

Main thematic area: *Economics/Science/Technology*

Cost: *£/££/£££*

## Control strategies for a cleaner exhaust

### Background

Whilst the gas turbine engine is a relatively simple piece of machinery, its performance can be influenced by altering combinations of a number of internal control parameters. Therefore, a given pilot demand for thrust can be satisfied in a number of different ways with the chosen control strategy being determined by other criteria. These control strategies can be chosen to optimise the engine for reduced fuel burn, increased component life or improved engine performance.



### Study aims

This study will investigate control strategies employed during cruise and around the landing and take off (LTO) cycle to produce an environmentally friendly engine. Different approaches will be employed and the tradeoff between LTO emissions and cruise emissions will be quantified.

The successful development of control strategies will optimise engines so that they will have cleaner exhausts and lower emissions. By facilitating greater fuel efficiency in the operation of aircraft, significant environmental gains will be made.

### Benefits

The study will provide information to stakeholders to assist in operational practice and optimise engine controls design and set up. It will also build capacity within Omega to understand environmental optimisation of aero engines.

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Duration: 7 months

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