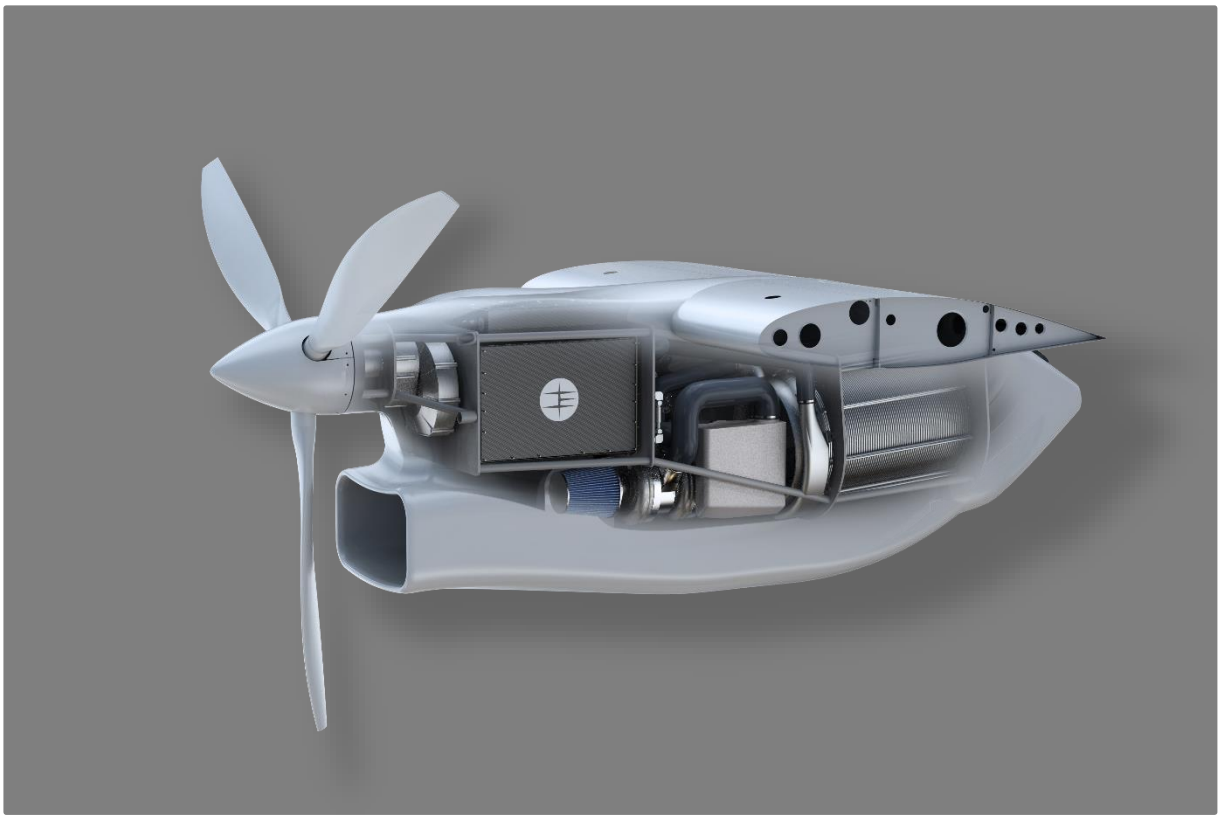

Intelligent Energy launch breakthrough IE-FLIGHT hydrogen fuel cell system products to power sub-regional and regional flights

- **Intelligent Energy launches IE-FLIGHT fuel cell product line for accelerating decarbonisation of aviation**
- **Patented high-temperature heat rejection technology enables high-temperature system operation, reducing size of fuel cell heat exchanger and decreasing drag**
- **White paper outlines benefits of high-temperature technology architecture and shows that the EC-HT architecture within the propulsion system of a 9 PAX aircraft will meet the power density target of 1.5kW/kg and deliver a block fuel improvement of up to 5% compared to conventional fuel cell systems**
- **Intelligent Energy unveils breakthrough IE-FLIGHT F300 Fuel Cell System for eVTOL and Part-23 aircraft at the Farnborough International Airshow**
- **The new IE-FLIGHT lightweight fuel cell stack, developed under the H2GEAR project, will be on display on IE's stand at the show**

Loughborough – 22nd July 2024 – Intelligent Energy (IE), the UK's leading fuel cell developer and manufacturer, unveils its breakthrough IE-FLIGHT family of aviation fuel cell products for sub-regional and regional aircraft, marking a significant development milestone and step towards realising sustainable aviation.

