Searching the skies for zero emissions training aircraft

The Defence and Security Accelerator (DASA) is pleased to launch a new Market Exploration called Zero Emissions Air System, which aims to investigate net-zero options for the next generation of light flying training aircraft.

This Market Exploration is being run on behalf of the Royal Air Force (RAF) and seeks information on the development of relevant technologies and systems that are in development and maturing over the coming four years.

Can you help? Read the full Market Exploration now and submit your idea.

Replacing the current capability with a zero emission aircraft

Defence currently utilises a propeller driven, fossil fuelled light training aircraft used across multiple military and civil airfields for pre-Service entry flying training, grading and assessment.

This includes Royal Air Force University Air Squadrons (UAS) and Air Experience Flights (AEFs) and Flying grading and streaming (Army and Royal Navy).

All three services require the ability to develop qualified flying instructors in key skills, including:

- Unusual attitude and spin recovery training
- The ability to operate under Instrument Meteorological Conditions (such as flight in cloud or without reference to an external horizon)
- Operating under Air Traffic Control in closely managed airspace; this includes the need to fly instrument approaches if required.

Help the RAF procure the first military certified zero emission platform

The UK Government and the RAF have set targets for achieving net zero carbon emissions by 2050 and 2040, respectively. To help reach these goals, the next generation training aircraft must be more environmentally friendly, utilising a sustainable fuel source such as electric or hydrogen which will produce zero carbon emissions at the point of use.

Ahead of any future procurement, it is vital that this technology is investigated, ensuring the RAF remains at the forefront as an intelligent customer.

The next generation light training aircraft needs to:

- employ a powertrain that is zero carbon emissions at the point of activity
- be a robust, dual control, side by side two seat configuration with fixed undercarriage that can operate from both grass and hard runways
- demonstrate indicative performance requirements – an operating endurance of around 90 minutes and require no more than 20 minutes turnaround time between flights. This will include replenishment of the powertrain energy source
- be capable of operating between airspeeds of 50-130kts to a ceiling of 10000ft at maximum all up mass
- possess an air speed envelope that affords safe handling and low stalling speed but enables activities requiring higher speeds such as low-level navigation and entry into aerobatic manoeuvres
- be capable of flight in all classes of controlled airspace and Instrument Meteorological Conditions (IMC)

Do you have an in-depth global understanding of emerging capabilities, technologies, initiatives and novel approaches in the light training aircraft market? Submit an idea and help inform future RAF market engagement for a next generation training aircraft.

Read the full Market Exploration document and submit your innovation!