

AIRBUS ROLE TOWARDS A PERFECT FLIGHT

The volcanic ash cloud impact in 2010 has demonstrated how vital aviation is to global economy. More than 56 million jobs and US\$2.2 trillion of GDP are supported by the air travel industry.

We also know that the aviation industry contributes to two percent of all man-made carbon dioxide (CO₂) emissions, 80 percent of which are related to passenger flights exceeding 1,500km and for which there is no practical alternative.

As a leading aircraft manufacturer Airbus is in pursuit of the Perfect Flight and believes that its scale-up can start today to shrink the environmental footprint of an aircraft's flight to a minimum.

The Perfect Flight is a commercial flight which combines all best practices currently available: operating eco-efficient aircraft, using sustainable alternative fuels and implementing a truly streamlined Air Traffic Management (ATM) system.

In June 2012, Airbus and Air Canada performed North America's first "Perfect Flight" over international borders, cutting CO₂ emissions by more than 40 percent compared to a regular flight. The commercial flight on an Airbus A319 aircraft from Toronto, Canada to Mexico City combined the use of a modern aircraft, powered by sustainable alternative fuels (a 50/50 blend of biofuel made of used cooking oil), guided by streamlined Air Traffic Management procedures and facilitated through best practice operations (single-engine taxiing, light weight cabin equipment etc..)

In October 2011 Airbus and Air-France completed the first Perfect Flight. The flight from Toulouse to Paris using an Airbus A321 demonstrated the cutting in half of CO₂ emitted compared to a regular flight.

More than 90 percent of Airbus' Research & Technology investments are for the benefit of the environment. This investment goes mainly to the development of new aircraft technologies, to the improvement and implementation of a modern ATM (the main challenge being to combine the growth of aircraft traffic while reducing the overall environmental impact of air transport) and to the implementation of alternative-fuel value chains.

Airbus is committed to meet the industry targets: to grow carbon neutral by 2020 while improving fuel efficiency by 1.5 percent per year, and halve carbon emissions by 2050 compared to 2005 levels.

Airbus aircraft: eco-efficient by design

The environment is Airbus top level requirement for the design of any aircraft. Airbus is committed to Flightpath 2050 targets to allow 75 percent of CO₂ emission reduction per passenger per kilometre, 90 percent of nitrogen oxide (NO_x) emissions reduction and 65 percent of noise reduction by 2050.

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With 25 percent less fuel consumption than the current generation aircraft, the A350XWB is the aircraft with the leading environmental performance in the long-range market, designed to be eco-efficient from gate-to-gate. In addition of being a quiet neighbour, the A350XWB displays comfortable margins compared to the current CAEP6 regulation: 99 percent below hydrocarbons (HC) limit, 86 percent below carbon monoxide (CO) limit, 60 percent below smoke limit and 35 percent below NO_x limit.

The New Engine Option (neo) developed for the A320 Family and combined with the sharklets will allow 15 percent of fuel burn saving compared to the older generation. It means 3,600 tonnes of CO₂ saved annually per aircraft.

In the meantime, the A320 with the Current Engine Option ("ceo") is not over. Still 3,500 old generation single aisle are to be replaced. With 30 percent less fuel burn (and therefore 30 percent less CO₂ emissions) the A320ceo is the aircraft that allows the replacement of older and polluting aircraft.

Airbus' eco-efficiency approach goes throughout the life cycle of its products, creating added value while minimising environmental impact.

Airbus uses a robust environmental management system to continually monitor and minimise the environmental impact of Airbus processes and products at each stage of its activity.

In January 2007, Airbus became the first company in the aerospace manufacturing sector to receive ISO 14001 environmental certification covering all its manufacturing sites and product related activities throughout a full life-cycle approach. The ISO14001 was successfully renewed in 2010.

Alternative Fuels

Airbus believes that alternative fuels should be primarily reserved for aviation as there are no other viable alternative energy sources foreseen in the coming years. Airbus' alternative fuels strategy is based around being the catalyst in the search for sustainable solutions (meaning without competing with land, water nor food) for the production of alternative fuels in commercial quantities for aviation.

In June 2011, Airbus together with the European Commission, the leading European airlines and European biofuel producers, have launched an exciting new industry wide initiative to speed up the commercialisation of aviation biofuels in Europe.

The "Biofuel Flightpath" members commit to support and promote the production, storage and distribution of sustainably produced drop-in biofuels for use in aviation with the objective to reach two million tonnes production and consumption by 2020.