IE-FLIGHT fuel cell system products offer the following benefits:

- Market-leading power densities
- Unique high-temperature heat rejection architecture allows the fuel cell system to operate at high temperatures – enabling a smaller heat exchanger for less weight and aircraft drag
- Class-leading transient response times

- True zero-emissions flight

The British company's IE-FLIGHT F300 Fuel Cell System will be unveiled at the upcoming Farnborough International Airshow (22-26 July) and is suitable for use across eVTOL, sub-regional and regional aircraft applications. The IE-FLIGHT F300 can be either installed on new Part-23 aircraft designs or retrofitted onto existing Part-23 aircraft. The IE-FLIGHT architecture is scalable for multi-MW fuel cell installations, making it suitable for Part-25 aircraft as well.

The aviation industry's shift towards zero-emission solutions is being driven by the need to reduce greenhouse gas emissions. It currently contributes 2-3% of global emissions and this is projected to rise to 8-15% by 2050, based on air transport passenger traffic growth forecasts.

Intelligent Energy's IE-FLIGHT products represent a significant advancement in the aviation industry's journey towards zero-emission flights and have a number of operational and environmental benefits, including:

Smaller heat exchanger

The IE-FLIGHT fuel cell uses a patented evaporative cooling technology which redefines efficient thermal performance. This technology enables the operation of the fuel cell system at high temperatures, allowing a much smaller heat exchanger to be used – reducing weight, drag and enhancing overall aircraft performance, particularly at higher speeds.

Fewer moving parts and components

Intelligent Energy's fuel cell system features significantly fewer mechanical moving parts compared to traditional aircraft gas turbine or piston engines, and with advanced fuel cell performance monitoring methods, the IE-FLIGHT fuel cell system's health can be accurately monitored to give operators confidence in planning service intervals.

Compared to typical PEM fuel cell systems, the IE-FLIGHT system has a simplified Balance of Plant with fewer components. This increases power density, reliability and reduces cost at volume production.

True zero emissions

While sustainable aviation fuel (SAF) is competitive with traditional kerosene, it is still not truly zero-emission and is costly to produce. Hydrogen is an appealing alternative because it produces zero emissions within fuel cells, can be produced locally, and refuelling times are comparable to those associated with traditional aviation fuels.

Developed for aviation

Alternative fuel cell products have been created by adapting automotive fuel cell systems for use within aviation. Intelligent Energy has taken a fundamental approach of developing a core fuel cell stack specifically for use within aviation, making IE-FLIGHT fuel cell products fit for purpose within future aircraft certification programmes.

Jonathan Douglas-Smith, Head of Sales for Aerospace at Intelligent Energy, said:

"We are thrilled to showcase the future of clean air travel at the Farnborough International Airshow by unveiling our brand-new IE-FLIGHT family of products and the IE-FLIGHT F300 Fuel Cell System as our first product launch within this line-up.

"Building on our 23 years of developing fuel cell systems, we have been able to develop a bespoke solution for the aerospace industry during the last four years which features a patented high-temperature operation architecture that doesn't exist in any other fuel cell product. Although our IE-FLIGHT F300 launch product is suitable for Part-23 aircraft, our IE-FLIGHT technology can be scaled up to accommodate aircraft within the Part-25 sector as well.

"Our collaboration with industry leaders highlights our commitment to pushing the boundaries of what's possible in aerospace technology and we're delighted to have developed a fuel cell product that can help the industry to significantly reduce its global emissions count."

Join us in powering the hydrogen future®.

ENDS

Media enquiries:

Liam Thompson
E: liam.thompson@groupwhistle.com

Laura Salvada-Boussi
E: laura.salvadaboussi@groupwhistle.com

About Intelligent Energy Limited

Intelligent Energy is a leader in the development and manufacture of cutting-edge hydrogen fuel cells that overcome the limitations of conventional battery-powered systems.

The privately-owned company, which has 600 patents in place, has been innovating for more than two decades in the automotive, aerospace, power generation, telecoms, materials handling and unmanned aerial vehicle (UAV) sectors.

With its activities spanning key markets in the UK, US, China, South Korea, and Japan, Intelligent Energy has a truly global reach.

www.intelligent-energy.com