

Safran: a key player in the decarbonization of the aviation sector



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Interview with Nathalie Stubler,
Chief Sustainability Officer, Safran



EdEn Safran is one of the key players in the decarbonization strategy of the aviation sector. What are the elements of this strategy?

Nathalie Stubler: Safran's climate strategy is aligned with the ambition of the aviation sector, which aims for net-zero carbon emissions by 2050. This objective, adopted in 2022 by the Member States of the International Civil Aviation Organization (ICAO), places the aerospace industry in the global effort to meet the commitments of the Paris Agreement. Safran has been involved in this collective initiative from the outset, alongside the entire sector, brought together within the Air Transport Action Group (ATAG).



The Rise demonstrator. Photo taken at the Paris Air Show.
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This strategy is structured around three pillars: demonstrating exemplary performance in our operations and reducing associated CO₂ emissions (Scopes 1 and 2); ensuring our suppliers engage with our approach; and reducing the emissions generated by the use of our products (Scope 3). Our ambition: to reduce the carbon intensity of our products by 42.5% by 2035 compared with 2018.

At the beginning of 2023, the Science Based Targets initiative (SBTi) validated these objectives, making Safran one of the first global aerospace players to receive this recognition.

More than 75% of our self-funded R&T investments are devoted each year to improving the environmental performance of our products

EdEn What are the levers to decarbonize aviation?

N. S.: Decarbonization will first be achieved through technological advances. Our roadmap, clear and ambitious, is based on three pillars: preparing technologies for tomorrow's ultra-efficient aircraft, electrifying propulsion as well as an increasing number of onboard functions, and facilitating the use of sustainable aviation fuels (SAFs). More than 75% of our self-funded R&T investments are devoted each year to improving the environmental performance of our products. This is a concrete reality and a massive effort.

Specifically, the RISE (Revolutionary Innovation for Sustainable Engines) programme, conducted with GE Aerospace, is preparing the next generation of engines for short- and medium-haul aircraft. The goal is to reduce fuel consumption by more than 20% compared with the LEAP engine (which is already 15–20% more efficient than its predecessor, the CFM56).

Reducing aircraft weight is also a major lever for cutting emissions: a lighter aircraft consumes less fuel. Our research on all types of materials and processes is an asset for lightening engines, nacelles, landing gear, wiring, and interior fittings. We have several levers at our disposal: a centre of excellence

in additive manufacturing for complex parts, the application of organic composites to large structural components (fan blades, brake rods, armrests), and the use of ceramic composites for demanding thermal environments, offering a lighter alternative to metal parts.

EdEn The development of sustainable aviation fuels (SAFs) is the main lever for decarbonizing the aviation sector. Are your engines ready for this transition?

N. S.: The deployment of sustainable aviation fuels (SAFs) is key in all decarbonization scenarios. Our current engines are certified for up to 50% SAF blending. As an engine manufacturer and fuel system equipment supplier, Safran is committed, together with its partners, to removing all technical barriers to enable the use of up to 100% SAF in both current and future engines.

In addition, we actively support the development of a SAF production sector. Through Safran Corporate Ventures, we invest in companies to overcome the necessary technological hurdles. Safran also contributed to the creation of the European Renewable and Low Carbon Fuels Alliance (RLCF). This alliance, which brings together more than 250 members across the entire value chain, aims to stimulate European investment in new production facilities.

EdEn What about the development of alternative propulsion systems, particularly hydrogen and electric?

N. S.: Beyond advances in propulsion, weight reduction, and the adoption of SAFs, we are leveraging our portfolio of proven electrical technologies to equip the latest generation of aircraft and prepare the aviation of tomorrow. Through the acquisition of the electrical activities of Goodrich, Zodiac, and Thales, Safran has developed comprehensive expertise in electrical engineering and manufacturing, placing us in a unique position to support more-electric aircraft concepts.

The novelty lies in the potential of electricity for propulsion functions (hybrid-electric or fully electric), rather than just for non-propulsive onboard energy. The RISE demonstrator includes a hybrid-electric system.

Our high-voltage electrical architecture also equips the Ecopulse¹ demonstrator, which flew in 2024 with six ENGINEUS electric motors. We are proud of the full certification of our ENGINEUS 100 engine, obtained from EASA in February 2025: a world first for an electric engine capable of propelling an aircraft. This paves the way for broader applications of electric machines in commercial aviation for critical functions, while meeting the highest safety standards.

Safran stands out as a leader in hybrid and fully



ENGINEUS 100 engine. ©Cyril Abad - CAPA Pictures - Safran

electric architectures thanks to its expertise across the entire aircraft energy chain.

Regarding hydrogen propulsion, we have conducted ground tests of a gas turbine powered by liquid hydrogen as part of the BeautHyFuel project². We are also continuing work on fuel cells (membranes, cells, etc.).

EdEn Do you find, in France in particular, all the human resources and skills you need?

N. S.: Safran relies on the 100,000 employees who make up the Group worldwide, half of whom are in France, united by an exceptional team spirit, a passion for tackling challenges, and a desire to write a new chapter in the aviation story. They are key players in decarbonization.

To support them in this transition, Safran pursues a proactive human resources policy and aims to be an exemplary employer through three commitments: ensuring the health and safety of its employees, continuing skills development, and promoting inclusion and diversity.

Training plays a crucial role in strengthening both employee engagement and employability. The Group strives to offer training tailored to each individual's career path and aspirations, as well as to the strategic needs of the company.

In addition to professional training, the Sustainability Academy platform has been made freely accessible, allowing employees to familiarise themselves with sustainable development issues, with over 200 resources covering climate, environment, circular economy, CSR, and specific learning paths for each profession. ●

1. A demonstrator developed by Airbus, Safran, and Daher, supported by CORAC and co-funded by the French civil aviation authority (DGAC).
2. A project supported by the DGAC, bringing together Turbotech, Elixir Aircraft, Daher, Air Liquide, Safran, and ArianeGroup.