

## Jet engine innovation could see Scotland pioneer all-electric short haul flight

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Pia Saelen (left) and Kieran Duncan of Mako Aerospace.

By Victoria Masterson

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**THE world's first all-electric jet engine is on track to be made in Scotland, manufacturing experts say.**

Mako Aerospace, a Dunfermline-based startup set up by two University of Strathclyde graduates, says the electric jet engine it is developing is lighter and more efficient than traditional aircraft engines and could cut fuel costs by 70%.

The company has teamed up with the National Manufacturing Institute Scotland (NMIS) at the University of Strathclyde to manufacture the engine.

The institute is a group of industry-led manufacturing research and development facilities with a network of partners across Scotland.

Dr Jill Miscandlon, senior manufacturing engineer at NMIS, said the Mako research and development project involved collaborating with "some of the best minds" in the areas of superconductors and electrical machines to demonstrate the "vast potential" of this technology.

Dr Miscandlon hopes the project "may even convince some of the bigger players in the industry to invest in the future of electric aircraft."

Aviation emits about 2% of global carbon dioxide emissions from human activity, equating to more than 900 million tonnes of CO2 in 2019, according to the Air [Transport](#) Action Group, which represents the air transport industry.

Dr Miscandlon said electric flight was the long-term goal of many aerospace operators.

But Mako was looking at “more imminent solutions for short haul flights” that it’s hoped could act as a stepping stone to further developments in the field.

Mako Aerospace was founded in 2019 by Kieran Duncan and Pia Saelen, who both have Master of Science degrees in advanced mechanical and aerospace engineering from the University of Strathclyde.

A prototype all-electric jet engine called The Forerunner is currently being developed and will be showcased at a demonstrator day in October in Edinburgh.

Mr Duncan, Mako Aerospace chief executive, said he hoped this event would be used as a springboard to launch other projects focused on creating sustainable aviation. Mako aims to bring the electric jet engine to market in the next two years with experimental industry certification.

The company says its engine could double the range of electric aircraft compared to current hybrid models and reduce fuel costs by 70% compared to a traditional turboprop engine – an engine that uses a turbine to turn an aircraft propeller.

NMIS said its engineers were exploring the significant role that superconductors could play in achieving a fully electrical commercial flight. Superconductors are materials that can conduct electricity with no resistance.

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