ETIHAD AIRWAYS PERFORMS 42 ECOFLIGHTS INCLUDING 22 CONTRAIL FLIGHTS OVER FIVE DAYS

News / Airlines

Etihad Airways has successfully performed the world's most intensive sustainable flight testing programme, operating 42 flights over a five-day period to test operational efficiencies, technology and procedures that will reduce carbon emissions. The programme, coinciding with Earth Day 2022, included 22 contrail prevention flights over the course of three days.

Tony Douglas, Group Chief Executive Officer, Etihad Aviation Group, said: "We believe this is the most intensive sustainability flight testing programme ever conducted, the results of which will contribute to reducing aviation's carbon emissions and environmental impact as the learnings are implemented into standard airline operations across the industry.

"Some of the technologies and operational efficiencies we have tested can be implemented today and we're well in the process of putting these innovations into standard operational procedures, which we hope to see replicated across the industry, while some technologies are still in their infancy and we'll continue to work with our partners to test and develop these for future use. However, there are a number of impactful solutions which are ready to go, but require an industry and regulatory response to become practical, that the industry

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needs to raise to the challenge for."

Etihad points to Sustainable Aviation Fuels (SAF), which are in excess of six times more expensive than conventional aviation fuels at the moment and incredibly difficult to the point of impractical to procure, acknowledging that both SAF and Lower Carbon Aviation Fuel (LCAF) are needed for aviation's energy transition.

"This challenge needs policy changes from Governments, continued R&D, supply chain enhancements and refining improvements," said Douglas.

"The other big area, which has a simple solution but requires fundamental restructure to the way things currently work, is for the industry, traffic controllers and regulators to modernize flight paths for controlled climbs and continuous descent. In our demonstration EcoFlights we've been able to take at least 40 minutes out of flight times and reduce the CO2 content by around six tonnes, which is incredible."

Etihad's newest aircraft and sustainability beacon alongside its established Greenliner programme, the Sustainable50 A350-1000, officially became the first A350 to operate as an EcoFlight.

"Operating EcoFlights on the A350-1000 is a big step forward as an example of the world's two largest aircraft manufactures working in tandem for the mutual objective of aviation decarbonisation through Etihad's comprehensive Sustainable50 and Greenliner sustainability programme."

Technology and processes tested included:

- Optimised Flight Paths: Coordinated with ANSPs to optimise flight paths, direct routing and optimised descent.
- Contrails Prevention: When water vapour is ejected from the engine exhaust into sufficiently cold air, it condenses, creating tiny ice crystals. In certain atmospheric conditions, these ice crystals create layers of cirrus clouds, causing a 'blanket' effect which keeps warmer air trapped in the lower atmosphere. Working with UK-based SATAVIA, Etihad avoiding flying into these areas, reducing non CO2 emissions.
- Variable speed during cruise: Pilots use a specific software that suggests an optimal cruise speed based on actual atmospheric condition and weight of the aircraft. Etihad is one of the few airlines that partner with Boeing for the development of this software. The fuel savings are about 1.5% for each flight.
- Reduced Flaps for Landing: when landing on sufficiently long runways, using reduced flaps reduces the drag and requires less thrust and less fuel consumption during the approach phase. It reduces the noise disturbance near airports as well. This results in approximately 30kgs of fuel saving for each approach.
- Reduced engine taxi: most of the ground movements are conducted utilizing only the power of one engine. By shutting down a single engine of the aircraft when it lands, Etihad reduced carbon emissions produced by 20 to 40%.
- Cabin lights off for one minute during flight: a symbolic act for Earth Day happening across the world from 8:30pm to 9:30pm, Etihad's EcoFlight was a first for the industry.

The Greenliner and Sustainable50 programmes in partnership with Boeing, Airbus, GE and Rolls Royce is Etihad's platform to foster industry collaboration and tackle the biggest challenges the industry faces for decarbonsation, operating as a testing platform as well as call to industry, governments and regulators for solutions-driven collaboration.

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Through these programmes, and Etihad's ongoing research and testing initiatives such as EcoFlights, Etihad encourages and invites partners from across the aviation sector to join and test sustainability initiatives on scheduled 787 and A350 operations. The results are then processed and validated, with the most sustainable initiatives used as a base for improving the performance of the global airline community.

The results and data from Etihad's Earth Day EcoFlight and Contrail flight testing programme will be formulated and analysed over the coming weeks, to be added to the knowledge base it has built to support the aviation industry on its journey to decarbonisation.

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