Bangkok to Auckland took place in early May 2011. It is not fully comprehensive, but provides a snapshot of the work being undertaken around the world by all parts of the aviation industry. Readers are encouraged to visit our website (www.enviro.aero) for more details.

The industry with a plan: aviation’s winning strategy

Geneva – Just a month before last year’s historic climate talks in Cancun, Mexico, the aviation sector became the first in the world to have a uniform and consistent approach to addressing climate change when delegates at the 37th Assembly of the International Civil Aviation Organisation (ICAO) agreed on a landmark resolution on climate change. The aviation industry, a long-time proponent of dealing with international aviation emissions at a global rather than national level, welcomed the outcome.

“Governments have taken an historic decision,” said Giovanni Bisignani, IATA’s director general and chief executive officer, “It wasn’t many years ago that the idea of us having a single global answer was virtually impossible.”

The ICAO resolution calls for: improving fuel efficiency by 2% annually to 2020; striving to achieve a collective medium-term aspirational goal of capping aviation’s carbon emissions from 2020; and a global aviation standard for aircraft engines with a target date of 2013.

It also outlines the development of a global framework on market-based measures by the 38th Assembly in 2013 based on 15 agreed principles. These principles are designed to minimize market distortions, safeguard the fair treatment of aviation relative to other sectors, ensure that aviation’s emissions are accounted for only once and recognize both past and future efforts of countries.

The ICAO Assembly came two weeks after the industry held its Aviation & Environment Ministerial Meeting in Geneva. Adressing the opening of the summit, the Air Transport Action Group’s executive director, Paul Steele, outlined the goals to which the industry had already agreed. “Our targets are ambitious and they are unique – no other industry has come to the way that we do, airports, airlines, air navigation providers and the aviation manufacturers have.”

“We should be proud of that, but the work has just begun. We have ten years to reach our 2020 target to cut emissions. Luckily, we are well on our way.”

“We have global targets – a 1.5% average annual improvement in fuel efficiency between now and 2020, capping our net carbon emissions from 2020 and halving our net carbon emissions by 2050 compared to 2020. We also have national targets, which are these ambitious goals. Now is the time for governments to come to the party.”

Speaking at a European Aviation Summit shortly after the ICAO Assembly, vice president of the European Commission Siim Kallas said, “In many cases, there is no alternative to air transport. Therefore, our freedom of mobility depends on a safe, efficient, reliable and competitive air transport system. For air transport to be able to grow we need to address the environmental impact. I am very satisfied that ICAO has adopted a resolution on such a sensitive issue. It is the first mode of transport to adopt a resolution of the kind.”

The aviation industry’s long-term targets

The Air Transport Action Group (ATAG) is a coali-
tion of organisations working to succeed. Aviation will go to Cancun with its homework done!”

No report tracks aviation biofuels collaboration

Rotterdam – The Air Transport Action Group (ATAG) has released a new report, Powering the Future of Flight, which tracks progress in some key aviation biofuels projects worldwide and provides policymakers with examples of how they can help the deployment of biofuel.

The publication looks at four case studies in detail – the collaboration underway in the United States, the Mexican Government’s work to develop aviation biofuels, a project in the United Kingdom to turn household waste into aviation biofuel and cooperation between the aviation sector and research into aviation biofuels.

It also takes a brief look at a number of successful aviation biofuels collaboration projects worldwide and provides policymakers with examples of how they can help the deployment of biofuel.

The report will require capital from the investment community and start-up incentives and decarbonising from governments.

“Powering the Future of Flight takes a bold approach in identifying ‘six easy steps’ that governments and policymakers could follow to assist aviation and the biofuels sector in embracing sus-
tainable aviation biofuels. The steps are:

1. Foster research into new feedstock sources and refining processes.
2. Do-risk public and private invest-
ment in aviation biofuels.
3. Provide incentives for airlines to use biofuels from an early stage.
4. Encourage stakeholders to commit to re-
ducing or halving the carbon footprint of their aviation fuel.
5. Understand local green growth opportu-
nities.
6. Establish coalitions encompassing all parts of the supply chain.

“Of course, these six steps are not actually an ‘easy task’. What we set out to do is to illustrate the process in a simpler way. It is clear that aviation is ready to become a major cus-
tomer in the sustainable biofuel market. It is vital for our future and is an important step in reducing carbon emissions. This publica-
tion, we hope, will provide some inspiration and ideas based on work already underway.”

The Air Transport Action Group is a coalition of organisations working to succeed. Aviation will go to Cancun with its homework done!”

Captian Kiriakos Mougounis, First Officer for Thai Airways, said, “As the first airline to receive the biofuel, we are committed to finding ways to reduce carbon dioxide emissions. This publication is an excellent reference for airlines and policymakers looking to develop aviation biofuels.”

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No report ...
Kenya Airways and IATA team up to cut carbon

NAIROBI – Kenya Airways and the International Air Transport Association (IATA) have launched Africa’s first airline carbon offsetting programme, based on 36A or 320 family aircraft and will compare their fuel consumption with the rest of the fleet during a 12 month period. The programme’s primary objective is to develop cost-effective solutions to achieve economic measures [to reduce carbon emissions]. This approach is a cost-effective means for all airlines to offer their customers the option to offset emissions resulting from their air travel.

Amounts collected through this programme will be used to support projects that contribute to environmental goals, such as sustainable forest management, and to support other environmental initiatives that have employed throughout our operations.”

