



Second General Assembly of the Alliance for Zero-Emission Aviation

19 June 2023

- SUMMARY REPORT –

The second General Assembly (GA) of the Alliance for Zero-Emission Aviation (AZEA) took place on 19 June 2023 at the Paris Air Show. It was open to all members of the alliance and was the occasion to discuss the progress made during the six first months of activities and summarized in a [Progress Report](#) prepared by the Steering Committee. A summary of the key findings was presented to Commissioner Breton, and the Progress Report was handed-over to him before he delivered his closing remarks.

François Arbault, Director for Defence Industry in DG DEFIS chaired the meeting.

He opened the meeting by reminding the members that Commissioner Breton invited them during the first General Assembly to set clear objectives and KPIs in order to ensure that the Alliance delivers and that he gave them rendezvous at the Paris Air Show to report on their progress.

The Chair remarked that with the establishment of a first set of Working Groups (WGs) covering a wide range of priority issues and thanks to the effort made by each WG to define clear deliverables, work plan and deadlines, members can consider that they have delivered on Commissioner's expectations. He also pointed out that the WGs only cover the first part of the work the Alliance must do and that AZEA will have to continue to plan its activities effectively in the future.

Jean-Pierre Lentz (DG DEFIS) then gave a quick summary of the main achievements since the last General Assembly, in particular the establishment of the six Working Groups and the definition of their respective mandates and work plans. He also presented the evolution of AZEA membership from 100 to over 140 members and highlighted areas where participation should be strengthened (electricity suppliers, finances, etc.)

Mr Arbault then invited the chairpersons of each Working Group to present the achievements of their group. Summaries of the WGs' achievements can be found in the Progress Report, and presentations are available on the AZEA CIRCABC Interest Group.

Cyprien Ternel (CT) from Airbus [presented](#) the results obtained so far by **WG1- Rollout scenarios for electric and hydrogen-powered aircraft and related “figures of reference”** related to traffic forecast and market penetration. He highlighted the efforts necessary to converge towards commonly agreed scenarios covering all market segments (both existing and new business cases, e.g. regional aviation). A participant asked if differences in market penetration of the different technologies had been observed across the different regions of Europe. Other questions related to whether the WG could provide independent opinions on market penetration, how the deployment of SAFs in the market had been considered and whether production capacities had been taken into account in establishing the scenarios (or if these only reflected the demand). CT clarified that the approach has been global, and possible differences between European regions have not been considered so far. He also highlighted the difficulties encountered to align views of OEMs and start-ups on the entry into service of the different technologies and about the potential of new markets like regional air mobility. He explained that to reach a consensus between all members, the WG decided to produce two scenarios, one conservative built on forecasts for the existing market and the other reflecting start-ups’ expectations related to the impact that new technologies like electric propulsion could have on the growth of new market segments like regional air mobility.

Oscar Mene Castineiras from Linde (OMC) and Nina Dietrich (ND) from CENA Hessen [presented](#) the work performed by **WG2-Decarbonised electricity/hydrogen supply**, in particular the scenarios for aviation hydrogen supply at airports and the results of the analysis of national hydrogen policies, hydrogen backbone planning, etc. As the presentation provided focussed much on hydrogen a participants asked to clarify whether the WG will also cover the supply of electricity. OMC clarified that the WG started by considering the most complex issues, i.e. production and supply of green hydrogen, but confirmed that supply of green electricity will be covered. Another participant indicated that Hydrogen Europe has a working group dealing with Aviation and suggested to link with them. He also commented that while aviation is indeed absent from most national aviation strategies, some regions like Catalonia are supporting the development of hydrogen for aviation.

Giorgio Medici (GM) from ACI-Europe and Germain Hurtado (GH) from Vinci [presented](#) the achievements of **WG3–Aerodromes** concerning two main aspects, the development of guidance material to help airports develop their own strategy related to the introduction of electric/hydrogen aircraft and an assessment of the barriers and risks faced by aerodromes. To a participant asking whether WG3 would also investigate issues related to airships at airports GM replied that this is not excluded but that WG3 work was based on the aircraft categories identified by WG1. Another participant asked how the WG would set priorities since early adopters may be regional airports rather than larger ones. GM confirmed that priorities will be set according to the time of entry into service of different technologies and aircraft types as defined by WG1.

Rodrigo Priego (from EASA (RP) [presented](#) the progress of **WG4-Aviation regulation, certification and standardisation** including the two reports released for public dissemination presenting the regulatory and standardisation state of play, the [Aviation Regulatory landscape for hydrogen and electric aircraft](#) and the [Current Standardization Landscape](#). WG4 will now focus on identifying regulatory gaps that will then be introduced into EASA rulemaking program as well as standardisation gaps. Finally, RP indicated that WG4 will also prepare an overview of the current knowledge about the impact of non-CO2 emissions. To the question of a participant inquiring about the status

of the SG1 responsible for analysing gaps in the aviation regulatory framework, RP replied that it was currently on hold not only due to the lack of a chair - he invited interested participants to apply for this position - but also because it would benefit from the concept of operations under development by WG5. **1:52:00**

Bernhard Schnittger from DG DEFIS (BS) provided the [presentation](#) on **WG5 - Integration of electric and hydrogen-powered aircraft into European network**, prepared by the chair Eric Perrin from Euroctrol, who was prevented from attending the General Assembly. Based on the performances of the different types of electric and hydrogen-powered aircraft collected from manufacturers, WG5 is developing a Concept of Operations that will allow evaluating the possible impacts of those aircraft on an ever more crowded and heterogeneous network. WG5 will then identify the measures necessary to address them in order not to penalise more conventional air traffic operations. A participant asked to what extent airships were covered. BS replied that the Alliance intends to address the common issues shared by all types of aircraft.

Gwenola Robert from Aura Aero (GR) [presented](#) the work done by **WG6-Incentives**. Given the interdependencies existing between all stakeholders, WG6 adopted a systematic approach, analysing the needs of each segment of the aviation value chain. WG6 also attempted to identify good practices from other sectors that are decarbonising. A preliminary report presenting the incentives/disincentives identified will be shared in early July with AZEA members for feedback. A participant highlighted the importance to assess the public acceptance of those new aircraft configurations asking whether WG6 will look at it. GR confirmed that WG6 includes many airlines interested in looking at public acceptance and willing to develop communication towards the general public. Another participant asked if WG6 was looking at regulations such as ETS. GR and Carlos López from Transport & Environment, vice-chair of WG6, replied that WG6 was indeed looking at the right policy framework to encourage clean technologies over the current ones by applying the ‘polluter pay’ principle, including possible extension of ETS, kerosene taxation, etc.

Two consultancies were invited to stimulate reflexion on some of the issues addressed by AZEA. Roland Berger provided a perspective on the “[Future of air mobility](#)” and Steer presented the “[Challenges and costs of rolling out hydrogen aircraft](#)”.

The Chair then welcomed Commissioner Breton to the General Assembly. Karine Guénan, Vice President ZEROe Ecosystem at Airbus and member of the Steering Committee, thanked the Commissioner in the name of the Alliance for his continued support and presented him the work achieved by the Alliance during its first six months of activities.

She indicated that that six working groups have been set-up with clear planning and deliverables in order to ensure an effective analysis of the barriers and requirements to be addressed. Working groups held on average two meetings a week, mobilising 250 experts and reflecting the strong commitment of AZEA members.

Ms Guénan then presented [initial key findings](#). First, electric and hydrogen aircraft will enter the market well before 2030, starting with smaller aircraft up to 40 seats supporting the development of an entirely new market of regional air mobility in the next decade. Second, technology is not the only challenge and EASA is working on a framework for certification. For airports, the real challenges include regulations, permitting, skills, preparing for ground handling of new energy, securing energy availability. For airlines

they consist in uncertainties related to operating costs, hydrogen prices or operating characteristics and for all, including aircraft manufacturers, the necessary investments will require the appropriate incentive mechanisms. Third, access to renewable electricity and hydrogen will be critical and will require that the Alliance raises the profile of aviation in policy frameworks in order to promote the use of electricity and hydrogen in that sector.

She concluded her speech by highlighting the benefits for all stakeholders to join forces in the Alliance. She handed over the [Progress Report](#) prepared by the Steering Committee to Commissioner Breton.

The Commissioner thanked the members of the Alliance for their hard work that demonstrated their commitment and dedication. Citing the size of the challenge of transforming the ecosystem, the Commissioner underlined the importance of mobilising all members of the ecosystem and giving all a say. He emphasised his belief that science and technology will provide a response to the challenge of decarbonising aviation and rejected the idea of bans or restrictions.

Commissioner Breton also highlighted the importance of securing supply chains – whether in technologies, energy or raw materials. This was a matter of sovereignty, not of protectionism, he said, pointing to a number of recent EU initiatives in the field. Going forward, the Commissioner called on the Alliance to move from analyses to implementation and invited it to address four questions in the period ahead, namely to describe a roll-out scenario, to identify the candidates for early adoption of these technologies, to determine how the Alliance support them and to identify the changes in regulation that would be required.

He closed by pointing to the magnet effect that European industry has for the rest of the world and that the next challenge is to make the business case for zero-emission aviation. The Commissioner said that the members of the Alliance can count on him to help, as he can count on the members of the Alliance.

After the Commissioner's departure, the remaining agenda points were addressed.

Jean-Pierre Lentz (DG DEFIS) briefly [presented](#) the next activities to be envisaged by the Alliance to address the barriers and requirements identified by the WGs. They include the definition of a roadmap for the introduction of electric/hydrogen aircraft and different actions to be undertaken by the Alliance itself (awareness raising, engaging with national and regional authorities, pipeline of projects, financial support, etc.). These activities will be described in a draft AZEA work program to be discussed at the next GA.

The Chair concluded the meeting by thanking all participants. He invited all members of the Alliance to the third GA that will take place towards the end of the year.