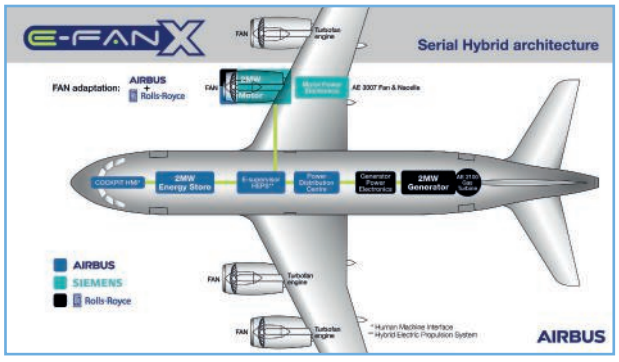
Clean flight

The UK's aerospace sector is being propelled into a new era of cleaner, greener flight through £255 million of industry and government investment in 18 new research and technology projects

A major beneficiary of some of the latest research and development funding is the E-Fan X project. The project brings together Airbus, Rolls-Royce and Siemens to develop a flying electrical demonstrator that will form the foundation for future electrical aircraft and help the aerospace sector to manufacture cleaner, quieter aircraft and therefore to grow the industry sustainably.

Rolls-Royce's ACCEL project will also lead a UK programme to accelerate the electrification of flight that will contribute to the UK's aim to cut emissions through its Clean Growth Strategy.

The E-Fan X demonstrator will explore the challenges of high-power propulsion systems, such as thermal effects, electric thrust management, altitude and dynamic effects on electric systems, and electromagnetic compatibility issues. The objective is to push and mature the technology, performance, safety and reliability enabling quick progress on the hybrid electric technology. The programme also aims at establishing the requirements for future certification of electrically powered aircraft while training a new generation of designers and engineers to bring hybrid-electric commercial aircraft one step closer to reality. As part of the E-Fan X programme, Airbus, Rolls-Royce and Siemens will each contribute with their extensive experience and know-how in their respective fields of expertise:



Airbus will be responsible for overall integration, as well as the control architecture of the hybrid-electric propulsion system and batteries, and its integration with flight controls.

Rolls-Royce will be responsible for the turbo-shaft engine, two megawatt generator and power electronics.

Along with Airbus, Rolls-Royce will also work on the fan adaptation to the existing nacelle and the Siemens electric motor.

Siemens will deliver the two megawatt electric motors and their power electronic control unit, along with the inverter, DC/DC converter and power distribution system.

This comes on top of the E-Aircraft Systems House collaboration between Airbus and Siemens, launched in 2016, which aims at development and maturation of various electric propulsion system components and their terrestrial demonstration across various power classes.

"The UK has a rich heritage in civil aviation as the home of the jet engine and the wings factory of the world," says Business and Energy Secretary Greg Clark, pictured above. "Technology is driving revolutionary changes in aviation that have not been seen since the 1970s," he comments, "and [this] investment is foundational to the future of commercial aviation and ensuring the UK remains at the cutting-edge of the sector."

This funding will also support a number of projects on the next generation UltraFan aero engine, led by Rolls-Royce, which will contribute to their biggest shift in engine architecture since the 1970s. Its goal is to transform flight, setting new benchmarks in fuel efficiency, CO_2 reductions and significant cutbacks in engine noise.

The government has also welcomed the completion of Bombardier and Airbus' Joint Venture: a partnership that will support the development and manufacture of structures for the A220 jet at the Bombardier facility in Belfast.