Giovanni Bisignani, IATA director general and CEO, said: “Our commitment to global action on climate change is not just about saving fuel and saving money, but also about achieving economic and environmental impacts. The programme’s primary objective is to develop cost-effective solutions to achieve economic measures [to reduce carbon emissions]. This approach is a cost-effective means for all airlines to offer their customers the option to offset emissions resulting from their air travel.”

United unveils joint-environmental commitment

CHICAGO – United Continental Holdings has unveiled the merged company’s new environmental commitment with a focus on reducing its impact on the environment in the air, on the ground, at facilities, and with suppliers and customers. The company, in its celebration of Earth Day, the company introduced Eco-Skies, its initiative and commitment to sustainability.

“With our commitment to the environment at the new United, we feed commercial aviation as an environmentally responsible company by reducing our environmental footprint and achieving an environmentally sustainable future,” said Tony Enqvist, vice president of environmental affairs for United Continental Holdings. “Eco-Skies is the company-wide commitment to reduce the impact of our operations on the environment, and the integrated environmental programmes of the new company will be known as Eco-Skies. As part of its commitment to the environment, the company will:

1. reduce fuel use and improve fuel efficiency of its aircraft and vehicles through technology and process innovation;
2. advance and utilise environmentally responsible and cost-effective sustainable fuels;
3. improve the sustainability of its products and its facilities, and responsibly manage waste generated by its business activities;
4. work together with its co-workers and its stakeholder – customers, airports, business partners, suppliers, governments and NGOs – to become a good corporate citizen and protect the environment while achieving its business goals.

“With our new, more comfortable seats, completely revamped cabin and enhanced inflight service, we are setting new standards in the industry. In addition, the new seats will also help the airline reduce emissions.

Iberia Flight tests performed to optimise routes and save fuel

MADRID – Spanish airline Iberia has undertaken the first flight test in the DORIS (Digital Optimisation Route Identification System) programme, which aims to optimise routes and gain efficiencies in the North Atlantic air space. Iberia and its flight-test team were the first to conduct a large-scale flight test involving operational conditions. During flight, meteorological conditions are tracked and evaluated in real time, which is more favourable than had been planned initially. The flight crew is able to change trajectory and land at any altitude and without air traffic control.

The first flight test showed that, utilising such techniques can save up to 2% of fuel per flight. In an Airbus A340, such as used by Iberia, the savings of the flight test would be equivalent to 400 kmiles of kilometres on a flight to New York.

Iberia participates in DORIS with air navigation services provider Naviaer of Norway and is an initiative of the AIRE programme (Atlantic Interoperability Initiative to Reduce Emissions) in the context of the largest international cooperation agreement between the FAA and the European Commission under the European Union’s programme. Naviaer will evaluate the programme on an ongoing basis to ensure that the programme can be directly applied to other pools of airspace.

The new seat design offers a full 180° recline angle, increased leg room and more space to move comfortably. The new seat is made of 30% bio-based material, which will reduce the environmental footprint by up to 30%.

Frankfurt – The figures by themselves are impressive: Lufthansa is installing some 32,000 new seats on more than 180 aircraft in its short and medium-haul fleet – within the space of just a few days. This will create a new travel experience and ensure greater passenger comfort. Importantly, the new seats will also help the airline reduce emissions.

“With our new, more comfortable seats, completely revamped cabin and enhanced inflight service, we are setting new standards in the industry. In addition, the new seats will also help the airline reduce emissions.”

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“With our new, more comfortable seats, completely revamped cabin and enhanced inflight service, we are setting new standards in the industry. In addition, the new seats will also help the airline reduce emissions. In the new seat, the backrest is made of thin, high breathability and also boosts seating comfort but also make a substantial contribution to the overall cost savings of the new seat. As part of this project, the new seat will be used in all the aircrafts in the company’s short and medium-haul fleet and test the new seat on a couple of flights to ensure that the new seat design can be applied to the entire fleet.

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Airline BRIEFS

ANA introduces Fuel Cell Electric Passenger Carriage Vehicles

Japan’s first fuel cell passenger carriage vehicles have been introduced into service with the aim of reducing carbon emissions and increasing fuel efficiency. The initiative forms part of the government-backed Hydrogen Highway Project, which is designed to combat climate change by cutting carbon emissions from various sectors.

ANA is the first Japanese airline to receive the Government’s ‘Eco-Friendly’ certification and is participating in the demonstration programme for establishing a hydrogen-powered transport system. A series of initiatives funded by the Ministry of Economy, Trade and Industry (METI), of which the Hydrogen Highway Project is one.

The electric vehicle is one of a series of initiatives to be undertaken to make ANA’s Japanese airport facilities and air traffic control and petroleum consumption. ANA’s flight crew will be trained to fly the new aircraft.

“The many efforts we have made to improve our environmental performance,” said Alain Gras, President and CEO of Air Transat.

These efforts have included reducing our energy consumption by 10% and our waste by 40% over the past few years. We have also implemented a waste management system that emulsifies composting as well as recycling and reducing paper waste. This result is the paving stone of teamwork and an incentive for us to all continue our environmental evolution.”

GOL enlists GE’s support for prepare for RNP-AR in Brazil

GOL Transportes Aereos has selected GE Aviation’s FMS Services to assist them in obtaining regulatory authorisation to fly Required Navigation Performance (RNP) flight procedures. The airline will be allowed to fly RNP paths in its fleet of Boeing 737, reducing fuel consumption and emissions while increasing airspace capacity.

“GOL is a forward-looking aviation leader that recognises the importance of RNP in the fast-growing Brazilian aviation sector,” said Steve Forte, general manager of GE Aviation’s FMS Services. “Using RNP, GOL will be able to grow its operations quickly and safely to meet market demands while reducing emissions and fuel consumption.”

