Safran onboard the E-Fan

Airbus Group officially unveiled its new all-electric aircraft, the E-Fan* on April 25, 2014 at the Bordeaux-Mérignac Airport. Safran contributes to its development, which has been chosen as one of the 34 projects of the Nouvelle France industrielle**.

The current version of the E-Fan is a prototype all-electric aircraft developed by Airbus and Aéro Composite Saintonge (ACS), a French company specialized in composite materials. In February 2014, Safran joined the consortium of eleven partner-companies, led by Airbus Group Innovation, that is in charge of developing, producing and marketing the new E-Fan 2.0. The E-Fan is intended for flying clubs and schools, where it could be used to train professional pilots.

The development of the follow-on E-Fan 2.0 version will start in June 2014 with a technical application being submitted to the BpiFrance Public Investment Bank, which will partially fund this project on behalf of the French government. Within two years, Airbus Group Innovation plans to launch a new four-seat version, the E-Fan 4.0, featuring a hybrid propulsion system (electric-thermal) to increase endurance to three or four hours.

Three Safran companies involved

Safran will provide all propulsion systems, and will support the aircraft manufacturer in the certification process, with a target market entry date in 2017. Snecma, Labinal Power Systems and Aircelle teamed up to develop the propulsion system for the E-Fan 2.0, based on an electric integrated propulsion system (eIPS), which comprises the electric motors, control electronics, fans (shrouded propellers), nacelles and pylons attaching the motors to the airframe. Safran is also in charge of the ground propulsion function, provided by an electric taxiing system (eTAS) that comprises two electric motors (one for each wheel), their control electronics, landing gear integration kit and drivetrain for the wheel.

The first step towards an all-electric commercial airliner

Flight tests of the current E-Fan prototype will continue through 2014. Airbus and partners plan to build up considerable technological and operational experience with this project, enabling them to gradually adapt the different electrical systems to larger and larger aircraft. This is a key technology challenge for the aviation industry, which has to reduce the CO$_2$ emissions from commercial aircraft by 75% by about 2050.

* The first flight took place on March 11, 2014, and the aircraft was shown in a ground display at the 2013 Paris Air Show.

** A plan launched by the French government to reenergize the industrial sector in France, and support its development. It features a carbon-composite fuselage, maximum takeoff weight of less than 600 kg/1320 lb (including 200 kg/440 lb of batteries) and flight endurance of one hour (plus 15 minutes reserve). The E-Fan obviously has no CO$_2$ emissions and it's extremely quiet, enabling it to fly at times when conventional aircraft would be banned (especially on weekends in urban areas)