

BOEING DREAMLINER: THE PROMISE OF GREENER FLYING

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The Boeing Dreamliner promises to be one of the least polluting aircraft ever used for commercial flights, and should go some way to answer criticisms of aviation's environmental record. Mark Rowe reports.

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The Boeing Dreamliner 787, which made its first commercial flight in 2010 with All Nippon Airways, has changed air travel in more ways than one. Not only has it offer passengers greater comfort, but it has also be among the least polluting aircraft ever to enter commercial operation.

The new plane has be quieter and use 20 per cent less fuel than aircraft of equivalent size, thanks to greater engine efficiency, the use of lighter composite materials and improved aerodynamics.



To a certain extent, the Dreamliner – the first test flight was in December, 2009 – is the aviation industry's response to its portrayal by many green campaigners as one of the bad boys of the global warming story. It also represents a continuing trend towards lower carbon emissions. According to the International Air Transport Association (IATA), aircraft today are about 65 per cent more fuel-efficient than they were in 1970, while the clean technology of

modern engines has almost eliminated emissions of carbon monoxide and hydrocarbons.

The Dreamliner follows in the lower-carbon contrails of the Airbus A380 “super jumbo”, which was launched in 2007. When full – typically with about 470 seats – the A380 burns 17 per cent less fuel per seat than other large aircraft and produces only 75g of CO₂ per passenger per km (most cars produce at least 130g and the Boeing 747 around 101g of CO₂ per passenger per km). It also produces 75 per cent less noise than its current Boeing rivals.

The urge for more efficient aircraft is driven partly by the desire to control fluctuating high fuel costs and also by the fact that a commercially viable biofuel that can entirely replace kerosene remains a distant prospect. But while IATA has set 2050 as the year by which it wants to see a carbon-free aircraft flying commercially, it does expect to certify an as yet unspecified biofuel for use in kerosene blends in commercial flights this year.

A consortium including Boeing, Virgin Atlantic and Air New Zealand is testing a blend of jatropha (a scrub plant), camelina (a plant from the same family as oilseed rape) and algae. Scaling up production is the issue: the area that would be set aside to cultivate the algae required to meet global annual fuel consumption has been placed at around 27,000sq miles, more or less the size of Ireland.

Ethanol has been discounted because it is low-energy. Liquid hydrogen has been ruled out in the medium term partly because the industry considers that the cost of retro-fitting aircraft and infrastructure would be prohibitive. However, Airbus had suggested that hydrogen may have a role in the longer term and Boeing has flown a hydrogen-powered two-seat motor-glider up to 3,300 ft (1,000 metres) for 20 minutes – though the co-pilot seat had to be removed to create storage space.

Scandinavian Airlines Systems (SAS) has developed a Green Landings programme that significantly reduces fuel burn. Peter Larsson, an SAS captain involved in the project, admits to being irked by those who pillory the aviation industry's environmental record. “We contribute two to three per cent to global carbon emissions, but the public perception is that our contribution is nearer to 20 per cent,” he said. “That is frustrating. It means many people think that flying will give them a bad conscience.

“Aviation is unfairly perceived, but that's not an excuse to do nothing. We have to deal with the equipment we have today. We have to make things more efficient, and this will evolve as it has with cars. We will blend in biofuels and gradually progress to only biofuel. If we want to continue to live the way we do, I don't see a world without flying.” While technologist and environment get better from some aero plane which come in modern way of preventing environment.