RNP allows aircraft to fly precisely defined trajectories using inertial and ground-based radio-navigation signals. A RNP AR system will be implemented into the approach phase of a flight allowing the aircraft to fly a predetermined route with a prescribed tolerance.

For further information on developments across the aviation industry: www.aviation-industry.org

**Lufthansa’s new seats on A320 family**
Nav Canada advances international and domestic efforts to reduce GHG emissions

OTTAWA - Nav Canada has made further gains and has announced a new project in its efforts to reduce aviation-related greenhouse gas emissions through safe and more efficient air traffic management.

The Engagement Corridor Project is a collaborative initiative involving the European Community, the US and Canada, aimed at improving the efficiency of the 350,000 flights per year that cross the North Atlantic.

It is one of the many projects outlined in the updated CFMIRER. The Engagement Corridor Project will assess trial flights for the feasibility and potential to reduce emissions in the North Atlantic Ocean airspace. Based on actual airline flight data, the flight trial results will be compared to a control group to determine if a reduction in emissions is possible.

The future flight trials will test the viability of two new navigation services on North Atlantic airspace: progressive or continuous altitude change; and corresponding change in aircraft speed (mach).

A flight through the ocean, fuel is consumed and the weight of the aircraft decreases, resulting in the most efficient flight level becoming higher (assuming zero wind).

Therefore, an efficient flight profile would include a progressive or continuous altitude change and corresponding change in speed.

Assessments show that oceanic flights can save approximately 400 to 650 kilograms of GHG emissions per flight by varying Mach and altitude.

"More than 350,000 flights per year transit the North Atlantic," said Rudy Kelz, Nav Canada Vice President, Operations. "If only three percent are able to vary Mach and altitude in a way that improves flight efficiency, that would result in an annual reduction of approximately 7,200 tonnes of GHG emissions and a savings of 2.7 million litres of fuel."

The Engagement Corridor Project is being managed as part of the SESAR Joint Undertaking's Enabling Technologies Programme. The SESAR Joint Undertaking (SUT) was created under European Community law in 2007 to modernise the European air traffic management system.

AIRE is a programme managed by SUA in cooperation with the FAA. The aim is to accelerate the implementation of environmentally-friendly procedures for all phases of flight, and to validate the benefits of these improvements.

CANSO members create Indian Ocean strategic partnership to reduce emissions (INSPIRE)

AMSTERDAM - Three CANSO Member air navigation service providers - Airports Authority of India, Airservices Australia and ATNS South Africa - have announced the creation of the Indian Ocean Strategic Partnership to reduce emissions (INSPIRE) from each organisation took part in a special signing ceremony during ATM Global 2011 in Amsterdam. The agreement recognised the significant growth in air travel during the 2010 in the Middle East (21%) and Asia-Pacific (13%), as well as the positive outlook for growth in Australia, India and air traffic over the Arabian Sea and Indian Ocean. Against this backdrop, the INSPIRE partners have agreed to pursue the introduction of air traffic management efficiencies and to reduce the output of greenhouse gases from aviation.

The introduction of PN coincides with the implementation of CNS. This technology allows the air traffic controllers to take into account projected winds when routing a flight in a continuous speed with minimum turbulence. This is particularly useful, it helps to reduce the on-going problem of global warming.

PBN is implemented as a means of reducingflight fuel consumption by 8 to 10% per flight, reducing the overall fuel budget for the industry by 1.6 to 1.8 millions of fuel and reducing carbon dioxide emission by 180,000 tonnes per year.

ASPIRE's green daily

AUCKLAND - The Asia and Pacific air navigation service providers (ASPIRE) is moving beyond the demonstration stage with the launch of ASPIRE-Daily service in the Asia-Pacific region.

Air New Zealand has begun ASPIRE-Daily, an autonomous trial with Airbus A320 using some of the flight procedures identified in the 2011 ASPIRE Polycentric Project, which has shown that aircraft emissions and efficiency can be improved as part of current operations.

Air New Zealand's Acting Chief Executive Officer Chris Liddell said: "Our ASPIRE-Daily service will see us fly a new route to the Caribbean, and could lead to the development of two new, shorter routes between cities such as Sydney, Auckland, Boston and New York. The FAA will collect valuable Nextgen data by observing, assessing and evaluating ASPIREdata on B-777 revenue flights.

NATS boosts green daily

WASHINGTON - The US Federal Aviation Administration (FAA) has announced that it signed a Nextgen agreement with JetBlue Airways that will allow the airline to take full advantage of Nextgen tools, including the use of Automatic Dependent Surveillance-Broadcast (ADS-B). This agreement promises the US Department of Transportation's (DOT) Office of Aviation Enforcement and Proceedings (OAE), which is responsible for the enforcement of the DOT's safety regulations, that results of this project will be used in cooperation with US-U.S. Air and their Air Service Providers (ASP) partners, and airlines and other ANSPs in employing best practices and technologies in air traffic management that can achieve significant reductions in fuel consumption and carbon emissions for flights.

The following air traffic management best practices, which significantly reduce fuel burn and carbon emissions for flights.

- User-Preferred Routes, Dynamic Airborne Route Procedures and 30/30 Reduced Oceanic Separation, which allow pilots to take full advantage of benign atmospheric conditions, such as prevailing winds, to reduce separation between aircraft and short time flight.

- Time-Based Arrivals Management and Arrivals Optimisation which allow aircraft to fly with more precise, satellite-based flights on the landing phase of the flight, thus reducing fuel burn.

