15 JULY 2020

UP, UP AND AWAY

Could platinum-based fuel cells propel the aviation industry towards a 'green' post-COVID future?

In the UK alone, aviation accounts for around 7 per cent of total greenhouse gas emissions and, prior to the pandemic, the country's airline industry was already facing increasing pressure to cut its carbon footprint. In fact, it had pledged to cut net carbon emissions to zero by 2050.

Developments in aviation technology are pointing to the viability of hydrogen fuel cells, which use platinum catalysts, as a means of providing a zero-emissions alternative to the jet engine.

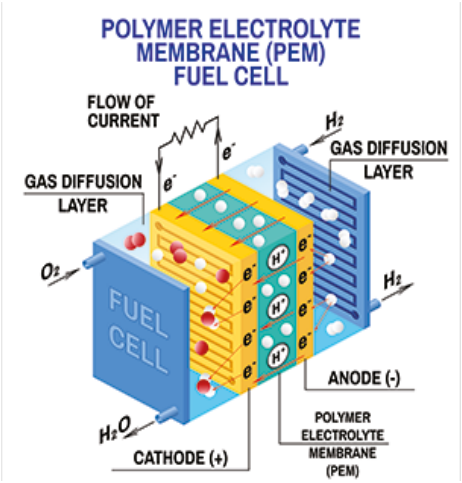
Hydrogen fuel cells offer an effective alternative powertrain for aircraft due to the energy density and quick refuelling times they offer, plus a much higher cycle life before replacement is necessary. Some experts already believe that hydrogen fuel cells will become a dominant technology in the era of decarbonised aviation.

Only last month, ZeroAvia, a developer of hydrogen powertrain solutions for aircraft, reached a milestone in its HyFlyer project when it conducted the first-ever electric-powered flight of a commercial scale aircraft in the UK. Project HyFlyer aims to decarbonise medium-range small passenger aircraft by replacing conventional engines in propeller aircraft with electric motors, hydrogen fuel cells and gas storage.

Project HyFlyer will culminate in a UK-based 250-300 nautical mile flight from the Orkney Islands in Scotland later this year, a key step on ZeroAvia's journey towards delivering the same performance as a conventional aircraft engine, but with zero carbon emissions and at around half of the operating costs. ZeroAvia aims to be ready to supply to commercial operators and aircraft manufacturers by 2023, initially targeting the market for regional flights of up to 500-miles in 10 to 20 seat fixed-wing aircraft.

Government support

The HyFlyer project is part-funded by a £2.7m grant from the UK government, which has also recently announced it intends to set up the Jet Zero Council to



The anode and cathode on the PEM fuel cell are made of platinum

World Platinum Investment Council

examine ways of achieving zero emissions flight, in an attempt to give the UK aviation industry a 'green' post-Covid restart.

The French government has gone a step further with a £13bn post-COVID rescue plan for its aerospace industry. However, in a sign that decarbonisation has moved further up the agenda, ministers are intent on making the funding contingent on the industry increasing investment in alternative technologies, for example electric and hydrogen fuel cells.

Elsewhere, the European Commission is also backing initiatives aimed at reducing emissions from aircraft. Earlier this year, it made a £9m grant available to a consortium engaged in a four-year project researching hybrid electric propulsion systems for commercial aircraft, including fuel cells.

In the US, NASA is underwriting a three-year, US$6m project to develop a cryogenic hydrogen fuel cell system for powering all-electric aircraft which began last year.

Contacts:
Brendan Clifford, Investor Development, bclifford@platinuminvestment.com
Trevor Raymond, Research, traymond@platinuminvestment.com
David Wilson, Research, dwilson@platinuminvestment.com
Vicki Barker, Investor Communications, vbarker@platinuminvestment.com

DISCLAIMER: The World Platinum Investment Council is not authorised by any regulatory authority to give investment advice. Nothing within this document is intended or should be construed as investment advice or offering to sell or advising to buy any securities or financial instruments and appropriate professional advice should always be sought before making any investment. Images are for illustrative purposes only. More detailed information is available on the WPIC website: http://www.platinuminvestment.com