SMEs like Oxsensis are supporting the UK’s £128 billion domestic low carbon sector, driving job creation and export growth

BACKGROUND
Estimates suggest aircraft taking off from the UK contribute 80 million tonnes of carbon emissions into the earth’s atmosphere each year. Reducing emissions is an important driver for the aviation industry, which has a significant footprint on the UK economy, supporting 3.6% of UK GDP.

OXSENSIS
Oxsensis, an STFC spin-out, is pioneering a new breed of optical instrumentation for precision control in harsh environments such as aircraft engines. Their world-first non-electrical sensor is capable of operating at over 1,000 degrees Celsius, which is important because engines operate more efficiently at hotter temperatures. The sensor is ideally suited to help optimise the combustion process to reduce fuel consumption and exhaust emissions.

More generally, Oxsensis sensors are enabling aircraft manufacturers to monitor pressure, temperature and acceleration within aerospace systems. The novel sensors emerging from collaborative development programmes offer the potential for new real-time data to be gathered, allowing companies to extend equipment lifetime and the time between services. Oxsensis has partnered with key aerospace suppliers to develop this capability.

The same core sensor technology is also being deployed in lower temperature aerospace applications and Oxsensis are collaborating on development programmes with global players including Airbus, Parker Aerospace and GE Aviation for landing gear, wheel and brake systems, fuel systems and engines. These collaborations will yield highly integrated, fibre-optic-based, aircraft instrumentation. The overall benefits will include immunity from electromagnetic interference, lower maintenance costs, more efficient combustion and reduced weight; all of which will help to lower fuel consumption and reduce cost.

Oxsensis developed their new technology at STFC’s former Micro and Nano Technology Centre (MNTC), now operating as part of the Innovations Technology Access Centre (I-TAC) and the company has benefited from access to the world-class facilities at STFC’s Harwell Oxford Campus, and still maintains strong links with STFC’s engineering and research programmes.