- Fuel Savings Projects, which implements these flight procedures on a regular basis, and use this as yet another step towards greener skies. We will be monitoring the flight closely to track the fuel and emission savings, but we expect to reduce fuel burn by two tonnes and achieve carbon savings of 6.3 tonnes for each Los Angeles-Singapore sector flight, says Singapore Airlines' Senior Vice-President Flight Operations Gerard Vayp.

First of the day...

Ian Jopson, Head of Environmental and Community Affairs at UK air navigation service provider NATS

Falling short of its targets, NATS is saving thousands of tonnes of CO2

Flying light: NATS is saving thousands of tonnes of CO2

NATS' Acting Responsibly programme – aimed at reducing the environmental impact of aviation – has already achieved significant reductions in fuel consumption and CO2 emissions for flights.

In 2011, NATS became the first ANSP globally to set a target for a 25% reduction in emissions and a 25% reduction in the carbon footprint.

NATS is working with the airlines to take full advantage of the potential for carbon savings both short term and in the longer term.

NATS has set a target of saving 45 million tonnes of CO2 emissions by 2020, which will lead to the development of new, shorter routes.

NATS has already achieved 45% in emissions and a 25% reduction in the carbon footprint.

NATS has achieved significant reductions in its CO2 emissions and fuel use, leading to a carbon footprint reduction of 12% in 2011, compared with 2006.

In the UK, NATS has already reduced the number of flights by 260 near term and emissions saving opportunities.

NATS is also working with the airlines to take full advantage of the potential for carbon savings both short term and in the longer term.

NATS has several ongoing projects to reduce CO2 emissions and fuel use, leading to a carbon footprint reduction of 12% in 2011, compared with 2006.

While NATS is achieving significant reductions in its CO2 emissions and fuel use, leading to a carbon footprint reduction of 12% in 2011, compared with 2006, the challenge now is to make this progress sustainable as part of our Vision 2011 programme.

This was a UK first – a trial flight that followed the concept of a ‘perfect flight’.

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American Airlines is just one of the many carriers taking advantage of the fuel – and emissions savings possible by re-tuned weightings, such as its Dreamliner 787.

SEATTLE – Seattle-based Aviation Partners Boeing announced that as of 9 February 2011, their blended winglet tech- nology is now flying on more than 4,000 airplanes and 21 different models. Joel Clark, Chairman and CEO of Aviation Partners, and John Reimers, CEO of Aviation Partners Boeing, both agreed the fuel savings has also been selected to power the new Airbus A320neo aircraft scheduled to enter service in 2016. noise.

Airbus CEO calls for investment in sustainable aviation future

MADRID – Speaking at a major EU summit in February 2011, Airbus President and CEO, Tom Enders, urged Europe “to invest in improving an infrastructure that so much of the world already relies on.”

Airbus CEO’s comments follow the launch of The European Aviation Vision 2050, which was introduced to the European Parliament, the commercial and general aviation sector will handle 16 billion passengers and 400 million tonnes of cargo annually. Airbus has been making significant advances in developing the vision, which highlights the need for increased R&D and research to meet the global demand for a sustainable and green transport network.

The European Aviation Vision 2050, aims to reduce CO2 by 73%, NOx by 90% and noise by 63%, compared to levels in 2008, while handling around 25 million flights per year within Europe. It suggests that by then, 90% of travellers will be able to complete European journeys in four hours and that flights will arrive within one minute of planned arrival times, reducing flight times and fuel burn due to air traffic control.

“The implementation of fuel saving tech- nology on our aircraft has allowed us to satisfy a 45% increase in demand for air transport over the last decade with only a 3% increase in aircraft emissions,” said Enders. “Innovation has allowed us to do more with less and it will continue. In this Vision this need investment and action now in order to safeguard Europe’s position as a world leader in aviation, as well as creating economic and political landscape,” said Enders.

“Aviation supports 33 million jobs and 8% GDP, it is imperative that our investment in innovation in the aviation sector will provide significant benefits to the environment and our economy.”

Airbus is committed to sustainable growth in its new high-capacity passenger airline providing enhanced environ- mental performance. Approximately 10,000 guests, including customers, Boeing employees, government officials, airline partners and suppliers attended the factory near Seattle to witness the premiere of the aircraft, which is now taking part in an extensive test and certification process before entering service.

Boeing Commercial Airlines President and CEO, Ray Conner, who recently announced the development of the new 787 Dreamliner, said the newest 787 incorporates technological advances that make it an extremely powerful and productive aircraft.

“The new 787-Intercontinental features the recent advancements of the Dreamliner by adding many of the breakthroughs also found on the 787 Dreamline,” said Albaugh. The 787-Intercontinental provides 16% better fuel economy, 16% less carbon emissions per passenger and generates a 30% smaller noise footprint than the 787-400.

Boeing’s fuel-efficient 787 Dreamliner joins its cousin the 747-8 Intercontinental on a test flight above Seattle. Both aircraft bring significant emissions reductions.

Boeing’s South Carolina achieves zero waste to landfill status

Boeing’s South Carolina 787 production, final assembly and delivery site has become the company’s first major commercial air- plane production facility to achieve zero waste to landfill status. The North Charleston site is the fourth within Boeing to reach this milestone achievement. Zero waste to landfill means that none of the waste mate- rials and by-products generated at the site reaches landfill. Waste material is recycled or reused or otherwise repurposed, reducing the site’s overall environmental footprint.

