



TO TEST 100% SUSTAINABLE AVIATION FUEL - ROLLS-ROYCE NEXT GENERATION ENGINE DEMONSTRATOR

News / Manufacturer



As part of its ongoing decarbonisation strategy, Rolls-Royce is to use 100% sustainable aviation fuel for the first time in engine ground tests on next-generation engine technology. The tests will aim to confirm that unblended SAF makes a significant contribution to improving the environmental performance of gas turbine engines.

The SAF being used in the tests was produced by low-carbon fuel specialist World Energy in Paramount, California, sourced by Shell Aviation and delivered by SkyNRG. This unblended fuel has the potential to significantly reduce net CO2 lifecycle emissions by more than 75 per cent compared to conventional jet fuel, with the possibility of further reductions in years to come.

These tests aim to demonstrate that our current engines can operate with 100% SAF as a full “drop-in” option, laying the groundwork for moving such fuels towards certification. At present, SAF is certified for blends of up to 50% with conventional jet fuel and can be used

on all current Rolls-Royce engines.

Starting in the coming weeks in Derby, UK, the ground tests will involve a Trent engine which also incorporates ALECSys (Advanced Low Emissions Combustion System) lean-burn technology.

ALECSys is part of the UltraFan® next generation engine demonstrator programme, which offers a 25% fuel saving over the first generation of Trent engines.



Paul Stein, Rolls-Royce Chief Technology Officer, said: “Aviation is a tremendous force for good, keeping the world connected, but we have to do that sustainably. These tests aim to show that we can deliver real emissions reductions. If SAF production can be scaled up – and aviation needs 500 million tonnes a year by 2050 - we can make a huge contribution for our planet.”

Gene Gebolys, Chief Executive Officer and founder, World Energy, said: “World Energy exists to empower leaders to innovate by providing the world’s most advanced low carbon fuels. Rolls-Royce is putting their technological prowess to work to understand how to maximise their potential in engines and we are proud to support them.”

Theye Veen, Managing Director, SkyNRG, added: “This programme is a great example of what can be achieved when companies from across the aviation value chain that share an ambition of reducing emissions work together. As a pioneer in SAF, SkyNRG encourages innovative tests like this run by Rolls-Royce.”

In addition to supplying the SAF with SkyNRG, Shell Aviation is also providing Rolls-Royce with AeroShell lubricants for the ALECSys engine test programme.

Anna Mascolo, President, Shell Aviation, commented: “For over 100 years, Rolls-Royce and Shell have worked together to drive aviation’s progress. This collaboration brings us one step closer to

decarbonising Aviation. As well as the SAF, Shell Aviation will provide offsets using nature-based solutions to make the test net zero emissions, reinforcing how multiple measures are essential if aviation is to achieve net zero carbon dioxide emissions.”

The ALECSys programme is supported by the European Union via Clean Sky and in the UK by the Aerospace Technology Institute and Innovate UK; the 100% SAF testing programme is additionally supported by ATI, iUK and Gulf Aviation.



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