Airbus is leading this through a global program connecting farmers, refiners and the end user (airlines) to form regional alternative fuel "value chains". So far, six value chains are already established: in Australia (Virgin Australia), in Brazil (TAM), in the Middle East (Qatar), in Romania (Tarom), in Spain (Iberia) and in China (China Eastern Airlines).

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Airbus' role in the value chain is to lead and manage the sustainability assessment and life cycle analysis as well as feasibility studies to ensure any solution taken forward satisfies sustainability criteria approved by the Round Table on Sustainable Bio-fuels, of which Airbus is a member.

Airbus plans to have one value chain in each continent.

Air Traffic Management (ATM)

ATM is responsible for aircraft safety, for reducing delays and for providing the most economic and environmentally responsible routings. Future Traffic Management will have to achieve a certain set of transversal performance targets, which will require a tight coordination between the various operational stakeholders (Airlines, ANSPs, airports) and the industry.

Airbus, through its Airbus ProSky subsidiary, is dedicated to the development and support of modern air traffic management (ATM) systems, to achieve the highest operational efficiencies with more direct routings and significant reductions in fuel burn, CO₂ and noise emissions.

In October 2011 Airbus also acquired the U.S.-based Metron Aviation, a leading provider of advanced ATM products and services for the global aviation industry. This acquisition strengthens Airbus' strategy to accelerate and support ATM programs that will dramatically improve global air transportation capacity, efficiency and environmental sustainability.

Quovadis, the Airbus subsidiary offering services for the implementation of Required Navigation Performance (RNP) procedures, contributed to the VINGA project. VINGA optimised all phases of flight with an emphasis on the implementation of new RNP arrival procedures. These new procedures reduce track-distance whilst lowering noise and facilitating Continuous Descent Operations (CDO)

Airbus is interacting with and helping to develop ATM programmes such as "Single European Sky ATM Research" (SESAR) in Europe, as well as NextGen in the US.

As for the latest achievements, Airbus announced in March 2012 a series of improved ATM procedures and reduced fuel consumption programmes. Over a period of 15 months, Airbus contributed to three projects of the initiative, which was steered by SESAR.

In February 2012, the world's first flight using a four dimensional optimized and upgraded Air Traffic Management (ATM) technology has taken place with Airbus' dedicated A320 test aircraft flying from Toulouse to Copenhagen and Stockholm. The project is called I-4D (Initial-4D).

The main benefits of I-4D are a significant reduction of fuel burn and CO₂ emissions, in line with SESAR's target to reduce the environmental impact per flight by ten percent, a decrease of delays and therefore shorter and smoother flights for passengers.

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Greener manufacturing

Airbus has set ambitious objectives for its manufacturing activities such as 50 percent reduction in CO₂ emissions, 50 percent reduction in volatile organic compounds (VOC) or even 80 percent reduction in water discharge between 2006 and 2020, to continuously improve its environmental performance.

Today, these targets are partially or even already achieved. For example, on the VOC reduction target reduction has already been over-achieved.

Efforts are being focused on the use of renewable sources of energy for buildings and a new set of rules is being developed around this. An energy road map is being defined to improve energy consumption in Airbus plants worldwide.

The most toxic chemicals are also gradually being eliminated as part of the REACH compliance programme. This includes looking at the development and implementation of toxic free alternatives.

End-of-life

More than 12,000 aircraft are due to retire from operation within the next 20 year. Airbus is addressing the need to manage these aircraft in an environmentally responsible way.

With TARMAC AEROSAVE platform, Airbus and its partners have established a dedicated centre at Tarbes airport in France, where aircraft are decommissioned, dismantled and recycled in safe and environmentally responsible conditions. The objective is to optimise recycling and valorisation of aircraft materials and reduce the quantity of waste to be eliminated.

TARMAC AEROSAVE is also a source of information and feedback for Airbus concerning aircraft ageing and changes in dismantling techniques. This data is fed back to engineers working at the start of the aircraft lifecycle, helping them to improve the design of both existing and future aircraft programmes.

Beyond aircraft eco-efficiency

In addition to helping the aviation industry tackle the two percent it contributes to man-made CO₂ emissions, Airbus is also committed to supporting everyone tackling the other 98 percent, such as the 17-20 percent from deforestation, which has a huge impact on biodiversity.

Airbus supports The Bonn Challenge, a Global Partnership on Forest Landscape Restoration co-ordinated global government challenge to restore 150 million identified hectares of forest by 2020.

Through its Corporate Foundation, Airbus supports biodiversity, notably by supporting the Green Wave initiative in partnership with the United Nations Convention on Biological Diversity (CBD). The Green Wave encourages young people across the world to celebrate life on earth, in particular on the International Day of Biodiversity each year.

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