Components of the site’s zero waste to landfill plan include a recycling program with point-of-sale containers as well as recycling centers located across the site. Food scraps also are collected in cafeterias and break rooms for composting. Larger packaging waste materials that can’t be reused are removed from the site by Sonoco for recycling or repurposing.

Boeing announces renewable energy partnership

Boeing and South Carolina Electric & Gas (SCE&G) today announced an energy part- nership that will enable Boeing South Caro- lina to operate on a 100% renewable energy site.

“This is an important announcement for Boeing and we’re honored to share it with South Carolina Electric & Gas,” said Jim Al-baugh, president and CEO of Boeing Com- mercial Airlines. “Our 787 Dreamliner is manufactured using fewer hazardous mate- rials and designed to consume less fuel, and produce fewer emissions. It only makes sense that our own energy operations in South Caro- lina reflect the environmental progressiveness of the world we’ll build here.”

“Renewable energy will be generated at the North Charleston site in part with thin- film solar arrays on panels, installed and maintained by SCE&G on the new Boeing 787 Final Assembly building roof. This solar installation will provide up to 2.6 megawatts of electrical power for the site, enough to power 2,000 homes. The in- stallation will be the largest in the Southeast by production capacity, and the sixth largest in the nation.”

Airbus launches “ProSky” – new ATM subsidiary

Airbus has launched a new subsidiary company that will develop and support modern air traffic management (ATM) systems. Air- bus ProSky will become the latest player in which Airbus will interact and develop ATM solutions, in partnership with other ATM players, such as SESAR (Société Européenne de Recherche pour l’Aéroport Civil) in Europe, as well as NextGen in the US. In particular, for these two ATM programmes, the new company will help accelerate and support the process of their implementation, and link them to- gether by capitalising on the technological, operational and commercial synergies.

Airbus ProSky will also contribute Airbus’ aviation expertise further afield for other na- tional, regional and civil authorities, by applying its ATM concepts, airspace management and airspace exploitation solutions. Airbus ProSky will also contribute Airbus’ aviation expertise further afield for other na- tional, regional and civil authorities, by applying its ATM concepts, airspace manage- ment and airspace exploitation solutions.

Bombarider launches first edition of its Green Fund

MONTREAL – Driven by its commit- ment to reducing energy and greenhouse gas emissions by an additional 10% by the end of 2013 compared to 2008, Bombardier created its Green Fund. With this special Fund, Bombardier expects to capture and implement energy efficiency and environmental initiatives in its products, services and operations. Bombardier has recently announced the results of the 2011 edition: 10 ideas from employees across the organization have been selected for implementation in 2011. The 10 ideas have the potential to generate reducing CO2 reductions equivalent to 1,182 mid-size cars off the road annually.

Bombardier will provide over $3 million in grants to support projects that will reduce CO2 emissions by over 276 million pounds. These projects will reduce CO2 emissions by over 276 million pounds. These projects will reduce CO2 emissions by over 276 million pounds. To date, Bombardier has invested $180 million in R&D to develop and test aircraft and engine technologies to further reduce the environmental impact of its products, and has already demonstrated that these technologies will achieve carbon dioxide (CO2) reductions of up to 15% on a flight-by-flight basis.

Bombardier’s first edition of its Green Fund generated over 2,300 ideas from employees for initiatives that could help the Company achieve its CO2 reduction targets. Of these, 10 ideas were selected to form the first edition of Bombardier’s Green Fund.

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Earth Hour takes off at Changi and Tokyo

Singapore - As part of its efforts to raise awareness of climate change, Changi Airport Group (CAG) participated in Earth Hour for the third consecutive year. Environmentally friendly practices will continue to be implemented by CAG beyond Earth Hour.

As part of the ‘Change Goes Green’ program, various initiatives have been implemented which includes dimming lights at airport terminals by as much as 50% during peak hours, increasing the temperature in the terminal buildings’ general areas from 23 to 24 degrees Celsius and installing motion sensors in areas such as toilets and offices to conserve electricity.

CAG has also been installed on the roof of the terminal building and generates about 950 kWh of energy a day, resulting in energy savings of approximately $80,000 a year.

CAG became ISO 14001 certified and has also achieved the Green Mark for Terminal 3 in 2009 for its environmental management and reduction at Eurostar.

Stockholm’s taxi system wins another environmental award

Stockholm –in the Netherlands

Schiphol Airport

Schiphol Amsterdam Schiphol has been awarded the LEED Platinum certification, the most rigorous and demanding availability for its Transport office building. This is the first time that a building that is certified international certificate by the United States Green Building Council (USGBC). LEED (Leadership in Energy and Environmental Design) is the international sustainability market leader and the highest ‘Platinum’ level.

“We are pleased with the success of Transport Three years ago with the aim of constructing a sustainable, commercial office building and are pleased that this international certificate has been awarded this year,” says Maarten de Groot, CEO of Schiphol Amsterdam Schiphol. “Our efforts have been rewarded with this internationally renowned certificate. We’re delighted that transport in and out of terminals is very satisfying with their new sustainable head office.”

Current projects at Schiphol include: the construction of 7,000 m² of sustainable offices, and the extension of the head office to 20,000 m². The sustainable head office has won several awards: the LEED Platinum certificate for sustainable head office.

For further information on developments across the airport, please visit: www.schiphol.nl

Airport Carbon Accreditation

Airport Carbon Accreditation is the European carbon standard for airports, established by Airports Council International - Europe. The programme assesses and recognises the efforts of airports to manage and reduce their carbon emissions with four levels of award: ‘Mapping’, ‘Reduction’, ‘Optimisation’ and ‘Neutrality’.

