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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 58.1 million jobs and US$2.4 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.

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 A350 XWB, 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 technologies are constantly in development at Airbus with over 2 billion euros invested annually by Airbus in R&D to improve the performance of our aircraft. New fuel efficient and quiet Airbus aircraft, the A320neo and the A350 XWB will enter in service over the next years. Better air traffic management can also provide solutions and Airbus subsidiary, Airbus ProSky is developing the tools and services to meet this need. Sustainable fuels for aviation can also play a role in reducing the environmental impact of aviation and Airbus is working with farmers, universities, refiners and airlines to find solutions for sustainable drop-in aviation fuels to be produced in sufficient quantities to meet the needs of the aviation industry.

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 for a further three years in 2013.

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.

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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.

Environmental reduction targets for manufacturing and aircraft in operations

Airbus has set ambitious objectives for its manufacturing activities with its Blue5 programme to continuously improve its environmental performance. These include a 50 percent reduction in CO_2 emissions, 50 percent reduction in volatile organic compounds (VOC) and an 80 percent reduction in water discharge between 2006 and 2020,
Today, these targets are on-track and some have been achieved years in advance and new targets are being defined to take these improvements even further.

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 improve fuel efficiency by 1.5 percent per year up to 2020, to achieve carbon neutral growth from 2020, and to 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.
The environment is Airbus top level requirement for the design of any aircraft. Airbus is committed to Flightpath 2050 targets of 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.

Airbus aircraft: eco-efficient by design

With 25 percent less fuel consumption than the current generation aircraft, the A350 XWB 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 A350 XWB 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 (NEOneo) 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 someolder generation aircraft.
And today almost 130 A380s in service around the world, each giving a demonstrated 20% reduction in fuel-burn and emissions.

Sustainable fuels for aviation

Airbus' sustainable aviation fuel strategy is focused around three central principles; to support the qualification and certification of new aviation fuels, to support the large scale use of sustainable aviation fuels and to ensure the sustainability of the solutions. Any solution must meet criteria governed by membership of the world's reference body on sustainability, the Roundtable on Sustainable Biofuels (RSB).

In May 2014 an Airbus A330-200 of KLM Royal Dutch Airlines (flight KL767) undertook the longest commercial flight with sustainable jet fuels ever performed by an Airbus aircraft. The aircraft took off with a 20% blend of sustainable fuel made of used cooking oil, for a 10 hour flight from Schiphol airport to the Dutch Caribbean island of Aruba.
This flight was the first of a series of around 20 long-haul commercial flights using an Airbus aircraft in the context of the European initiative called ITAKA (Initiative Towards sustAinable Kerosene for Aviation) which aims to speed up the commercialisation of aviation biofuels in Europe.

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 chainsand research partnerships.
Airbus' role 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 Air 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.
Airbus is also working in partnership to develop taxiing solutions that do not require the use of aircraft engines, such as the TaxiBot and the eTaxi.

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.

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