September 2013

ENVIRONMENT: A TOP-LEVEL REQUIREMENT FOR AIRBUS

Air transport provides a global transportation network, rapidly and safely moving passengers and goods worldwide, bringing together people, businesses and communities like no other industry. More than 56 million jobs and US$2.2 trillion of GDP are supported by the world air travel industry.The volcanic ash cloud impact in 2010 has demonstrated how vital aviation is to global economy; the total drop in GDP through lost revenues from tourism, business and international trade came to a staggering $5 billion in the first week alone.[1]

Awareness of the human impact on the environment continues to grow, with one of the biggest contributors to climate change being CO_2, the primary greenhouse gas emitted through human activities. The aviation industry's contribution to man-made carbon dioxide (CO_2) emissions remains minimal at around 2% of the global figure..
Airbus works constantly to mitigate its environmental impact and reduce not only CO_2 emissions, but other emissions linked to climate change and air quality, as well as noise, through its innovative technologies and cross-industry partnerships.

Innovation has always been at the heart of Airbus' success, from fly-by-wire to the A380, over four decades Airbus has demonstrated that it leads the way in aviation technology. Today, more than ever, innovation provides the key to meeting the environmental responsibilities of the aviation sector and Airbus has not hesitated to take on the challenge.

New fuel efficient and quiet Airbus aircraft, the A320neo and the A350 XWB will show the way. Airbus is working with farmers, universities, refiners and airlines to find sustainable solutions for drop-in aviation fuels to be produced in sufficient quantities to meet the needs of the aviation industry. Better air traffic management can also provide solutions and Airbus is investing in this area as well to develop the tools and services needed. New technologies are constantly in development with over 2 billion euros invested annually by Airbus in R&D to improve the performance of our aircraft.

At the Air Transport Action Group's (ATAG) 2008 Aviation and Environment Summit, aviation leaders signed the Commitment to Action on Climate Change, following which a set of environmental targets were developed. Airbus is committed to meet these 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.
The industry is on-track to reach the short-term targets of 1.5% fuel efficiency, with 80% of these improvements provided by aircraft technology.

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 CO_2 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 to being well within the current International Civil Aviation Organization (ICAO) noise limits, the A350XWB displays comfortable margins compared to the current ICAO Committee on Aviation Environmental Protection (CAEP) 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,combined with Sharklets, large wing-tip devices, will allow 15 percent fuel burn saving compared to older generation aircraft. This provides more than 3,600 tonnes of CO_2 saved annually per aircraft.
In the meantime, the A320 with the Current Engine Option ("ceo") burns 30 percent less fuel (and therefore 30 percent less CO_2 emissions) than some
older generation aircraft.

In 2007 there was a single A380 in service, today there are more than 100 A380s giving a demonstrated 20% reduction in fuel-burn and emissions.

Sustainable fuels for aviation

Airbus believes that sustainable fuels should be primarily reserved for aviation as there are no other viable alternative energy sources available for aviation in the foreseeable future.
Airbus' sustainable fuels for aviation 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 sustainable jet fuels in commercial quantities.

In June 2011, Airbus, together with the European Commission, the leading European airlines and European sustainable jet fuel producers, launched an exciting new industry wide initiative to speed up the commercialisation of aviation sustainable fuel in Europe.
The "Biofuel Flightpath" members commit to support and promote the production, storage and distribution of sustainably produced drop-in fuels for use in aviation with the objective to reach two million tonnes production and consumption by 2020.

Airbus is notably leading this through a global program connecting farmers, refiners and the airlines to form regional alternative fuel "value chains".
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.

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.

Through its Airbus ProSky subsidiary, Airbus develops and supports the modernisation of Air Traffic Management (ATM) systems, to achieve the highest operational efficiencies with more direct routings and significant reductions in fuel burn, CO_2 and noise emissions.
Airbus is also 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.

Aircraft operations

Another key to reducing aircraft emissions and noise is aircraft operations. There are many steps that are already being taken by Airbus and its customers, the airlines, to reduce emissions during flight and before the aircraft leaves the ground. So far Airbus' collaborative work with airlines has reduced CO_2 emissions by over 65,000 tonnes over year.
Airlines are increasingly implementing weight reduction measures on their aircraft, such as light-weight cabin fittings and carpets. Less weight means less fuel burn and lower missions. New taxiing methods are helping to decrease emissions and initiatives such as single engine taxiing can contribute – IATA (International Air Transport Association) has calculated that up to 6 million tonnes of CO_2 could be saved each year by reduced engine taxiing.

Perfect Flights

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 combining all best practices currently available: operating fuel-efficient aircraft, using sustainable fuels and implementing a truly streamlined Air Traffic Management (ATM) system alongside optimised ground and flight operations.

In June 2012, Airbus and Air Canada performed North America's first "Perfect Flight" over international borders, cutting CO_2 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 jet 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 CO_2 emitted compared to a regular flight

Lifecycle approach to environment: from manufacturing to end of life

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.

Airbus has set ambitious objectives for its manufacturing activities such as 50 percent reduction in CO_2 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 on-track and partially achieved.

End of Life

More than 12,000 aircraft are due to retire from operation within the next 20 years. 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.

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1. Source: Benefits Beyond Borders, ATAG 2012