Currently, 43 airports (accounting for over 44% of European passenger traffic) take part in the programme, saving more than 749,000 tonnes of CO2 to date.

Pioneering hydrogen fuel trial ready for Stansted take-off

Pioneering new green technology: Stansted Airport is the first in the world to take hydrogen-powered plane on a regular flight. The hydrogen-powered plane has been designed with the help of world-renowned aerospace and power aircraft manufacturers of the future. It is a major step forward for sustainable aviation.

As part of the airport’s continued commitment to climate change, three planes will take off from the airport, piloted by a group of hydrogen-powered vehicles. The planes will land at Stansted airport this spring. Britain’s third busiest airport will be the first UK company to test a new hydrogen-powered aircraft, in a move that is expected to set a new standard for the aviation industry. The design is expected to be a major step forward for sustainable aviation, with the potential for significant CO2 emissions.

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President in charge of Transport, Siim Kallas, commented “I congratulate Budapest Airport on this important milestone for us. We are already well on our way to achieving the next level of accreditation in the year of Earth Hour, 2009, and our emissions year-on-year.”

Gatwick Airport

Gatwick Airport has been awarded its Airports Carbon Accreditation at Level 2 for its carbon management and reduction at Eurostar.

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Gatwick is working as a number of key projects to reduce carbon, for example, it will be installing electric vehicle charging points not only for vehicles on the airport but also in public car parks, benefitting passengers’ and also supporting the Government’s aim to develop a national network. A designated carbon management zone is also being identified for the zones which can incentivise businesses partners to use cleaner forms of transport. This is on top of the radical changes that are already in use within the buildings such as energy efficient lighting and sensors to control the passenger and vehicle flow.

Currently, 43 airports (accounting for over 44% of European passenger traffic) take part in the programme, saving more than 749,000 tonnes of CO2 to date.

Pioneering new green technology: Stansted Airport is the first in the world to take hydrogen-powered plane on a regular flight. The hydrogen-powered plane has been designed with the help of world-renowned aerospace and power aircraft manufacturers of the future. It is a major step forward for sustainable aviation.

As part of the airport’s continued commitment to climate change, three planes will take off from the airport, piloted by a group of hydrogen-powered vehicles. The planes will land at Stansted airport this spring. Britain’s third busiest airport will be the first UK company to test a new hydrogen-powered aircraft, in a move that is expected to set a new standard for the aviation industry. The design is expected to be a major step forward for sustainable aviation, with the potential for significant CO2 emissions.

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Algae fuel farm established at Madrid Airport

Madrid - Iberia airlines, Spanish airport and air traffic control organisation AENA and AlgaEnergy have unveiled a microalgae-based biofuel production project that will be established at Madrid-Barajas airport.

The research platform, with an initial budget of more than 600,000, will be installed near Terminal 4 of the airport and will become operational in June 2011. The platform will be devoted to research, experimentation, and improving technologies for sequestering carbon dioxide and for the cultivation of microalgae. The purpose is to reduce the production costs of biomass and to achieve profitable biofuel production.

Spain's airport and air traffic control agency AENA granted the site for the platform which will be managed by AlgaEnergy. Helping to design the platform were scientists from the Plant Biochemistry and Photosynthesis Institute and from the universities of Seville and Almeria.

The technological platform will be supplied with distilled water from the Iberia purification plant in its industrial site in the airport complex, and with CO2 from AENA and recovered at Iberia's aircraft engine bench test facility in its Madrid-Barajas maintenance hangar, where it is currently emitted into the atmosphere. Both AENA and Iberia will analyse the use of the biofuel obtained to power airport ground vehicles and aircraft.

The project attains AENA and Iberia at the vanguard of research into the biological sequestration of CO2 and into ecological biofuels, whereby they contribute to sustainable development and environmental protection.

Through photosynthesis, the microalgae transform the CO2 it captures as a nutrient for its own subsistence into an energy source. In addition, some of the 40,000 estimated to exist on earth contain fatty acids that can be converted into biofuel. Research into the cultivation and production of microalgae biomass at the facility, which needs no soil nor large amounts of water (recovered waste wa

Boeing issues first Latin American study on jatropha sustainability

Seattle - Boeing has released research conducted by Yale University's School of Engineering studies showing that jatropha has significant potential for sustainable aviation fuel based on the performance of a cellulosic ethanol plant. The study shows that, if cultivated properly, jatropha can deliver strong environmental and economic benefits in Latin America and greenhouse gas reductions of up to 85% when compared to petroleum jet fuel.

The Yale study used sustainability criteria developed by the Roundtable on Sustainable Biofuels to assess actual farming conditions in Latin America, where jatropha, which used theoretical inputs, the Yale team conducted one-on-one interviews with farmers and used field measurements to develop the first comprehensive sustainability analysis of future production of jatropha. The study focused on Mexican Government roadmap assessment and this data will contribute to that effort. The peer-reviewed data is applicable to similar conditions in Mexican commercial agriculture, with a view to Brazilian efforts to develop a commercial aviation biofuels market.

"The invaluable insights provided by this study will help our airline customers to better understand the environmental impacts of a new jet fuel source, while also providing solid scientific data to support future sustainability assessments of other fuels or fuel blends and for other sectors. The consortium will also seek to lower overall sustainability certification costs," said D. Scott Paul, Boeing executive vice president, engineering, and technology, and chief technology officer.

