Zero-Emission take off: accelerating zero-emission aviation in Europe

Organised by T&E, co-hosted by Aura Aero, Vaeridion and Elysian Aircraft

TownHall Europe, Brussels — 3 November 2025

Opening remarks William Todts (T&E)

William Todts opened the event by stressing the urgency for Europe to accelerate zero-emission aviation (ZEA) and warning that without bold action, Europe risks losing its leadership to the United States and China. He highlighted that ZEA must become a central pillar of the Clean Industrial Deal and that Europe needs to support not only Sustainable Aviation Fuels (SAF) but also electric and hydrogen-electric aircraft, which have the potential to transform regional mobility and industrial competitiveness.

Electric and hydrogen as decarbonisation pathways

Speakers: Victor Vareille (ZeroAvia), Giovanni Raimondi (Safran)

Giovanni Raimondi (Safran)

Giovanni Raimondi outlined Safran's strategy for decarbonising aviation, which is built around three main pillars: improving overall aircraft efficiency, ensuring full compatibility with 100% SAF and advancing the electrification of propulsion and onboard systems. Safran is working on electrification at component level as a key enabler for more efficient and lower-emission aircraft.

He stressed that certification cycles for new components are still very long, often close to a decade for some systems. This makes it necessary to mature technologies progressively on smaller platforms before scaling them up to larger aircraft. Raimondi called for more predictable, long-term R&I programmes and for EU support to go beyond early-stage research and cover industrialisation and certification readiness. He also underlined that innovation at component level, where many breakthroughs actually occur, should be better integrated into Europe's broader aviation decarbonisation strategies.

Victor Vareille - Zero Avia

Victor Vareille highlighted the climate urgency, noting that aviation's share of global emissions, currently around 3%, could rise significantly as other sectors decarbonise. In this context, he argued that hydrogen-electric propulsion is one of the few credible pathways for deep decarbonisation by 2050, especially in regional and short-haul markets.

Vareille presented ZeroAvia's retrofit approach, which focuses on installing hydrogen-electric powertrains on existing airframes in order to accelerate certification and deployment. He recalled recent milestones, including successful test flights of a six-seater aircraft and the Dornier 228 in 2023 and noted that the company has already secured more than 1,000 orders for its ZA600 powertrain.

He also pointed to the limitations of SAF, particularly structural supply constraints and high costs. In the case of e-SAF, he reminded participants that production itself requires extensive renewable hydrogen infrastructure. To accelerate market entry for hydrogen-electric aircraft, he called for faster deployment of hydrogen infrastructure at airports, stronger policy support for certification and retrofit projects and funding mechanisms that bridge the gap between demonstration and commercialisation.

Panel 1 – How can the EU support R&D of disruptive technologies?

Speakers: Jane Amilhat (DG RTD), Daniel Rosen Jacobson (Elysian Aircraft), Jan Petter Steinland (CAA Norway), Antoine Toulemont (AuraAero), Sébastien Dubois (Clean Aviation)
Moderator: Diane Vitry (T&E)

DG RTD: Jane Amilhat warned that Europe risks repeating the mistakes seen in the automotive sector, where a focus on optimising incumbent technologies allowed other regions to overtake Europe. She argued that aviation policy should avoid the same trap. She called for a clearer prioritisation of enabling technologies such as batteries, AI, sensors and advanced digital tools and for stronger cross-sectoral links between aviation, automotive and maritime R&I. In her view, Europe must put more emphasis on industrialisation and scale-up if it wants to maintain competitiveness and ensure that public R&I investments translate into concrete market outcomes.

Clean Aviation: Sébastien Dubois explained that Clean Aviation focuses on technologies capable of delivering substantial emissions reductions for regional and short-haul aircraft, targeting at least a 30% reduction relative to today's fleet. The programme supports a range of architectures, including hydrogen (both fuel-cell and turbine), hybrid-electric concepts and SAF-compatible designs, with demonstrators expected around 2035. He emphasised the need to concentrate funding on technologies that have reached a minimum technology readiness level, so that projects can deliver real-world impact rather than remaining confined to the lab. Linking demonstrators to credible deployment pathways will be essential in the coming years.

Elysian Aircraft: Daniel Rosen Jacobson highlighted the structural challenges faced by European startups compared to their US counterparts. In the United States, defence procurement and other public programmes provide early revenue signals and help derisk investments. In Europe, such mechanisms are far less developed. He argued that Europe needs a dedicated EU portfolio to support flying prototypes by 2026, as well as stronger innovation networks and technology hubs that connect startups with industry, regulators and investors. He

also stressed the need for clearer and more supportive certification pathways, which are currently a major bottleneck for new entrants.

AuraAero: Antoine Toulemont underlined that Europe has the technical capability to deliver zero-emission aircraft, but lacks mechanisms that allow prototypes to move quickly from R&I to industrialisation. He described how small manufacturers face a "valley of death" between TRL 6 and 9, where access to capital is limited and regulatory processes remain slow and complex. He noted that AuraAero's hybrid-electric projects show Europe can compete globally if financing and certification frameworks are adapted to the needs of smaller players. Time-to-market, he argued, will determine whether Europe maintains leadership in next-generation aircraft. Toulemont called for a dedicated EU funding stream for flight prototypes and certification activities to help SMEs bridge TRL 6–9, faster certification pathways including a European "regulatory sandbox" for new technologies and closer alignment between Clean Aviation, the EIB and national innovation funds. He also stressed the importance of supporting regional ecosystems and demonstration routes, which could act as launch markets for the first zero-emission aircraft.

CAA Norway: Jan Petter Steinland presented Norway's experience in creating test arenas for zero-emission aviation, building on the country's successful track record with electric vehicles and maritime electrification. Norway has established an international test sandbox where new aircraft concepts and operational models can be trialled in a real-world environment. He argued that similar models could be replicated elsewhere in Europe, with regional airports serving as natural testbeds for short-range electric and hydrogen aircraft.

Points of broad agreement:

- **The need for more risk-tolerant EU funding**, especially instruments that reflect the financial realities of early-stage aerospace innovation. Speakers stressed that current programmes often do not match the timelines, risk profiles or capital needs of emerging ZEA manufacturers.
- **A clearer link between R&I programmes and the steps required to bring aircraft to market.** Participants noted that EU support should accompany technologies through testing, validation, policy and preparatory certification phases — not only research.
- **The need for a long-term, coordinated ZEA strategy in the next MFF.** Across the panel, there was broad agreement that Europe must provide stable planning, clearer governance and predictable investment signals - particularly in the next MFF - if it wants to compete globally in zero-emission aircraft.

Panel 2 – Accelerating market uptake: is the market ready?

Speakers: Eddy Liégeois (DG MOVE), Jolanda Stevens (KLM), Adrien Chabot (Amelia), Damien Meadows (DG CLIMA), Ivor van Dartel (Vaeridion)
Moderator: Carlos López de la Osa (T&E)

DG MOVE : Eddy Liégeois emphasised that Public Service Obligations (PSOs) could become a key instrument for testing and deploying zero-emission aircraft on short routes. By targeting regional connections that are socially important but not always commercially attractive, PSOs can create early markets and visibility for ZEA operations, while giving regulators and operators valuable operational experience.

KLM: Jolanda Stevens explained that airlines such as KLM are willing to engage with zero-emission aircraft technologies, but need long-term policy visibility to make investment decisions. She stressed that airlines require stable regulatory frameworks, clarity on future standards and close collaboration with manufacturers and policymakers if they are to commit to new aircraft designs and new business models.

Amelia: Adrien Chabot argued that electric and hydrogen aircraft could make certain regional routes economically viable again, especially in underserved or remote areas. In his view, ZEA technologies offer an opportunity not only to decarbonise aviation but also to restore regional connectivity that has been lost due to cost and demand pressures over the past decade.

DG CLIMA: Damien Meadows recalled that the EU Innovation Fund is heavily oversubscribed and that aviation must compete with many other sectors for limited resources. He acknowledged that, to date, much of the focus has been on e-fuels and other energy-intensive sectors and stressed the importance of granting electric aviation support that is comparable to what e-fuels receive, particularly from 2027 onwards. He also highlighted the role of carbon pricing and the ETS in creating demand for lower-emission solutions.

Vaeridion: Ivor van Dartel focused on the financial enablers needed for market uptake. He explained that startups developing new aircraft concepts face significant difficulties in attracting private capital because of long development timelines, regulatory uncertainty and unclear asset values. Vaeridion's priorities include investment guarantees from the European Investment Bank (EIB), clearer guidance on residual value and asset depreciation for new aircraft types and more stable operating cost projections to underpin leasing models. Without such mechanisms, he warned, it will be difficult to unlock the scale of private investment required for fleet deployment.

Points of broad agreement:

- **Stronger links between R&I, certification and deployment.** Speakers called for clearer pathways from research to market, including a possible EASA regulatory sandbox and dedicated support for demonstrators.
- **Infrastructure as an immediate priority.** Hydrogen and electric charging should begin rolling out at regional airports, which are expected to be the first hubs for ZEA operations.
- **SAF alone is not enough.** Supply and cost constraints mean that SAF cannot deliver the transition on its own; zero-emission aircraft will be essential, especially for regional and short-haul routes.
- **Increasing global competition.** The United States and China are moving fast with large public programmes, raising concerns that Europe could fall behind without faster action.
- **Dual-use potential.** Several startups noted that technologies relevant to ZEA also have military applications, which could help accelerate maturity and investment.

Closing remarks – Pierpaolo Settembri (Deputy Head of Cabinet, Apostolos Tzitzikostas, Commissioner for Transport)

Pierpaolo Settembri concluded the event by reaffirming that aviation must be part of Europe's climate solution rather than a blind spot in the transition. He summarised the Commission's approach around four main pillars: research and innovation through Horizon Europe and Clean Aviation; infrastructure development supported by the Connecting Europe Facility (CEF) and the forthcoming Sustainable Transport Investment Plan (STIP); financing through the Innovation Fund, EIB instruments and equity tools; and regulation via EASA and upcoming emissions regulation.

He stressed that STIP will map investment needs across member states and that regional airports are likely to be the first testing grounds for short-range electric and hydrogen aircraft. He closed by underlining the importance of policy alignment, targeted support and stable long-term frameworks to enable the market uptake of zero-emission aircraft and to ensure that Europe remains competitive in this emerging sector.