufacturer applications.

Member	Description
DronePort - Brustem Airport	DronePort is a unique 30-hectare airport business park and test center dedicated to pioneering the future of carbon-free and autonomous Advanced and Urban Air Mobility. Within the next decade, DronePort aims to develop into a fully robotized and carbon free regional airport combining crewed and uncrewed flying. DronePort will be recognized as an air hub for the transport of goods and passengers through the air, committed to achieving CO_2-neutral and quiet air movements. DronePort offers state-of-the-art test facilities with segregated airspace, allowing companies, universities, and other organizations to test and develop innovative systems and pioneer in our strategic focus domains being artificial intelligence, autonomous systems, carbon-free systems, renewable energy and data management. By providing a collaborative platform and cutting-edge facilities, DronePort is setting new standards and serving as an inspiration for logistic platforms globally.

Member	Description
International Council on Clean Transportation (ICCT)	The International Council on Clean Transportation (ICCT) is an independent, nonprofit research organization dedicated to advancing sustainable aviation practices. ICCT plays a central role in research, policy analysis, and advocacy aimed at reducing the environmental footprint of the aviation sector. ICCT is currently working on projects including developing an open-source engine performance simulation framework to enhance the understanding of fuel efficiency and emissions, updating the Vision2050 study to incorporate non-CO_2 climate impacts, providing a more comprehensive roadmap for aviation decarbonization, conducting a lifecycle analysis of eVTOL aircraft to assess their environmental impact from production to operation and analysing the scale and cost of hydrogen infrastructure at airports to support the first generation of hydrogen-powered aircraft.
LICRIT	LICRIT is a provider of aerospace engineering services, turnkey solutions, and consulting based in the Czech Republic. The company is specialized in the development of certified avionics and provides solutions for airborne software development, while also offering training on certification process, aviation standards and industry regulations. LICRIT has also active cooperation with several partners working on aircraft electrification and air mobility. LICRIT, with its partner company, is developing Electric Propulsion System including an electric motor with power 400+ KW, which will be used in CS-23 level 3 and level 4 applications, complemented by planned parallel development of a level A Battery Management System.

Member	Description
NOW GmbH	NOW GmbH is a federally owned company advancing Germany's climate and industrial policy goals. We drive sustainable technologies, shape integrated energy systems for mobility and accelerate the adoption of clean aviation through funding and strategic partnerships. Our vision is a climate-neutral society—built on innovation, collaboration, and real-world impact.
SINTEF Energi AS	SINTEF Energi AS is a Norwegian research institute and member of the Clean Aviation Joint Undertaking. SINTEF Energi AS has a strategic focus on electric and hydrogen powered aviation, having been involved for the last 5-10 years in projects with a focus both on hydrogen and electric propulsion, along with the energy system and airport infrastructure that is necessary to deploy zero -emission aviation. SINTEF Energi AS is currently a partner in the Horizon Europe Green Deal Tulips project, being responsible for analysing risks and policies related to LH2 aviation and the specific technology development needed for LH2 refuelling and handling.SINTEF Energi AS is also research partner in the ALRIGH2T project, leading a work package on hydrogen safety and regulations and work on model development for LH2 storage in aircraft, and in the HE-ART project, working on reliability and performance of electrical insulation systems for electric propulsion in aviation.

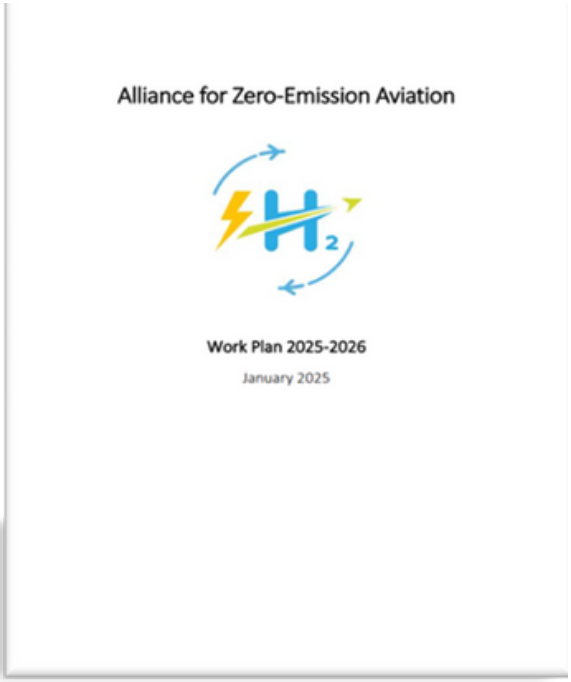
Member	Description
Swiss Federal Office of Civil Aviation (FOCA)	The Federal Office of Civil Aviation (FOCA) of Switzerland is responsible for monitoring civil aviation in Switzerland and aviation development. Since 2009, FOCA has been involved in several innovative projects, particularly in electric propulsion, culminating in the Solar Impulse project and the first circumnavigation of the Earth by using solely solar power. FOCA participates in a number of electric battery-electric aircraft projects, such as eVelis; the H55 Proof of Concept under national responsibility as well as the H55 EPS to be certified by EASA; the Project e-Sling. Since 2023, FOCA is working on the definition of technical requirements leading to the establishment of the Flight Conditions for the Project H2 - "The dream of Hydrogen Flight" in cooperation with the association Celsius and ETH-Zurich University and a second project (also using GH2 and a Fuel Cell) under the special category Homebuilt.
Ziegler Aerospace SAS	Ziegler Aerospace SAS is a French-based company offering aircraft design and engineering capabilities solving complex aircraft modification and certification challenges for aircraft manufacturers, suppliers, airlines, and aviation authorities globally. The company also develops multiple software solutions for end-to-end aviation after-market supply chain. Ziegler Aerospace is currently participating in an eVTOL initiative, focusing on hybrid propulsion systems and Sustainable Aviation Fuel development initiative, contributing to the future of sustainable aviation.

Highlight on... 2

Presentation of the Alliance Work Plan 2025-2026

On 27 January, at the occasion of AZEA5th General Assembly, DG DEFIS published and presented **the Alliance's Work Plan for 2025-2026.**

The **purpose** of the **AZEA Work Plan** is to **a joint ambition**, guiding the Alliance's work for the time ahead. The Work Plan also aims to become a communication tool to monitor the progress of the Alliance's activities.



The preparation of the Work Plan took place during 2024 and was the **result of a review of the Working Group's progress and of an update of their mandates.** The Work Plan provides a description of the WG's mandates to create visibility and to invite Members to publicly contribute to their ongoing work.
The Work Plan also includes the **deliveries that will be necessary for the development AZEA Roadmap** as the next major step for the Alliance, while it also incorporates new horizontal tasks. The new horizontal tasks are based on the inputs from WGs and on the responses submitted to the AZEA Work Plan Survey, which was open to all members from 18 June to 31 of July 2024.

As a response to the Survey, Members showed a strong interest to invest in exploring additional areas going beyond the WG's analyses phase. **The proposed horizontal tasks support AZEA objectives and aim to increase the awareness raising efforts of the Alliance.** The proposed activities serve as indication of the priorities of the membership, but their exact timing and implementation will be decided by the Alliance. **The new horizontal tasks cover investment strategies, funding instruments & projects, synergies & engagement with other relevant initiatives and communication & outreach initiatives.**

News from members

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Updates from members

NACO pioneers Liquid Hydrogen Storage at Rotterdam-The Hague airport with EU-Funded TULIPS Consortium

NACO (Netherlands Airport Consultants), an AZEA member, **supported the EU-funded TULIPS consortium in realizing a global-first liquid hydrogen storage facility at Rotterdam The Hague Airport (RTHA).** As part of this cutting-edge project, NACO provided technical and strategic advisory services to lay the foundation for a successful environmental permit application.

In 2023, as part of the EU TULIPS consortium, Rotterdam-The Hague Airport was chosen to carry out testing and demonstration for the storage and refuelling of liquid hydrogen fuel on the airside. NACO, as an external advisor, was appointed to help secure the foundational permitting necessary to make the project possible.

To support the required permitting, NACO conducted several qualitative risk assessments (QRAs) and safety studies for a small-scale mobile storage facility and its ideal location within Rotterdam-The Hague's airside landscape.

Working together with environmental authorities, local municipalities, and other stakeholders, NACO and RTHA defined the various changes required to accommodate hydrogen fuelling. Key factors included the design of facilities to ensure the safety of passengers, staff, and critical infrastructure.

The resulting permit application was granted in August 2024, marking one of the first instances of a permitted and approved liquid hydrogen storage facility at an airport's airside areas. It is hoped that this first-of-its-kind project will positively impact the development of sustainable aviation across Europe, aligned with AZEA's mission.

Heart Aerospace announces plans to conduct the first fully electric experimental flight of its demonstrator airplane, Heart Experimental 1 (Heart X1)

Heart Aerospace, the Swedish hybrid -electric airplane maker and contributor to the AZEA activities, **has announced plans to conduct the first fully electric experimental flight of its demonstrator airplane, Heart Experimental 1 (Heart X1), in the US in upstate New York's Plattsburgh International Airport in 2025.**

Heart X1, which will become the biggest electric airplane ever to fly when it takes to the skies in the second quarter, will serve as a platform for rigorous testing and development of Heart's ES-30. In preparation for this flight, Heart will over the coming months, test critical systems by running hardware tests both on and off the airplane.

Development of Heart X1 has been funded in part by grants provided by the Swedish Innovation Agency, Vinnova, highlighting the essential collaboration between government and industry that is needed to bring new aviation technologies to market. Heart is pursuing a strategy of conducting R&D and testing in both Europe and the US, as the two biggest regional aviation markets in the world.

The first experimental flight of Heart X1 marks a critical milestone in the development of the ES-30, a 30-seat hybrid-electric regional passenger aircraft. With an all-electric, zero-emissions range of 200 kilometres and an extended hybrid range of 800 kilometres, the ES-30 promises unmatched sustainability and efficiency on short-haul routes.

Evia Aero and Britten-Norman sign Letter of Intent for fifteen new Islander aircraft in boost for zero-emissions aviation

Evia Aero, a pioneering German company dedicated to transforming European travel through sustainable and carbon-neutral aviation, has signed a letter of intent with Britten-Norman to purchase 15 new Britten-Norman Islander aircraft.

The 15 Islander aircraft acquired from Britten-Norman will commence delivery at the beginning of 2027. These aircraft will subsequently be converted to zero-emissions platforms powered by hydrogen fuel-cell propulsion systems.

The partnership aims to set new benchmarks for regional travel by providing practical, zero-emissions aircraft fuelled by green energy generated on-site at regional airports.
The approach supports Evia Aero's strategy to implement sustainable, point-to-point regional air routes connecting European economic hubs, offering passengers a climate-neutral and time-saving alternative.

AREANA project publishes Report on Technology readiness for hydrogen and electric aviation technology in Europe and associated countries

As part of the AZEA deliverables, **the AREANA project published last January a Report focusing technology readiness for hydrogen and electric aviation technology in Europe and associated countries (see press release here).** The report provides an assessment of the current state of hydrogen and electric aviation technology in Europe and associated countries, covering both aircraft and energy production and supply (avoiding duplicating AZEA efforts). In January, AREANA also completed a Summary report of supporting actions provided AZEA in first year. The summary report gives informative overview of the contributions provided in the first year and set the stage for continued collaboration and advancement in the subsequent year.

Delft University of Technology shares latest insights on the future of hydrogen flights

With zero CO2 emissions, flying on hydrogen offers the compelling prospect to help decarbonise aviation. But major technical, economical, and practical challenges remain. Can hydrogen realistically power the future of air travel? Can we risk neglecting an innovation that could not only transform aviation but also drive advancements across energy and transport sectors?

In January 2025, Delft University of Technology shared their latest insights in an interview with Arvind Gangoli Rao, Professor Sustainable Aircraft Propulsion, and Peter Lucas, Innovation Manager Hydrogen. Four young researchers explain in detail how they are working on a future with hydrogen flight **(see full interview here).**

LYNEports: Supporting the Growth of Zero-Emission Aviation through Accessible Training

LYNEports has recently launched a training program focused on the infrastructure requirements of zero-emission aviation. The program offers valuable insights into the emerging field of Advanced Air Mobility (AAM) and equips participants with the skills to develop innovative infrastructure using LYNEports software.

The program is designed to be accessible to professionals from both the aviation sector and related industries, ensuring that all participants can gain the knowledge needed to contribute to the development of sustainable aviation infrastructure. By providing tools for planning, designing infrastructure, navigating regulatory frameworks, and integrating advanced technologies, this training directly supports AZEA's objectives to accelerate the growth and adoption of zero-emission aviation.

Lazarski Aviation Academy launches new Master's programme on ESG in Aviation and receives award to realise project on air traffic and airspace

In recent months, Lazarski Aviation Academy, an internal unit of Lazarski University in Warsaw, continued its efforts to pursue ecological transition in education process. **This academic year, the Academy has opened a new specialisation on "Law in Business" Master's studies programme called "ESG in Aviation".** A first such programme available in Poland, aimed at delivering **professional knowledge on sustainability issues in civil aviation, including: decarbonisation of air transport, fight against greenwashing, implementation of ESG policies in air industry.** More information can be found **here**.

Moreover, **Lazarski University was recently awarded a grant from Polish National Centre of Research and Development to realise a project "Administering of airspace of the FUTURE"** with an aim of improving the functioning of studies programme "Administration of Air Traffic". One of the goals of the project is to adapt the programme to ongoing green and digital transformation in civil aviation; students will henceforth learn about European Strategy FitFor55 and its application in civil aviation, sustainable solutions provided at modern airports, development of SAFs and much more.

The project itself is realised within the framework of European Funds for a Social Development 2021-2027 co-financed by European Social Fund Plus.

AZEA Talks

Latest edition of the AZEA Talks took place on 11 December

The latest **AZEA Talks took place on 11 December 2024**, bringing together **AZEA members** to **highlight their efforts toward achieving zero-emission aviation, in alignment with the Alliance's objectives.** The virtual event presented the members' ongoing activities, featuring presentations from **Air Products, LynePorts, Licrit and VZLU AEROSPACE.**

Air Products highlighted their activities in the production and storage of hydrogen, underscoring the company's ambitions in fostering green aviation. **LynePorts** introduced their advanced air mobility planning software solution, including situational simulations designed to optimize and safely integrate advanced air mobility systems. Licrit, headquartered in Brno, Czechia, specializes in the development of software systems where criticality matters, focusing on aviation, space, and functional safety. Meanwhile, **VZLU AEROSPACE (VZLU)** highlighted its research and testing capabilities, contributing to innovation in zero-emission aviation technologies.

The presentations reflected work being done across AZEA's key focus areas, including technology development, infrastructure readiness, regulatory frameworks, and market strategies. Each presenter highlighted their role in driving innovation and collaboration—from advancing clean propulsion systems to preparing the aviation ecosystem for zero-emission operations.

The event emphasized AZEA's commitment to uniting expertise and fostering progress toward putting zero-emission aviation into operation. With interactive discussions, the **AZEA Talks offer the opportunity to get to know the activities conducted by other members and their contributions to the zero-emission aviation ecosystem.** The AZEA Talks will be organised on a regular basis. **Stay tuned for the details on the next edition and the call for interest to present the activities of your organisation!**

Participation of AZEA members in relevant initiatives

EASA holds first International Workshop on certifying hydrogen-powered aircraft

On **19 December** in Cologne, the **European Union Aviation Safety Agency (EASA) hosted the first International Workshop on the challenges and future processes for certifying aircraft powered by hydrogen,** with the aim of developing **a certification approach that has the support of the entire community.**

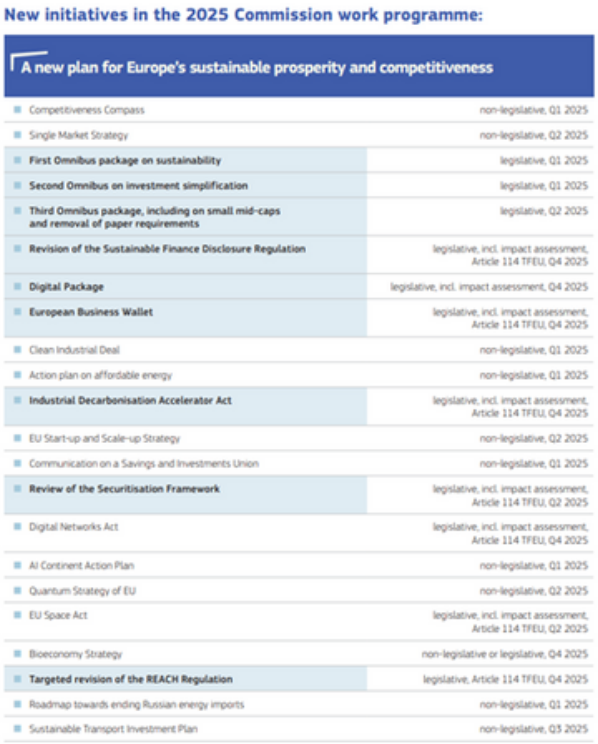
The Workshop, attended by over one hundred people, brought all corners of the hydrogen community together, including representatives of fuel cell companies, academia, research institutes, start-up aviation companies and aircraft manufacturing companies. The event also counted with the participation of international authorities, such as the Federal Aviation Administration of the United States (FAA), the Civil Aviation Authority of the United Kingdom (UK CAA), and the Japan Civil Aviation Bureau (JCAB).

Since hydrogen-powered aircraft will lead to significant changes to aircraft designs and to changes on the interfaces among aircraft systems, a new approach to certification and cooperation among authorities is required to ensure that the highest safety standards are met. The application of technologies in aviation, the exploration of technology bricks (e.g. hydrogen storage) and airworthiness considerations (e.g. prevention of fire and explosions) were considered by the participants as the most relevant aspects to be taken into account.

Industry participants had also the opportunity to present their ongoing projects and topics that are being studied, such as weight distribution, fuel tank distribution, storage of liquid hydrogen and fuel cell stack and systems. **EUROCAE, GAMA and SAE International delivered a presentation on the ongoing activities of AZEA WG 4 on "Aviation regulation, certification, and standards".** The event also included presentations from other **AZEA members, such as the Clean Aviation Joint Undertaking (JU), Airbus, the General Aviation Manufacturers Association (GAMA), the German Aerospace Center (DLR) and Cranfield University.**

EU Regulatory developments 4

European Commission presents 2025 Work Programmes and plans to present a Sustainable Transport Investment Plan



New initiatives in the 2025 Commission work programme:

A new plan for Europe's sustainable prosperity and competitiveness	
Competitiveness Compass	non-legislative, Q1 2025
Single Market Strategy	non-legislative, Q2 2025
First Omnibus package on sustainability	legislative, Q1 2025
Second Omnibus on investment simplification	legislative, Q1 2025
Third Omnibus package, including on small mid-caps and removal of paper requirements	legislative, Q2 2025
Revision of the Sustainable Finance Disclosure Regulation	legislative, incl. impact assessment, Article 114 TFEU, Q4 2025
Digital Package	legislative, incl. impact assessment, Q4 2025
European Business Wallet	legislative, incl. impact assessment, Article 114 TFEU, Q4 2025
Clean Industrial Deal	non-legislative, Q1 2025
Action plan on affordable energy	non-legislative, Q1 2025
Industrial Decarbonisation Accelerator Act	legislative, incl. impact assessment, Article 114 TFEU, Q4 2025
EU Start-up and Scale-up Strategy	non-legislative, Q2 2025
Communication on a Savings and Investments Union	non-legislative, Q1 2025
Review of the Securitisation Framework	legislative, incl. impact assessment, Article 114 TFEU, Q2 2025
Digital Networks Act	legislative, incl. impact assessment, Article 114 TFEU, Q4 2025
AI Continent Action Plan	non-legislative, Q1 2025
Quantum Strategy of EU	non-legislative, Q2 2025
EU Space Act	legislative, incl. impact assessment, Article 114 TFEU, Q2 2025
Bioeconomy Strategy	non-legislative or legislative, Q4 2025
Targeted revision of the REACH Regulation	legislative, Article 114 TFEU, Q4 2025
Roadmap towards ending Russian energy imports	non-legislative, Q1 2025
Sustainable Transport Investment Plan	non-legislative, Q3 2025

On 11 February, the **European Commission presented its 2025 Work Programme** (see Communication here and Annexes here). This year Work Programme envisages **the publication of a Sustainable Transport Investment Plan (STIP) by the third quarter of this year**, which will provide a strategic framework for supporting sustainable transport fuels production and distribution across transport modes. **The STIP will outline short-term and medium-term measures to prioritise support to specific renewable and low-carbon fuels for aviation, while also aiming to accelerate the roll-out of recharging infrastructure.**

Among other relevant initiatives, it is important to highlight:

• **Clean Industrial Deal (CID), accompanied by an Action Plan on Affordable Energy**: Presented on 26 February, this horizontal Communication outlines short-term measures to support and create optimal conditions for industry to regain competitiveness, while contributing to achieve the decarbonisation objectives. The CID aims to increase industry access to affordable energy (as detailed in the Action Plan), to boost demand for clean products, to facilitate the financing of the clean transition and to increase access to critical raw materials. While the Communication does not provide a sectorial approach, the aviation sector is mentioned in the context of the upcoming STIP and of the Hydrogen Mechanism.

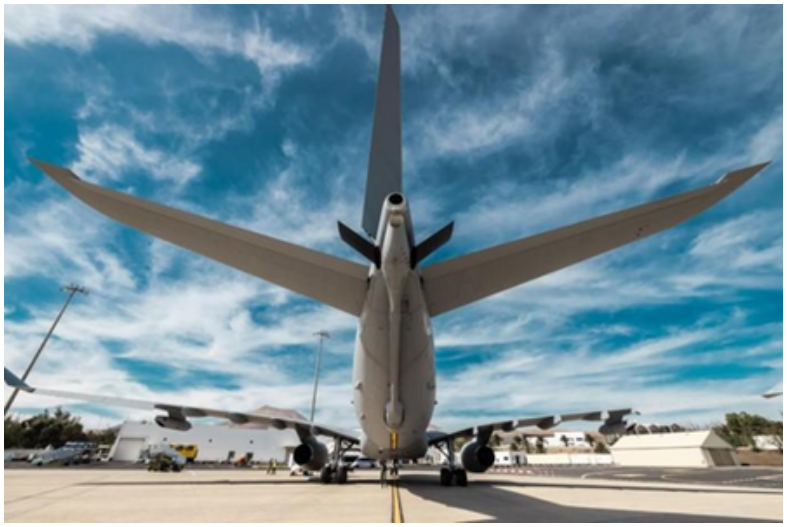
- **Hydrogen Mechanism:** Announced in the CID, this initiative will be launched under the current framework of the Hydrogen Bank by the second quarter of this year. This new mechanism will be aimed to mobilise and connect offtakers and suppliers. It will link participants with derisking instruments facilitating the aggregation of offtakers' demand for hydrogen and hydrogen derived-fuels in hard-to-abate sectors and transport (aviation is explicitly provided as an example).
- **Industrial Decarbonisation Bank:** Announced in the CID and to be placed within the governance of the future Competitiveness Fund, this initiative will aim to provide 100 billion euros in funding (based on funds from the Innovation Fund, additional revenues from the EU ETS and a revision of InvestEU). A pilot will be launched in 2025, with a 1-billion-euro auction for the decarbonisation and electrification of key industrial processes across sectors.
- **European Grid Package:** Expected by the first quarter of 2026 and announced in the Clean Industrial Deal, this initiative will aim to modernise the network of energy transmission and distribution infrastructure, including hydrogen distribution networks and electricity grids. This initiative will include legislative proposals to simplify the trans-European energy networks legislation (TEN-E Regulation), while also aiming to ensure cross-border integrated planning, effective delivery of projects and accelerated permitting.

The European Commission also plans to complete a **Fitness check of EU Airport legislation by the fourth quarter of this year.** This Fitness check aims to evaluate whether **three pieces of EU airport legislation (the Slot Regulation, the Groundhandling Directive and the Airport Charges Directive)** are still fit for purpose and delivering on their objectives, especially in the light of recent trends (e.g. market consolidation, capacity challenges, decarbonisation needs etc).

European Commission plans to review the State Aid Aviation Guidelines

With the objective of revising the **Guidelines on State aid to airports and airlines by mid-2027, a call for feedback in the form of a questionnaire for stakeholders** has been launched by the European Commission, following the call for evidence published last August. The Aviation State aid Guidelines provide guidance on the notion of aid and establish the conditions for State aid in the aviation sector to be compatible with the single market. **The questionnaire was open for feedback until 5 March.**

European Commission adopts EU rules on the EU ETS support system to accelerate the use of sustainable aviation fuels



On 6 February 2025, the European Commission adopted a delegated regulation on the functioning of the new support system financed by the EU ETS aimed to accelerate use of eligible sustainable fuels in the aviation sector (see press release here). In this regard, 20 million EU ETS allowances are set aside from 1 January 2024 (amounting to approximately 1.6 billion euros).

The allowances are meant to cover all or part of the remaining price difference between fossil kerosene and eligible aviation fuels used by individual commercial aircraft operators on their flights covered by the EU ETS. This delegated regulation sets the rules for the yearly calculation of the price difference between eligible aviation fuels and fossil kerosene and the rules for allocating the allowances. **RFNBOs, renewable hydrogen for aviation and non-fossil low-carbon hydrogen for aviation are included among the eligible fuels, although the level of direct ETS support varies depending on the type of eligible fuel used.** While RFNBOs are allocated with a 95% of direct EU ETS support, renewable hydrogen for aviation is allocated with 70% and low-carbon hydrogen for aviation with 50%. **Airlines should report the use of these eligible fuels by 31 March 2025 and the Commission should publish the fuel price difference by 31 May 2025 based on a technical report to be drafted by EASA.** By 31 August, the Commission will publish a Decision indicating the allocation of allowances per commercial airline applying for this support mechanism. The delegate act will enter into force by 6 April 2025, unless the Council or the European Parliament raise any objections.

EASA Sustainability Portal: Opening of the first reporting period for aircraft operators under ReFuelEU

To enable aircraft operators to fulfil their reporting obligations under ReFuelEU, EASA has developed its Sustainability Portal. From 2025 onwards, ReFuelEU mandates aircraft operators to annually report the total amount of aviation fuel uplifted at each EU airport, the yearly aviation fuel required at each airport, the yearly non-tanked quantity per EU airport, the total amount of SAF purchased from aviation fuel suppliers for the operation of flights departing from EU airports, details on each purchase of SAF and the total operated flights departing from EU airports. **The reporting period for the year 2024 opened in January and will close on 31 March 2025.**
EASA has also developed a template for aircraft operators to ease the reporting, as well as a Manual for Aircraft Operators and Verification Bodies, with dedicated guidance on the refuelling obligation. Last October, the European Commission also adopted Interpretative Guidelines on the application of the exemptions to the reporting obligations.

European Commission adopts Flight Emission Label under ReFuelEU

On 18 December, the European Commission adopted a Regulation putting in place a Flight Emissions Label (FEL) under ReFuelEU, which will be fully operational by July 2025. Airlines operating flights within the EU or departing from the EU will be able to join this scheme on a voluntary basis. By establishing a harmonised methodology for estimating flight emissions, the FEL will enable passengers to compare the **estimated GHG emissions of their flights (expressed in kg of CO2 equivalent)** and to make more informed purchase decisions. The label with take into consideration factors such as aircraft type, average passenger number, freight volume on board and aviation fuel used. A dedicated logo will be displayed alongside the flight emissions data when booking or looking for flights online.

The FEL will ensure fair competition among airlines, promoting the uptake of SAFs and supporting fleet renewal. **EASA will be responsible for estimating the flight emissions** by using the most advanced international standards and the estimations will be based on actual consumption data (see EASA portal here). **Since 1 February this year, airlines can already participate in the FEL by submitting the required data to EASA. The first labels will be assigned by EASA by 1 July and will apply to flights scheduled during the 2025 winter season.**

SESAR 3 Joint Undertaking publishes updated European ATM Master Plan

Last 12 December, SESAR 3 Joint Undertaking presented its updated 2025 Edition European ATM Master Plan, outlining an ambitious vision to transform European airspace into the world's most efficient and environmentally friendly skies by 2045 (see European Commission press release here). The updated Plan is at the heart of the ATM innovation cycle in the revised Single European Sky and provides strategic direction for future investments and regulatory decisions.

To achieve this, the Plan incorporates a comprehensive roadmap for the digitalisation and modernisation of Europe's air traffic management systems.

The updated roadmap was prepared in consultation with all European stakeholders, incorporating a vision, a roll-out scenario, deployment, and development priorities, expected operational benefits and estimations on investment needs. The investment needs are calculated at 25.5 billion euros for the period 2025-2050, while the initial operational benefits are estimated at 318 billion euros. With the roll-out of the Vision by 2050, the updated ATM Master Plan estimates that 400 million tonnes of CO2 could be saved (equivalent to 3 years' worth of total CO2 emissions from aviation in the EU).

New Single European Sky (SES2+) regulation enters into force

Last December, the revised Single European Sky (SES2+) regulation entered into force, establishing rules and incentives for monopoly air navigation service providers to adopt modern technologies and implement more efficient practices. The aim of the new regulation is to alleviate the existing congestion in the European airspace by improving the management of the air traffic network and by ensuring that better quality services are provided, while also contributing to foster innovation.

The new regulation also aims to reduce the environmental impact of flights by setting specific targets for climate and environmental performance for air navigation service providers and by encouraging airlines to adopt sustainable practices through a fair charging system.
EUROCONTROL, appointed as the network manager, will collaborate with stakeholders on the coordinated deployment of network infrastructure in Europe.

EU Funding and Finance 5

Clean Aviation Joint Undertaking (JU) launches its Call 3 for proposals

Clean Aviation JU published its third call for proposals on 20 February, with up to 380 million euros in EU funding aimed at decarbonizing aviation (see full text of the call here). The call focuses on the following three areas:

- **Aircraft Concept Integration & Impact Assessment (ACI&I):** 15 million euros
- **Ultra-efficient Short-Medium Range (SMR) Aircraft Architectures:** 205 million euros
- **Ultra-efficient Regional (REG) Aircraft Architectures:** 145 million euros

Additionally, a new initiative called Fast Track Areas (FTAs) will be introduced, with a total funding volume of 15 million euros, designed to accelerate research into effective technologies (in principle these projects should be linked to SMR and REG through aircraft concept integration and impact). Major projects corresponding to hydrogen-powered aircraft are expected to be included in the fourth call.
The 2025 call will open on 27 March, with a deadline on 23 April for the FTA Call and a deadline on 15 May for the rest of areas under the Standard Call. An Info Day on this call for proposals was organised on 4 March at 13:00.

Clean Hydrogen Joint Undertaking (JU) launches its 2025 call for proposals

On 15 January, the **Clean Hydrogen JU** launched its **2025 call for proposals** funded by Horizon Europe, with a **deadline on 23 April. This year total budget amounts to 184.5 million euros in grants (lump sum contributions) dedicated to advancing hydrogen technologies.** Among the scientific priorities for transport as an end use, the development of tanks and fuel cell technologies adapted to aviation is mentioned, as well as the need to establish synergies with the Clean Aviation JU through the already established MoU.

The call encompasses **19 topics across various areas**, which include the following aspects:

- **Renewable Hydrogen Production:** 7 topics with an allocation of 40 million euros, focusing on different paths to produce renewable hydrogen.
- **Transport:** 3 topics with 17 million euros in funding.
  - The topic *Scalable innovative processes for the production of Membrane Electrode Assemblies (MEAs) for Proton Exchange Membrane Fuel Cells (PEMFC)*, with an allocation of 5 million euros, refers to aviation as one of the targeted end-uses of these hydrogen fuel cells. The funded project under this topic will need to achieve manufacturing KPIs targets for the aviation sector, with an annual production capacity 100 000 m^2 for aviation purposes (per facility).
  - Projects funded under the topic *Reliable, efficient, scalable and lower cost 1 MW scale PEMFC system for maritime application* (with a budget of 7 million euros) should look at the potential use of these fuel cels for the aviation sector.
- **Hydrogen Valleys:** 2 topics with a total cumulative budget of 80 million euros for small-scale and large-scale hydrogen valleys.

Deadline for Innovation Fund regular grants for Net-Zero technologies on 24 April

On 3 December, the European Commission opened the **2024 Innovation Fund regular grants call for Net-Zero technologies**, **with a total budget of 2.4 billion euros and a deadline for submissions on 24** April and expected publication of results by the fourth quarter of this year (see full text call here). The budget is divided across the following topics:

- **Large-scale projects:** 1.2 billion euros, for projects with a CAPEX above 100 million euros.
- **Medium-scale projects**: 200 million euros, for projects with a CAPEX between 20 and 100 million euros.
- **Small-scale projects**: 100 million euros, for projects with a CAPEX between 2.5 and 20 million euros.
- **Pilots:** 200 million euros. This topic covers the construction and operation of pilot projects that focus on validating, testing, and optimising highly innovative, deep decarbonisation solutions in all sectors.
- **Clean technology manufacturing:** 700 million euros. This topic covers the manufacturing of batteries, electrolysers, heat pumps, solar panels, and wind turbines, among others.

After the entering into force of the revised EU ETS Directive, **the scope of the Innovation Fund was expanded to cover wider decarbonisation activities in aviation. Under the small, medium, and large-scale projects, the use of zero-emission propulsion technologies and SAFs for aviation, as well as the electrification of the sector, are explicitly mentioned.** The production and installation of new or retrofitted innovative technologies (e.g. energy system, engine, or equipment) into an aircraft are also eligible, as long as the manufacturing or installation is done in the EU/ EEA. Aviation is also eligible under the Pilots topic.

The **Innovation Fund 2024 auction for the production of RFNBOs**, with a budget of 1.2 billion euros, closed on 20 February. The evaluation results are expected by May-June this year (see call text here).

European Innovation Council (EIC) 2025 Work Programme

The **EIC 2025 Work Programme**, funded under Horizon Europe, **opens funding opportunities worth over 1.4 billion euros for strategic technologies and scaling up companies.**
Under this Work Programme, the EIC Accelerator Call offers support to SMEs and start-ups to develop, and scale-up innovations considered with the potential to create or disrupt markets. Small mid-caps can also participate under specific conditions, but they can apply for investment only and in specific cases.

- **The support** is provided in the form of a **grant component** below 2.5 million euros for innovation activities (TRL 6 to 8) and **an investment component** of 0.5 up to 10 million euros for scaling up and other activities. Grant only and investment only components can be granted under certain conditions.
- **EIC Accelerator Challenges** will offer 250 million euros to early-stage companies developing projects matching specific technologies. Zero-emission aviation projects can apply under the **''Future mobility solutions'' challenge**, with an indicate budget of 50 million euros.
- Any type of zero-emission aviation project can also apply under the **EIC Accelerator Open** (with a budget of 384 million euros), which is open to all types of technologies or applications without thematic priorities.

Short proposals can be sent anytime. If successful, projects will be invited to submit a full proposal and there are two cut-off dates on 12 March and 17 October. Successful projects in the full proposal phase will be invited to a face-to-face interview with the EIC Jury as a last step in the process.

Alternative Fuels Infrastructure Facility (AFIF) upcoming deadlines

Under CEF Transport, the **Alternative Fuels Infrastructure Facility (AFIF) has two upcoming deadlines for the General and Cohesion envelopes rolling call, which are set on 11 June and 4 March 2026 (the original second deadline was in December 2025, but it has been postponed).** Under the General and Cohesion envelopes (co-funding rate), the 2024 AFIF rolling call provides support to the deployment of **liquid or gaseous hydrogen refuelling and electricity recharging infrastructure at TEN-T airports.**

SESAR 3 Joint Undertaking (JU) 2025 call for proposals on integration of the next generation aircraft for zero and low-emission aviation

The **biannual 2024-2025 Work Programme of the SESAR 3 JU** includes a specific topic supporting the objectives of the Alliance by aiming to **explore the Air Traffic Management (ATM) aspects of the integration of the next generation aircraft for zero and low-emission aviation** as envisaged the AZEA CONOPs and in the Clean Aviation JU (see topic here). **The budget for this topic is 14 million euros and the deadline for submissions is 16 September (the call will open on 1 April).**

The funded project should analyse the different aircraft types and models, as well as the different propulsion systems under development. The aim of this topic is to collect requirements for the integration of the new models and propulsion systems in European airspace. The project should also provide appropriate recommendations for ATM developments.

This topic could explore the impact of the introduction of zero and low-emission aircraft on airport operations, route design, traffic synchronisation, traffic demand, airspace management, network management and traffic flow management. Other aspects to be studied could be the applicability of new ATM concepts and the adaptation of ATM platforms.

News and Updates on ZE Aviation 6

Alternative Fuels Infrastructure Facility (AFIF) selects 7 projects at airports

On 6 February, the European Commission presented the results of the CEF Transport AFIF first cut-off deadline from last September. 39 projects were selected for funding, with a total allocation of 422 million euros (see press release here and selected projects here). Out of the 39 projects, 7 projects are located at airports. While most of the selected projects focus on the installation infrastructure to supply electricity and hydrogen to ground and airside operations and to stationary aircraft, one of the projects plans to install electric infrastructure for recharging aircraft. All these projects will contribute to ensure the readiness of airports to accommodate electricity and hydrogen supply to aircraft in the future. **We would like to congratulate AZEA members Swedavia, Dublin Airport Authority (DAA) and Engie for being successful in this call!**

The 7 selected projects at airports are:

- **Green Infrastructure at Swedavia airports (Sweden), with Swedavia as a beneficiary, has been allocated 3.9 million euros.** The project is located at Stockholm-Arlanda and Gothenburg airports and is aiming at installing infrastructure for recharging electrical aircraft, as well as electrical charging stations for ground operation vehicles, pantographs for electric buses, infrastructure for supply stationary aircraft with preconditioned air and solar panels with an electricity storage installation.
- **MOBility with HYdrogen at Lyon Saint-Exupéry Airport (France), with Airports of Lyon as a beneficiary, has been allocated around 7.5 million euros.** The project plans to decarbonise the ground activities of the Lyon Saint-Exupéry airport, with the deployment of one public hydrogen refuelling station on landside, one private hydrogen refuelling station on airside, and one renewable hydrogen electrolysis plant to supply both stations.
- **Brussels Airport Electrification for Zero Emissions (Belgium), with Brussels Airport company as a beneficiary, has been allocated around 7.2 million euros.** The project aims at the electrification, and decarbonisation of Brussels Airports ground handling activities. The project plans to deploy charging points for ground support equipment vehicles (GSE), the installation of Fixed Electric Ground Power (FEGP) and Pre-conditioned Air (PCA) units to maintain power and supply air conditioning to stationary aircraft.

- **Hydrogène sur Land side et Air side (France), with Engie Cofly as a beneficiary, has been allocated around 5.6 million euros.** The project aims to contribute to the decarbonisation of the airside and landside activities of the Charles De Gaulle airport in Paris, with the deployment of two hydrogen refuelling stations. The project will also deploy an electrolyser of 5 MW capacity to supply the two hydrogen refuelling stations with renewable hydrogen produced onsite.
- **Dublin Airport Campus Electrification (Ireland), with Dublin Airport Authority Public limited company (DAA) as a beneficiary, has been allocated 4.71 million euros.** The project aims to install charging stations and the related electric infrastructure to be used for airport airside buses and GSE (Ground Support Equipment) vehicles.
- **oBergamo Air Side Electrification (Italy), with SACBO Spa as a beneficiary, has been allocated 2.88 million euros.** The project aims at delivering charging points for the ground service vehicles at the airport airside, an e-mobile Ground Power Unit (GPU) for remote aircraft stands and two fixed GPUs for the terminal fingers.
- **oElectric Ground Power Unit at Larnaka and Pafos International Airports (Cyprus), with Hermes Airports as a beneficiary, has been allocated 3. 58 million euros.** This project aims to install fixed power units and Ground Power Units (GPUs) at both airports.

EUROCONTROL publishes new release of FlyingGreen

In February, EUROCONTROL released new updates to its flagship sustainability platform FlyingGreen, designed to support aviation stakeholders to accelerate their green transition (see press release here). The latest updates introduce improved tools for decarbonisation and carbon adaptation features. The new features include overview of emissions reductions per category (e.g. fleet renewal, ATM operational improvements, SAF, revolution), airport emissions overviews, advanced simulations, filtering options per market segment and flight phases and details on environmental costs (ETS, CORSIA and SAF costs). The new release also offers information on the additional renewable electricity needs for producing SAF and supplying electricity and hydrogen to hydrogen-powered and electric aircraft.

EASA certifies first engine for electric propulsion developed by Safran

On 4 February, Safran Electrical and Power's ENGINeUS 100 series was awarded by EASA the first type certificate for an engine complying with Special Condition SC E-19, representing the world's first Special Condition for electric and/or hybrid propulsion systems (see Safran press release here). We would like to congratulate AZEA member Safran for this achievement!

This certification process involved a 1500 hours campaign of motor certification tests and more than 100 flight hours on an aircraft in real-world conditions. ENGINeUS 100 electric motor includes key innovations, such as power and control electronics directly integrated into the engine, and it can be easily integrated in all propulsion technologies.

The electric ENGINeus 100 series is planned for initial installation on a 100% electrical two-seater to four-seater aircraft. The series is aimed to be extended to a greater power range (from 89 KW to 180 KW), a baseline to allow for wider application in up to 19-seater hybrid-electric regional aircraft. This electric motor is now prepared for mass production, and four semi-automated production lines are expected to be created in Niort (France) and Pitstone (United Kingdom) in 2026.

The learnings from this first certification process will be applied by EASA to further propulsion projects in the future.

Destination 2050 published updated Roadmap 2025-2050

On 4 February, Destination 2050 published its updated Roadmap on a pathway to net-zero aviation by 2050, originally published in 2021 (se press release here). Destination 2050 is an industrial initiative representing the aviation sector and formed by Airlines for Europe (A4Europe), Airports Council International (ACI) Europe, Aerospace, Security and Defence (ASD) Europe, the Civil Air Navigation Services Organisation (CANSO) and the European Regions Airline Association (ERA).

This updated Roadmap was commissioned to the Netherlands Aerospace Centre (NLR) and SEO. The document aims to reflect the advancements occurred in the sector since 2021. The Roadmap identifies four pillars to achieve net-zero emissions by 2050, including aircraft and engine technology, renewable energy (SAFs and hydrogen), optimised air traffic operations and out-of-the-sector measures (e.g. carbon removals). Despite the progress achieved since 2021, the study acknowledges that immediate short-term action is required from industry and governments to achieve the goals.

The updated Roadmap also increases the additional expenditure related to decarbonisation over the business-as-usual scenario from the 820 million euros estimated in 2021 to 1300 billion euros, due to mainly higher SAF prices.
As regards aircraft and engine technologies, the Roadmap urges industry to develop and heavily invest in the development and introduction of future generation aircraft products from 2030 onwards, including hybrid-electric and hydrogen-powered aircraft. The Roadmap also identifies the streamlining of EASA certification processes for these technologies as key, as well as the role of government authorities in approving the installation of the required refuelling and recharging infrastructure at airports. Among the policy recommendations, the Roadmap highlights the need to support investments in infrastructure and to derisk hydrogen production, while also considering renewable electricity needs and incentivising zero-emission routes. The document also recommends strengthening the role of AZEA.

EASA publishes 4th edition of the European Aviation Environmental Report 2025 (EAER)

Turning sustainability goals into action is critical for the future of aviation: **The 4th edition of the EASA European Aviation Environmental Report (EAER) provides an overview of the current progress in achieving these environmental goals, the challenges that the aviation sector faces, and the way forward.** It contains historical and future air traffic scenarios and their associated noise and emissions, the latest scientific understanding of these impacts, and key mitigation areas (Technology and Design; Sustainable Aviation Fuels; Air Traffic Management (ATM) and Operations; Airports; Market-Based Measures; and International Cooperation). The EAER was compiled by the EASA with support from the European Commission, European Environment Agency (EEA), and EUROCONTROL.

The EAER 2025 also reviews the progress made on recommendations from the 2022 edition of the report, highlighting the establishment of sustainability targets at EU and ICAO level and significant developments in Sustainable Aviation Fuels (SAF). In addition, the report looks to the future and considers new recommendations that aim to further improve the level of environmental protection and emissions reductions in civil aviation.

The Chapter "Technology and Design" informs that there have been further developments within the low-carbon emissions aircraft market (e.g. electric, hydrogen), with support from the Alliance for Zero-Emissions Aircraft to address barriers to entry into service and facilitate a potential reduction in short/medium-haul CO2 emissions by 2050.

The full report, as well as the executive summary with the recommendations are available at **https://www.easa.europa.eu/en/domains/environment/eaer**

FAA publishes its Hydrogen-Fuelled Safety and Certification Roadmap

On 3 December 2024, the United Stated Federal Aviation Administration (FAA) published its Hydrogen-Fuelled Safety and Certification Roadmap. This document provides a strategy to identify and mitigate regulatory challenges linked to hydrogen-powered aircraft. The roadmap includes an overview of required industry engagements to understand applications and safety concerns, identification of hazards by assessing safety risks linked to the use of hydrogen as a fuel, identification of gaps in existing regulations, required aviation safety research and an implementation plan with dedicated timelines identifying near-time actions (2023-2028) and medium-term actions (2028-2032).

What's upcoming? 7

Clean Aviation Annual Forum, 18-19 March in Brussels, Belgium

Description:
Organised by the Clean Aviation Joint Undertaking, the event features EU Commissioner for Startups, Research & Innovation, European Commission Ekaterina Zaharieva as a keynote speaker (see full programme here**).** The focus of the Annual Forum will be on the R&I challenges posed by the development of disruptive technologies for zero-emission aircraft and the need to accelerate their market readiness and uptake. The event will gather policymakers, industry leaders and academia. **The event will also feature a Hardware Hub to display ongoing projects funded by the Clean Aviation JU.**

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Clean Hydrogen Forum, 19 March in Brussels, Belgium

Description:
Organised by DG GROW as a facilitator of the Clean Hydrogen Alliance and co-hosted by the European Parliament ITRE Committee, the programme **of this event includes a presentation of the Clean Industrial Deal and a panel discussion on the essential elements that should be included in the upcoming Industrial Decarbonisation Accelerator Act.**
The afternoon sessions will include a discussion on the future objectives and new mandate of the Clean Hydrogen Alliance and a **panel discussion with Alliance industry stakeholders on hydrogen project deployment (covering also IPCEIs).** Registration is open to the members of the Clean Hydrogen Alliance.

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ERA Regional Airlines Conference, 19-20 March in Copenhagen (Denmark)

Description:
This ERA-only member conference will take place on 19-20 in Copenhagen and the programme is already available. AZEA will be represented by DG DEFIS at the panel session **Navigating the present and future of regional aircraft: OEM insights on sustainability, challenges, and market evolution** on Thursday 20 March.

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A4E Aviation Summit, 27 March, Brussels (Belgium)

Description:
Organized by Airlines For Europe (A4E), the ninth edition of the Aviation Summit will gather policymakers, industry leaders and academia to discuss the challenges that are currently faced by airline operators in Europe and to identify solutions to ensure the competitiveness of the sector. The **programme** of this year includes a keynote discussion with the **Commissioner for Sustainable Transport and Tourism Apostolos Tzitzikostas** and a discussion on the role of airlines as Europe's gateway to growth.

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Aerospace Tech Week, 2-3 April Munich (Germany)

Description:
This annual event on aerospace technology includes a conference and an exhibition. One of the topics covered in 2025 will be electric propulsion technologies for aviation, with dedicated sections on 3 April on architectural design decisions for the electric power system in the future electric aircraft and fast-track developments on e-VTOLs.

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Clean Tech Conference, 8 April, Brussels (Belgium)

Description:
Co-organised by DG CLIMA and CINEA, the programme of this year conference will include a presentation on the Clean Industrial Deal and a panel discussion on how this initiative can help to drive innovation and respond to industry needs by enhancing competitiveness.
The programme also covers presentation **by successful projects under the Innovation Fund,** a roundtable on the opportunities and challenges for **scaling decarbonisation technologies** and a panel discussion on EU supply chain resilience. The day will close with a discussion on **public and private investments in clean technologies.**

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Innovation Zero World Congress Aviation Forum, 29-30 April, London (United Kingdom)

Description:
Taking place on April 29-30, 2025, at Olympia London, the Aviation Forum at Innovation Zero will address challenges and innovations required to achieve sustainability in aviation. The forum will provide insights into the future of air travel, focusing on reducing emissions and developing new technologies. **Key topics to be discussed include hydrogen-powered flights, electrifying aviation and decarbonising airports.**

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AERODAYS 2025, 7-9 May in Warsaw (Poland)

Description:
This 3-day scientific and business conference for approximately one thousand participants is organised as part of the Polish Presidency of the Council of the European Union. The conference is aimed at promoting the Aviation Sector within the EU and globally, defining Common Areas of Industrial activity in Europe and ensuring synergies between ongoing research and development projects, fostering knowledge-sharing and sharing information among stakeholders and creating opportunities for new strategic alliances and consortiums, strengthening the potential and capabilities of SMEs and supporting policy coordination in the aviation sector.

The **programme** is already available**. AZEA will actively participate in the sessions to be held during the second day (Thursday 8 May), having a dedicated parallel session (session 8). AZEA will also participate with speakers at the Plenary session 3 Fly the green deal: Technological and Implementation challenges.**

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International Paris Air Show at Le Bourget, 16-22 June in Paris (France)

Description:
This bi-annual international fair gathers more 2400 exhibitors to present the latest technologies in aeronautics and aviation. The start is reserved for the professional community, but the event opens to the public for the weekend. Visitors can see more than 150 aircraft models in flight exhibitions. **AZEA plans to be represented this year at ILA (more details will follow).**

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ACI Europe Annual Congress & General Assembly, 18-20 June in Athens (Greece)

Description:
This annual event represents the most important gathering of European airports representatives. The conference will include keynote speakers from industry leaders as well as panel discussions in the latest trends, challenges, and opportunities at airports and in the aviation sector. The event will also include an exhibition.

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