Currently, there are a number of sustainability criteria being developed for biofuels. This presents a problem for aviation, which may have to comply with multiple certification systems as it flies aircraft from one part of the world to the other. The Boeing-funded project will pursue a way of smoothing out the differences in criteria, to make them more compatible with each other and make life easier for airlines wishing to use sustainable aviation biofuels.

Research projects will commence in April 2011 and the scope of work over the next two years will include projects in China, Africa, the EU, Latin America, North America and Australasia. Specifics will be announced as projects are launched, and more than 10 are currently in development.

Altaíria and Solena study Rome route for biofuel opportunity

Rome - Altaíria and biofuels producer Solena Group are to initiate a study on the demonstration of a plant capable of converting municipal solid waste in a significant portion of the jet fuel used by the Altaíria aircraft fleet, thus ensuring the reduction of greenhouse gas emissions and providing a stable supply of fuel.

The study is aimed at assessing the feasibility of implementing a system for the conversion of hundreds of thousands of tonnes of municipal solid waste into aircraft jet fuel, increasing considerably the contribution to reducing the consumption of conventional jet fuel in the airline and benefiting the environment by bringing CO2 emissions into the atmosphere (by up to 96%).

The use of technology of the Solena Group involves a process of gasification at high temperature of the waste, which will be transferred into a gas which is then converted into liquid by means of an industrial chemical process called Fischer-Tropsch.

Altaíria and Solena Group believe that this innovative conversion process can contribute to a significant reduction of greenhouse gas emissions generated by the aircraft fleet. The collaboration between Altaíria and Solena Group is part of the innovative programme of the Italian Ministry of the Environment, entitled “Green Sky” project, which sets the stage for a new technology of converting the entire metropole area into jet fuel for aircraft operating at the Ciampino airport.

Altaíria has also signed an agreement with Qantas Airways.

“Altaíria and Solena Group believe that the use of technology of the Solena Group involves a process of gasification at high temperature of the waste, which will be transferred into a gas which is then converted into liquid by means of an industrial chemical process called Fischer-Tropsch,” said Professor Gregory said: “Using ‘new active materials’ and ‘new materials’ technology, and an entirely new approach to the design and material composition of a storage tank with the aim of making it efficient and safe will be feasible to use solid state hydrocarbons on an industrial scale for airframes. If the developments to the tank structure are successful, it will be possible to fly an un-manned hydrogen-powered test aircraft in 2014 with a longer term view of introducing commercial airplanes powered by hydrogen. Dusan Gregoric, Professor of Inorganic Materials at the School of Chemistry at the University of Glasgow, is leading the research to develop an industrial scale in fuel cells to provide power for aerial vehicles.”

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Spanish government, Iberia, and Airbus launch biofuel initiative

The Spanish government, Iberia Airlines and Airbus have signed an agreement to develop a complete Spanish ‘value chain’ for sustainable and renewable aviation biofuel for commercial use.

The agreement promotes and backs initiatives to establish the technical and economic feasibility of using hydrogen as a clean alternative to traditional hydrocarbon-based fuels in aircraft engines.

The project aims to investigate the potential of using hydrogen only on water or combustion when combined with oxygen in a fuel cell to produce electrical power. However, it can be expensive and difficult to store safely. In addition, to store hydrogen as a gaseous hydrogen in high pressure cylinders, while to store as a liquid increases weight and volume of the store is challenging and the storage of hydrogen in a solid is, therefore, very attractive but minimising weight and volume of the store is challenging and the rate of transfer from the tank to a fuel cell or engine is often slow. These barriers are currently being broken down for use in both industry and aircraft applications, with special consideration on economic and technical analyses.

The value chain brings together farmers, oil-refiners and airlines to spearhead the commercialisation of ‘drop-in’ sustainable aviation biofuel.

At the event, the CEO of Iberia, Antonio Vázquez; the CEO of AENA, Juan Lema; the Secretary of State for Transport, Iberia Airlines Chairman, Ivan Tablas; and the CEO of AlgaEnergy, Augusto Rodríguez Valls, gave a press conference at the Launch of the Madrid Barajas airport algae biofuel project.

“Spain is committed to sustainability and environmental protection,” said Paul Nash, Airbus’ senior vice president for Engineering. “In this respect, we are pleased to announce today’s agreement with the Spanish government and Iberia Airlines to work together to establish a ‘value chain’ for sustainable aviation biofuel. This initiative demonstrates Spain’s strong commitment to sustainable development and energy efficiency.”

A new ‘value chain’ is effectively a collaboration between the upstream and downstream industry, being the ability to make sustainable aviation biofuels an economically viable proposition, and the development of a network of aviation fuel suppliers and airlines. The downstream industry includes the refiners, certification bodies and airlines, who together aim to secure the supply of aviation biofuels to end-users.

The project is being supported by Mexico’s Green Flight Times – Interjet and Airbus

“Green Flight Times” is a pilot programme to explore sustainable and renewable aviation biofuel feasibility and potential emissions reductions on long-haul routes. Interjet and Airbus have signed an agreement to demonstrate the use of biofuel for commercial use.

The project will also see Qantas and Solana work together over the next year to develop a business case for the introduction of Solana’s ‘algal-derived aviation biofuel’ in Qantas Group’s aircraft, followed by a feasibility study for the introduction of introducing hydrogen as a fuel for aviation. “EADS and Prof. Gregory’s project is a most exciting finance studies on agricultural, technological and aeronautic development and sustainability assessment are complete, the project will also assume the new existing biofuel engines in order to identify the Roman- mon production capability. Camelina is the chosen feedstock because of its energy potential, and its ability to lower greenhouse gas reduction potential and its low water requirements. Camelina is also indigenous to Romania, and can be readily farmed and harvested by family farmers.

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Southwest Airlines’ pilots begin flying new, efficient, procedures at 11 airports

**DALLAS** – Southwest Airlines’ pilots began Required Navigation Performance (RNP) efficient flight procedures in January at 11 airports nationwide. This major milestone reduces environmental impact while simultaneously taking advantage of the high-performance characteristics that exist in an increasingly efficient fleet.

Southwest’s pilots and dispatchers now follow these new efficient RNP flight procedures and are benefitting from reduced delays and fuel savings. These procedures involve satellite-based navigation approaches to optimize fuel consumption and lower emissions.

The primary airports with efficient RNP procedures include Amarillo, Birmingham, Brownsville, Chicago, Cleveland, Midway, Oakland, Oklahoma City, West Palm Beach, Phoenix-Piedmont, and San Jose.

With RNP procedures designed at 11 Southwest airports, the airline’s project goal of 30 million gallons per year, with an anticipated savings of more than $60 million per year, can be realized.

Southwest has significantly expanded to include more airports.

**TrueCourse** provides the technology to enable RNP. RNP technology allows aircraft to fly precisely-defined trajectories without relying on outdated, ground-based radio-navigation signals. Independence from a fixed, ground-based infrastructure and inherent precision of satellite navigation and advanced computer technology around the aircraft allow the creation of shorter, more consistent and more efficient flight paths. The consistency and efficiency of the new flight paths can reduce flight path fuel burn, allowing aircraft to reach their destination with less fuel consumed.

In many locations around the world, RNP is already demonstrating significant benefits. In 2011, Dassault, one of the industries’ leaders, demonstrated a cargo operation in which an aircraft operated 820,000 pounds of jet fuel per year, even though only 18% of the aircraft were capable of flying the procedures. Based on these results, Airenaus Australia is implementing RNP at 28 airports nationwide, which it expects will save operators nearly 80 million pounds of jet fuel per year.

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Southwest will continue a flight-path optimization program that is part of the airline’s overall environmental performance. The airline has made significant strides in improving fuel efficiency, and Southwest is committed to using its technology, satellite-based navigation systems, and new flight procedures to continue doing its part to conserve fuel, improve safety, and reduce carbon emissions while simultaneously taking advantage of the high-performance characteristics that exist in its increasingly efficient fleet.

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628,000,000 tonnes

Worldwide, flights produced 628 million tonnes of CO₂ last year. Globally, humans produced over 30 billion tonnes of CO₂.

2%
The global aviation industry produces around 2% of all human-induced carbon dioxide (CO₂) emissions.

12%
Aviation is responsible for 12% of CO₂ emissions from all transport sources, compared to 74% from road transport.

Over 33 million people are employed worldwide in aviation activities and related tourism. Of this, 5.5 million people work directly in the aviation industry.

$1.3 trillion

In order for the aviation industry to reach its target of 1.5% average fleet fuel efficiency per annum from now until 2020, the world’s airlines will have to purchase 12,000 new aircraft at a cost of $1.3 trillion.

76%
Globally, the average occupancy of aircraft is around 76%, greater than other forms of transport.

Our climate targets:

1.5%
We will improve our fleet fuel efficiency by 1.5% per annum between now and 2020.

Stabilise
From 2020, net carbon emissions from aviation will be capped through carbon-neutral growth.

50%
By 2050, net aviation carbon emissions will be half of what they were in 2005.

80%
Around 80% of aviation CO₂ emissions are emitted from flights of over 1,500 kilometres, for which there is no practical alternative mode of transport.

The aviation industry was the only global sector to present a united plan for reducing its emissions to governments at the 2009 Copenhagen Climate Talks.

3 litres
The new Airbus A380, Boeing 787 and Bombardier CSeries aircraft use less than 3 litres of jet fuel per 100 passenger kilometres. This matches the efficiency of most modern compact cars.

The South African horn made infamous at the 2010 World Cup, the vuvuzela, at full blast is rated at 127 decibels. An A380 on the other hand takes off with a relative whisper of 82dB.

82%
A jet aircraft coming off the production line today is around 80% more fuel efficient per seat km than one delivered in the 1960s.

1,715 airlines operate a fleet of 23,000 aircraft serving 3,750 airports through a route network of millions of kms managed by 160 air navigation service providers.

Nearly a quarter of the operating costs of airlines is spent on fuel: 23%, which is up from 13% in 2001. The proportion is likely to rise further as fuel prices go up. So this alone is a major incentive for the industry to focus on fuel efficiency.

80%
Alternative fuels, particularly sustainable biofuels, have been identified as excellent candidates for helping achieve the industry targets. Biofuels derived from biomass such as algae, jatropha and camelina have been shown to reduce the carbon footprint of aviation fuel by up to 80% over their full lifecycle. If commercial aviation were to get 6% of its fuel supply from biofuel by 2020, this would reduce its overall carbon footprint by 5%.

3-5 years
With certification expected at the beginning of 2011, it is estimated that the first drops of sustainable aviation biofuel could be making their way into commercial flights in 3 to 5 years. Once production is scaled up, the % of fuel supplied will increase rapidly.

35%
While air transport carries around 0.5% of the volume of world trade shipments, it is over 35% by value – meaning that goods shipped by air are very high value commodities, often times perishable or time-sensitive.

Deliveries of fresh produce from Africa to the UK alone supports the livelihoods of 1.5 million people, while producing less CO₂ than similar produce grown in the UK, despite the energy used in transport.

Sources: