



# NETJETS EUROPE 2012 ENVIRONMENTAL REPORT REAL DIFFERENCE

FLYING TOWARDS A MORE SUSTAINABLE FUTURE

*NETJETS*



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## A WELCOME NOTE FROM THE CHAIRMAN AND CEO



*“I am proud to lead a company where every single member of staff has embraced our environmental commitments and strives to improve our efforts on a daily basis.”*

Today NetJets Europe is close to reaching a major milestone. Almost five years ago, NetJets Europe embarked on a journey to distinguish itself, in both the aviation industry and the wider business world, by launching Real Difference - an overarching programme of environmental activity that included a key goal to become carbon neutral in 2012.

Five years on, NetJets Europe is close to reaching that goal, yet when Real Difference was launched, many thought it a paradox that an aviation company could lead the way in environmental matters. One could understand their reasoning – aviation is, after all, a polluting industry, thought to be responsible for up to 3.5% of anthropogenic climate change.

Business aviation is only estimated to contribute 0.2% to overall aviation emissions and the sector faces particular challenges that are not

shared by commercial airlines. Business aviation carriers have no fixed routes and operate over a diverse range of airports – both of which add an increased complexity to the introduction of sustainable practices.

Despite these challenges, NetJets Europe believed it was imperative for it to become not only Europe’s leading business aviation company but also a leader in environmental aviation.

There is also a business case for being more environmentally efficient as it results in financial savings. This is especially important given the challenging business environment that has developed since Real Difference was launched.

The **Real Difference** campaign has three pillars of activity that allow NetJets Europe to challenge every aspect of the business on a day-to-day basis:

### EVERYDAY DIFFERENCE

We continually strive to reduce our carbon emissions and improve our performance on other environmental issues such as noise pollution;

### CARBON OFFSETTING

We offset all our emissions, caused by both our internal and flight operations;

### GREEN HORIZONS

We are actively exploring longer term aviation technologies and methodologies, within our fleet planning and by exploring sustainable alternatives to fossil-based fuels.

Many of the objectives set in 2007 – such as our commitment to reduce office emissions by 10% within two years – were not only met but were done so in a way that far surpassed our expectations. This served to sharpen our aspirations to make further progress.

### I AM PLEASED TO REPORT HOW WE ARE MAKING FURTHER PROGRESS:

Despite the introduction of the European Union Emissions Trading Scheme (ETS) and our compliance with this new regulation, we continue to be committed to achieving 100% carbon neutrality in 2012. Once achieved, we believe we will be the only airline in Europe to achieve carbon neutrality. To date, we have offset more than 62,000 flights or 687,343 tonnes of carbon.

Our Fuel Team’s analysis, combined with the steadfast work of our pilots has reduced our average fuel burn per flight hour by an average 4% over the past two years.

Our Greenhouse Gas Profile shows a reduction in flight emissions between 2009 and 2011 of around 2%.

Waste from in-flight meals has been greatly reduced thanks to our recyclable catering box that

was introduced in 2009. Since the inception of the project, over €400,000 of catering equipment has been re-utilised. Again, this figure has been achieved in coordination with the daily efforts of our crew members and onsite catering and cleaning suppliers.

Our waste management and recycling policies in our office-based operations are constantly improving. We use environmentally certified operators for our waste disposal and recycling and provide their certification to local environmental authorities as evidence of a controlled waste management system that follows local legislation.

Over the last six months, we have initiated the development of a robust sustainable procurement policy. This is a new commitment that will help improve our overall environmental

performance as well as help improve sustainability across the industry. In the first instance the policy will cover more than 100 suppliers.

We remain committed to our Real Difference campaign and have set a further series of targets for the coming years which include further reductions in fuel burn of over 1 % per year in 2012 and 2013.

We are also in the initial stages of exploring the use of a sustainable alternative to fossil fuels. In doing this, we wish to ensure that any decisions made are of mutual benefit to the environment and society, as well as to our key stakeholders over the long term.

We are privileged, throughout our Environmental Programme to be challenged and guided by some of the keenest environmental minds in the world who sit on our **Environmental Advisory Board (EAB)** and we are honoured to serve our **Owners**<sup>1</sup> many of whom have joined us in our quest to lead the way on environmental issues.

I am proud to lead a company where every single member of staff has embraced our environmental commitments and strives to improve our efforts on a daily basis.

I hope you enjoy the report.

Sincerely,

**ERIC CONNOR**  
 CHAIRMAN AND CHIEF EXECUTIVE, NETJETS EUROPE

<sup>1</sup> Throughout this report, the term Owners refers to all NetJets Europe’s customers, including fractional aircraft Owners, Leaseholders and Card holders.

**100%**  
 carbon neutrality  
 in 2012

**A WELCOME  
 NOTE FROM  
 A LEADING  
 THINKER  
 ON THE  
 ENVIRONMENT**



*“Key stakeholders, and most importantly NetJets Europe’s Owners, have every reason to be pleased with the implementation of the Real Difference campaign.”*

Five years ago I was approached by NetJets Europe to join their **Environmental Advisory Board**.

It was an extraordinary request at the time – Europe’s largest business aviation company trying to lead the way on the environment. The company’s genuine commitment to achieve its target of carbon neutrality in 2012 was impressive – and remains so, as the original target is indeed about to be achieved this year.

Key stakeholders, and most importantly NetJets Europe’s Owners, have every reason to be pleased with the implementation of the Real Difference campaign.

The company’s Carbon Emissions Offset programme has been implemented in an exemplary manner and is set to achieve the goal of the company being carbon neutral in 2012. Emissions caused by NetJets Europe’s flights and on-the-ground operations are fully compensated by offset investments into projects certified under the Clean Development Mechanism (CDM). A stronger, environment-minded corporate culture, and a host of high-quality offset projects have all been implemented.

*“NetJets Europe leads the way on environmental issues.”*

NetJets Europe is not just on course to achieve carbon neutrality. It also continues to evolve its commitments on the environment through the development of a sustainable procurement policy, initiating partnerships such as its collaboration on fuel savings with TU Darmstadt in Germany, and through its fuel team which is committed to making 1425 tonnes of CO<sup>2</sup> emissions savings in 2013.

The fact that NetJets Europe leads the way on environmental issues attests to the commitment of all involved.

To its great credit, NetJets Europe has managed to hold a steady environmental course against the odds of an unsteady and challenging business environment.

**DR. HC. MARITTA R. V. BIEBERSTEIN KOCH-WESER**  
**EARTH3000 gGmbH**

**1425** tonnes  
 of CO<sup>2</sup> savings in 2013



THE TWO  
KEY REASONS

OUR NEW  
ENVIRONMENTAL  
MISSION  
STATEMENT

ENVIRONMENTAL  
MISSION STATEMENT

NETJETS EUROPE’S CORPORATE ENVIRONMENTAL  
GOAL

As NetJets Europe reaches the fifth anniversary of its **Real Difference campaign**, we have reviewed our corporate environmental goal. This is one of the 21 goals which are set for the entire company; they cascade down the business lines, requiring the actions and contributions of each and every employee.

**The two key reasons for updating the environmental mission statement are:**

1. With significant environmental changes in our operations now in place, it was important for the goal to reflect that we were enhancing and building on existing processes while defining areas for future development;
2. There was a need for the goal to reflect external changes on environmental issues such as the increased focus on sustainable alternative fuels.

**We encourage our Owners to support carbon neutrality, and our environmental mission statement is:**

“ To enhance our sustainability performance by taking tangible measures on the aviation industry’s most relevant environmental themes including: sustainable alternative fuels, carbon emissions and waste reduction, while balancing the needs of our Owners and stakeholders to maintain a healthy business performance. ”



FOREWORDS	SUMMARY	EVERYDAY DIFFERENCE	CARBON NEUTRALITY	GREEN HORIZON	STAKEHOLDER ENGAGEMENT AND STRATEGIC PARTNERS	ANNEX
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## GOVERNANCE AND PARTNERS

NetJets Europe's Environmental programme is underpinned by a monitoring process that runs throughout the company.

**All employees have individual and departmental sustainability goals that they must reach to help NetJets Europe meet its corporate environmental goal.**

We measure progress on those environmental goals on a monthly basis and annual independent verification of the company's carbon footprint and greenhouse gas emissions is performed by **Ecofys**, a leading consultancy in renewable energy.

**We also hold regular meetings with our Environmental Advisory Board (EAB) that comprises some of the world's leading independent thinkers on environmental issues. They provide expert counsel and help us take full advantage of the best environmental practices and innovations.**

Presentations and discussions are held with third parties, industry bodies and partners, as well as senior managers to provide focus and debate on particular issues.

All environmental and sustainability decisions are then ratified by the **Executive Management Team** under the leadership of **Chairman and CEO Eric Connor**.





# SUMMARY OF NETJETS EUROPE'S ENVIRONMENTAL STRATEGY

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THE AVIATION INDUSTRY:

2<sup>bn</sup>  
PASSENGERS / YEAR

29<sup>m</sup>  
JOBS AROUND THE WORLD

8%  
GLOBAL GDP

3.5%  
ANTHROPOGENIC CLIMATE CHANGE \*

\* SOURCE: IPCC

# CHALLENGING DYNAMICS IN THE AVIATION INDUSTRY

AS WE APPROACH THE 110<sup>TH</sup> ANNIVERSARY OF THE WRIGHT BROTHERS' FIRST FLIGHT IN 1903, THE AVIATION INDUSTRY HAS NEVER BEEN MORE CHALLENGED.

As we approach the 110th anniversary of the Wright Brothers' first manned powered flight in 1903, the aviation industry has never been more challenged.

High oil prices; limited space for expansion of existing airports; rising demand for air travel; cut-throat competition and heightened security demands all represent unique challenges but, for the sector at large, there is none greater than the impact of aviation on climate change.

The **Intergovernmental Panel on Climate Change (IPCC)** has estimated that aviation is responsible

for around **3.5% of anthropogenic climate change** and predicts that, without further action, this figure will grow to between five and 15% by 2050 <sup>2</sup>.

Clearly, there is a need to tackle the issue of greenhouse gas (GHG) generation and climate change head on, and the aviation industry is increasingly recognising its responsibility in addressing this challenge.

**It is widely accepted that there are four main ways of reducing the effect of aviation on climate change:**

-  **DEMAND REDUCTION**
-  **TECHNICAL IMPROVEMENTS**
-  **OPERATIONAL IMPROVEMENTS**
-  **THE INTRODUCTION OF LOW-CARBON FUELS**

<sup>2</sup> Aviation and the Global Atmosphere - IPCC Special Reports on Climate Change, 2001

**On the other hand the benefits to society of aviation are clear: it has been integral to the growth of the global economy; it makes remote regions accessible and brings long-distance mobility to people. More than two billion passengers take a flight annually, the industry is said to generate 29 million jobs and it is responsible for more than 8% of global GDP.**

A reduction in demand therefore seems unlikely, leaving technical and operational improvements and the introduction of low-carbon fuels as essential vanguards in the industry's battle to reduce carbon emissions.

Technical and operational improvements can help reduce fuel burn and hence improve emission profiles. While great strides have been made, efficiencies in these areas could not alone

achieve the reductions in carbon emissions needed.

This leaves the introduction of low-carbon fuels as the key medium-term practical solution to emissions reduction.

Several commercial airlines have been looking into alternative fuels to kerosene, and on a governmental level, the European Commission's services, in close coordination with Airbus, leading European airlines and key European biofuel producers have launched an industry wide-initiative to speed up the commercialisation of alternative aviation fuels in Europe.

The European Advanced Biofuels Flight Path Initiative which has a goal to introduce two million tonnes of alternative fuel into the industry by 2020.

**46%** **THE EXPECTED REDUCTION IN EUROPEAN AVIATION EMISSIONS BY 2020 FOLLOWING THE INTRODUCTION OF ETS \***

\* SOURCE: EUROPEAN COMMISSION

A further challenge for airlines came in January this year when flights within as well as into and out-of the European Economic Area became subject to the ETS, a continent-wide initiative that requires heavy energy consuming industries to pay an allowance to produce carbon dioxide.

According to the European Commission, the scheme is expected to reduce aviation emissions specifically by 46% by 2020.

Challenging  
dynamics in the  
aviation industry

Our Environment  
Strategy

BUSINESS  
AVIATION:  
**0.2%**  
OVERALL AVIATION  
EMISSIONS

THE THREE  
PILLARS  
OF REAL  
DIFFERENCE  
CAMPAIGN

NETJETS EUROPE’S  
ENVIRONMENTAL STRATEGY

NETJETS EUROPE BELIEVES THAT THERE IS NO TURNING BACK ON THE ENVIRONMENT – THE FUTURE OF THE PLANET DEPENDS ON A REDUCTION OF GHG EMISSIONS AND AVIATION HAS TO PLAY ITS PART.

While business aviation only accounts for **0.2% of overall aviation emissions**, NetJets Europe, as the largest business aviation company in Europe, still has to play a leading role in emissions reduction. We realise that with scale comes responsibility and influence. This is why the **Real Difference campaign** was launched.

There are three pillars that underpin our Real Difference campaign:

EVERYDAY DIFFERENCE

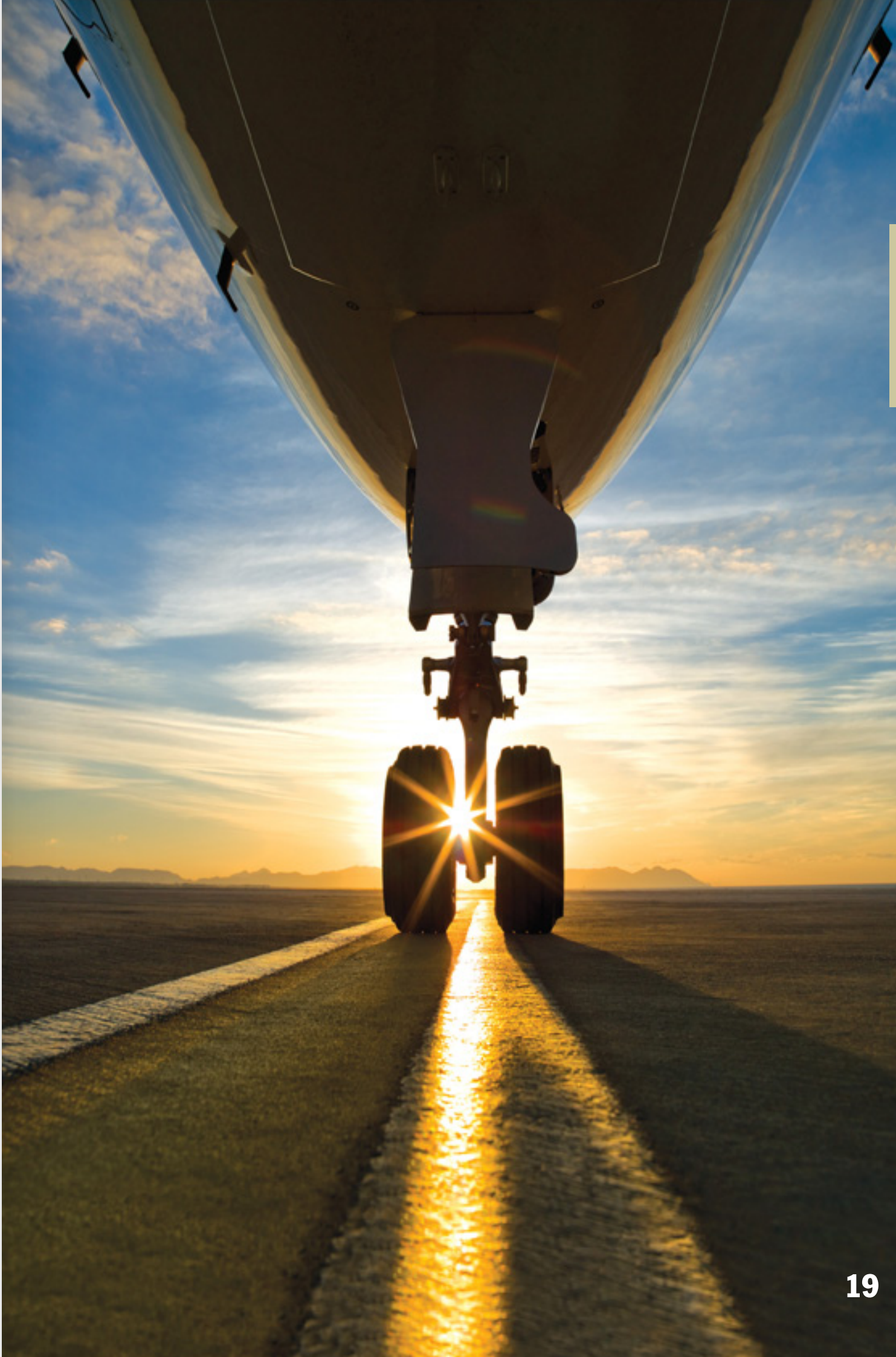
NetJets Europe strives to introduce sustainable practices to its daily business operations. From projects to reduce fuel consumption through investment in more fuel efficient aircraft to waste disposal, NetJets Europe aims to make environmental issues a key factor in all decisions relating to the day-to-day running of the business.

CARBON OFFSETTING

NetJets Europe combats its environmental impact by offsetting all its emissions. This commitment continues, in spite of the EU’s introduction of ETS.

GREEN HORIZONS

NetJets Europe is committed to exploring new technologies and the use of low-carbon, low-emission fuel sources that will greatly reduce GHG emissions and reduce our environmental impact. For the latter, while much is done behind the scenes, we feel the way forward is to ensure that a future alternative energy product is truly sustainable in its production as well as being energy efficient and having a greatly reduced impact on the environment.



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EVERYDAY DIFFERENCE
CARBON NEUTRALITY
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# NETJETS EUROPE ENVIRONMENTAL PROGRAMME – PILLAR I: EVERYDAY DIFFERENCE

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Reduction of fuel burn

- Noise reduction
- Frankfurt-Egelsbach Natural Features
- Sustainable Procurement
- Waste Management

THE FIRST PILLAR OF NETJETS EUROPE’S REAL DIFFERENCE CAMPAIGN IS **EVERYDAY DIFFERENCE** – THE NEED TO MAKE DECISIONS ON A DAILY BASIS THAT CAN REDUCE OUR ENVIRONMENTAL IMPACT TODAY. THIS LARGELY CONSISTS OF THE FOLLOWING KEY AREAS:

REDUCTIONS IN FUEL BURN

NOISE REDUCTION

WASTE MANAGEMENT

SUSTAINABLE PROCUREMENT

REDUCTION OF FUEL BURN

CONTEXT: INDUSTRY ATTEMPTS TO REDUCE FUEL CONSUMPTION

Technical and operational improvements are two of the main ways forward for an airline to reduce its energy consumption. Various airlines have tried different methods to minimise their fuel burn from making planes lighter to improving the amount of time engines are operational when an aircraft is on stand.

which NetJets Europe takes an active role - looks at **Air Traffic Management (ATM)** on a pan-European level in an effort to improve efficiency and, as a by-product, reduce fuel consumption and emissions.

On a governmental level within the EU, the **Single European Sky ATM Research (SESAR)** programme has been in place since 2004. The programme – in

80% OF NETJETS EUROPE’S PILOTS WHO HAVE COMPLETED FUEL AWARENESS SIMULATOR TRAINING



Hawker 800 Pilot **Kevin Buddle** says of his time on the fuel awareness simulator:

“As a line pilot on the Hawker 800 I found the fuel efficiency training of great interest and benefit. It has helped change the way I fly for the better.”

“Flying in a more efficient manner is important as it not only helps cut our carbon footprint and achieves cost savings but is also thought to be safer.”

Kevin Buddle

“In these financial austere and environmentally aware times, it is surprising that we at NetJets Europe are the only business jet company undertaking such training when the benefits are immediate and obvious.”

NETJETS EUROPE’S FUEL TEAM

In late 2008, NetJets Europe introduced the **Fuel Team** – consisting of a team of pilots dedicated to the introduction of fuel saving methods. The team forms part of the **Fuel Working Group** – a cross-departmental initiative that has enhanced flight planning to more accurately reflect aircraft performance in the NetJets Europe operation. Measures

suggested by the Fuel Team are then implemented on a day-to-day basis by our pilots and it is thanks to their hard work in practice that we are able to implement positive change.

Some of the measures introduced include:

- Publication of a Fuel Handbook to promote heightened awareness of fuel efficiency;
- Greater accuracy of fuel needed for pre-flight auxiliary power units (APU) and taxi fuel;
- Review of aircraft fuel flows at cruise level;
- Change of alternate airport flight plan profiles to more accurately reflect real-time operations;
- Standardisation of “Standard allocated extra fuel.” All Netjets Europe’s flights are planned with an additional amount of fuel over the legal minimum requirement. In the past this amount varied by fleet, it has now been standardised at 30 minutes;
- Ground Recurrent Training (GRT) on our fuel awareness simulator programme has now been completed by more than 80% of NetJets Europe’s pilots;
- Positioning flight speed reduction. When an aircraft is used for a ferry flight, the cruise speed has been reduced resulting in fuel savings.





**4%**  
OVERALL AVERAGE  
FUEL REDUCTION  
2009-2011

## FUEL TEAM RESULTS

In 2009 NetJets Europe set itself the ambitious target of reducing its fuel consumption per flight hour by 2% by 2011 through a range of initiatives such as those listed above.

**We are pleased to report we achieved this target.**

As evidenced by the table below – which details the amount of fuel purchased per aircraft type – NetJets Europe has made an **overall average reduction of 4% in the two years**

**until the end of 2011.** In fact, the greatest reductions have been made on those fleets with the highest fuel burn.

As NetJets Europe becomes more fuel efficient, it becomes increasingly challenging to continue to find innovative ways to improve fuel efficiency. That is why NetJets Europe has set a target of a **further saving of 0.88% in 2012 and 0.93% in 2013.** We are confident that the target will be exceeded.

Overall fuel burn reduction per hour flown since Fuel Project commencement and planned savings for 2012 and 2013

Aircraft	Fuel saving 2009-10	Fuel saving 2010-11	Total saving 2009-11	Planned savings 2012	Planned savings 2013
Bravo	-3%	-1%	-4%	-0.40%	-0.20%
H400XP	-3%	1%	-2%	-0.40%	-0.20%
Excel	-4%	-1%	-5%	-0.24%	-0.40%
750	-3%	-2%	-4%	-0.80%	-1.50%
800	-3%	-2%	-5%	-0.80%	-1.50%
2000	-2%	0%	-2%	-0.45%	-0.70%
2000EX	-1%	-1%	-2%	-0.67%	-1%
7X				-0.72%	-1%
GV	-1%	-3%	-4%	-1.50%	-1.90%

Fuel Expert Support Officer **Andy Maguire** says:

*“The Fuel Team has made great progress over last few years.”*

*“This has been achieved in a variety of ways. Firstly, through crew training in our simulator which introduces various techniques that enhance fuel efficiency - this has been responsible for a reduction in fuel burn of 2%.”*

*“Secondly, optimising the Flight Plan provided to crew. This gives crew a reliable and accurate product on which to make efficiency decisions ensuring there is no effect on safety while still being able to operate as efficiently as possible.”*

*“These measures include the introduction of a standard reserve fuel and refining the biases applied to the flight plan so what is planned is as close to what is actually flown by the aircraft.”*

*“Reducing the fuel used by our aircraft remains a key area to reduce our emissions. Small savings make a difference.”*



Andy Maguire

€5.4m

INVESTEMENT  
PLANNED FOR AFIRS

POTENTIAL  
SAVINGS OF UP TO  
370,000 Ltrs

## 2012 TARGETS AND INNOVATIONS

The Fuel Team has set an initial fuel savings target of **1425 tonnes of CO<sub>2</sub> for 2012**. Some of the innovations being trialled and introduced include:

A **€5.4m** investment is planned in 2012 for the introduction of an **Automatic Flight Information Recording System (AFIRS)** to the H800 aircraft. This system will monitor real-time aircraft parameters including fuel use and **Standard Operating Procedures (SOP)** compliance. An AFIRS trial on one H750 from May 1, 2010 to April 30, 2011 indicated a potential savings of up to **370,000 Ltrs (930 tonnes CO<sub>2</sub>)** over 489 sectors flown;

A full-time **Fuel Project Analyst** is being appointed to allow technical

experts to focus on their areas of expertise;

Evaluation of **fuel management software products** aimed at improvement of monitoring compliance and highlighting areas of potential saving and trends is ongoing;

**iPad Electronic Flight Bags** are being trialled. This places heavy manuals such as the Aircraft Operating Manual, Flight Crew Operating Manual, and Navigational Charts in electronic rather than paper form.

## PERMAGUARD COATING

NetJets Europe is trialling various exterior paint products aimed at weight and drag reduction.

One example is Permaguard coating - a concentrated emulsion that forms a plasticised film on all hard paint and gel coats by reacting with moisture in the air.

The tough coating it creates is said to have a number of positive results that also benefit the environment. These include reducing water wastage by reducing the need to wash the plane and potential **fuel burn savings of between 2-4%**.

NetJets Europe has treated two aircraft with the coating (one G550 and one Falcon 7X) and there is ongoing monitoring with regard to environmental results.

CARIBBEAN TO EUROPE  
AND VICE-VERSA WITH  
EROPS 180:

**-45 MIN**  
**-3.4**  
**TONNES CO<sub>2</sub>**

EROPS MAP

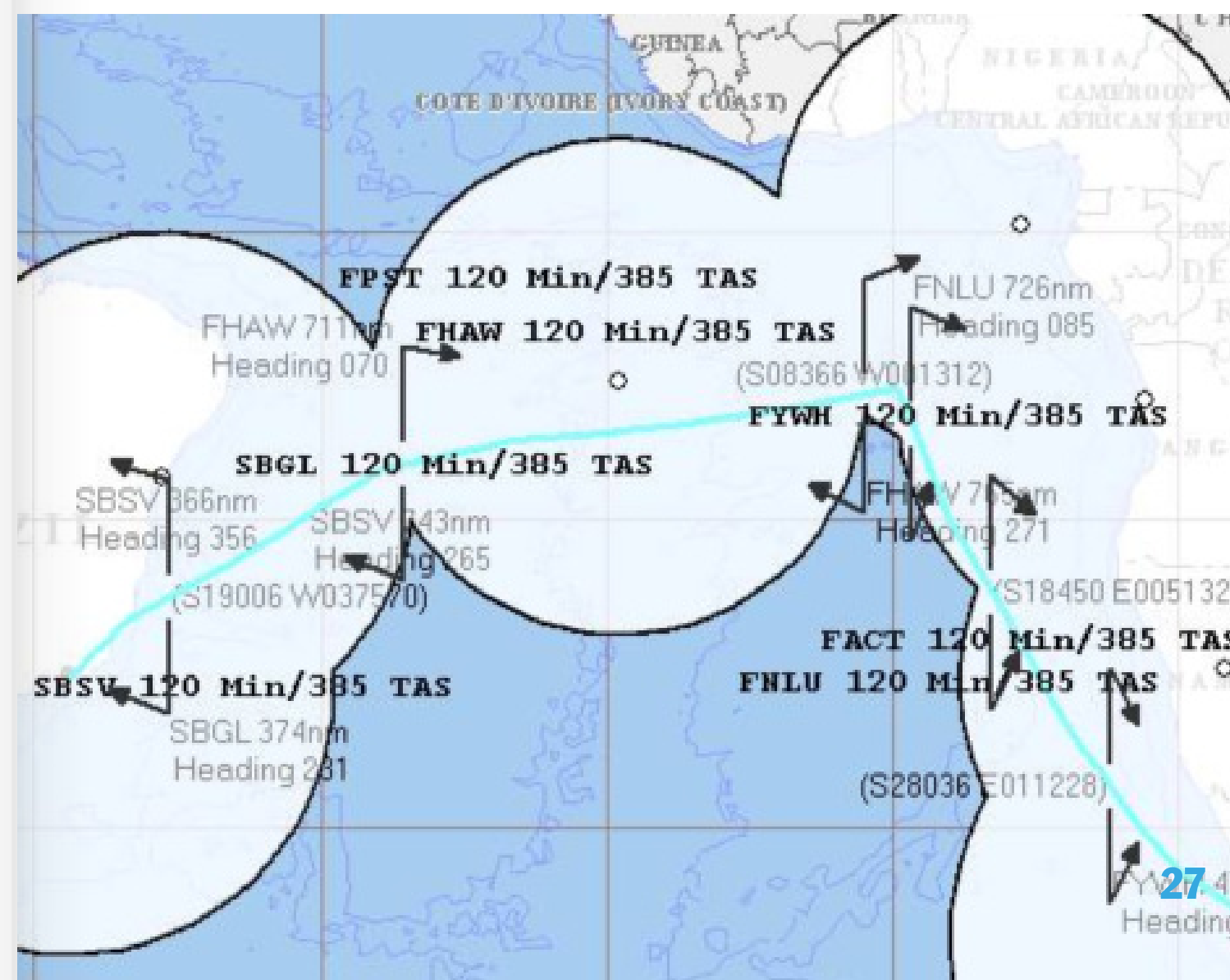
## EROPS

NetJets has received approval to conduct **Extended Range Operations (EROPS)** under commercial rules. This means the company can now fly twin-engine aircraft on routes that are not more than 180 minutes from an airport (the previous maximum was 120 minutes).

This increase in the maximum flight time an aircraft can be from an airport on long-range flights means that planes can use more direct routes, there is less need to stop for refueling and this results in reduced overall fuel burn.

For every flight from the Caribbean to Europe and vice-versa, NetJets Europe saves around 45 minutes of flying time using EROPS 180 - this equates to a saving of 3.4 tonnes CO<sub>2</sub> per flight.

With 71 flights covering these routes in 2011, NetJets Europe saved 241.4 tonnes of CO<sub>2</sub>.





Reduction of fuel burn

Noise reduction

Frankfurt-Egelsbach  
Natural Features

Sustainable  
Procurement

Waste Management

OVER THE LAST FEW  
DECADES, INDIVIDUAL  
AIRCRAFT BECAME

75%  
LESS NOISY

## NOISE REDUCTION

### CONTEXT: CURRENT MARKET DYNAMICS

Across Europe environmental noise from the aviation industry represents a significant problem.

Although across the industry, **individual aircraft have become 75% less noisy** over the last few decades, the growing amount of air traffic means that many citizens are still exposed to high noise levels. In order to ensure the sustainability of aviation, measures targeting noise impact are being considered at a number of important airports.





However, noise-related measures constrain not only capacity at a particular airport but also the aviation

system as a whole through knock-on effects.

Therefore, decisions on noise measures and the desired level of noise protection must be balanced against the overall capacity implications and effects on the aviation system.

On the basis of the “Balanced Approach”, agreed and recommended by the **International Civil Aviation Organisation (ICAO)**, in 2002 the EU adopted a directive regarding the procedures concerning the introduction of noise-related operating restrictions.

TAKING INTO ACCOUNT THAT RESTRICTIONS SHOULD CONSIDER THE EFFECTS ON AIRPORT CAPACITY AS WELL AS THEIR IMPACT ON THE WHOLE AVIATION SYSTEM, THE DIRECTIVE SET OUT TO MAKE PLANES QUIETER BY:

-  setting noise standards;
-  managing the land around airports in a sustainable way;
-  adapting operational procedures to reduce the noise impact on the ground;
-  and, if required, introduce operating restrictions.

Having led to more harmonised procedures over the last few years, European legislation is currently being reviewed in order to achieve the best solution for each noise situation, on an airport by airport basis.

Setting out noise quality criteria, deriving from existing national and local rules means the European Commission will have a stronger scrutiny role to ensure that restrictions on noise are justified.

Despite proposed legislation, there is strong public concern over noise pollution and resultant public pressure against both airport expansion and proposed new airports – especially in heavily developed countries such as those in the EU.

33.3%

THE REDUCTION IN NOISE POLLUTION FROM  
CHAPTER 4 CERTIFIED PLANES OVER THOSE  
MEETING CHAPTER 3 COMPLIANCE LEVELS

### NOISE REDUCTION AND NETJETS EUROPE

Most of the ICAO’s efforts in addressing aircraft noise are aimed at reducing noise at source – i.e. quieter planes.

Any planes manufactured today are required to meet noise certification standards set out by the Council of the ICAO in Annex 16 - Environmental Protection, Volume I of the **Convention on International Civil Aviation (CICA)**.

The 18 annexes to CICA are regularly updated. The last revision of 2006 designated a new more stringent Chapter on aircraft noise. **The historical noise chapters are:**

CHAPTER 2. Jets with Type Certificate prior to Oct 1977. Not applicable to NetJets Europe aircraft;

CHAPTER 3. Jets with Type Certificate after Oct 1977 but prior to Jan 2006;

CHAPTER 4. Jets with Type Certificate after Jan 2006;

CHAPTER 4. Standards for aircraft are 33% quieter than those seen in Chapter 3.

As new aircraft are certified and required noise minima begin to reduce, manufacturers will need to re-certify aircraft certified before January 2006 and provide new certificates.

**The vast majority of current NetJets Europe aircraft are type 4 certified.**

NetJets Europe has embarked on a partnership with Technical University Darmstadt in Germany. One of the university’s research students is producing a Masters dissertation **“Reduced Flap Landings in Business Aviation”** For further details, see Appendix.

Reduction of fuel burn

## Noise reduction

Frankfurt-Egelsbach  
Natural Features

Sustainable  
Procurement

Waste Management

# FRANKFURT-EGELSBACH AIRPORT

Following NetJets Europe's purchase of the majority of shares in **Frankfurt-Egelsbach Airport (HFG)** in 2009 a number of initiatives have been introduced under the **Quiet Airport Programme (QAP)**, which aims to reduce noise at the airport.

"An integral part of the QAP is the implementation of two additional noise-monitoring units, a static display and a mobile one," says

**Captain G550, Regulatory Affairs , Joe Bauer.** "Their purchase serves to measure aircraft noise while filtering out ambient noise from sources such as road traffic, agricultural machinery and a nearby railway. Data is compiled and documented in monthly reports sent to controlling authorities and members of the airport noise commission."

**Other QAP measures include:**



The introduction of a limit on the amount of time aircraft can use auxiliary power units (APUs) to 10 minutes before leaving parking and up to five minutes after landing;



The development of a dedicated procedure that allows flying over populated areas at a higher altitude and landing at a steeper approach to reduce noise emissions;



The installation of an airport noise committee consisting of key stakeholders that meets twice a year to discuss noise reduction.

FRANKFURT-EGELSBACH  
AIRPORT

Reduction of fuel burn

Noise reduction

Frankfurt-Egelsbach  
Natural Features

## Sustainable Procurement

Waste Management

# SUSTAINABLE PROCUREMENT CONTEXT: CURRENT MARKET DYNAMICS

Given that the term '**sustainable**' still leaves room for many different interpretations, there is no current regulation on sustainable procurement.

Procurement policies have historically been based on the price and quality of goods procured, but sustainable procurement asks that the buying organisation takes into account **three main elements:**

## ENVIRONMENTAL

Seeking to minimise negative environmental impacts of goods and services purchased, across their life cycle from raw material extraction to end of life;

## SOCIAL

Managing and monitoring supply chains to ensure that fair contract prices and terms are applied and that ethical, human rights and employment standards, including health and safety, are met;

## ECONOMIC

Obtaining value for money from contracts, across the whole life of the product or service

On a governmental level the EU has produced a handbook on environmental procurement for the public sector.

The private sector also has good reason to pay attention to these guidelines. In fact, one study by Ecovadis, PwC and INSEAD Business School's Social Innovation Centre states that sustainable procurement in the private sector can provide economic benefits in terms of risk management, cost reduction and revenue growth.<sup>3</sup>

<sup>3</sup> Value of Sustainable Procurement Practices, December 2010





## NETJETS EUROPE'S SUSTAINABLE PROCUREMENT POLICY

### SUSTAINABLE PROCUREMENT AND NETJETS EUROPE

AT THE END OF 2011, NETJETS EUROPE BEGAN DEVELOPMENT OF A SUSTAINABLE PROCUREMENT POLICY THAT COULD BE IMPLEMENTED IN OUR OFFICES AS WELL AS THE MANY AIRPORTS FROM WHICH WE FLY.

The NetJets Europe Sustainable Procurement Policy endeavours to influence suppliers to innovate and provide environmental and socially beneficial goods and services, as well as to deliver value for money for the business.

Through applying the three principles of sustainable procurement mentioned

above in the procurement process, NetJets Europe aims to make these an integral part of all relevant contracts, at pre-tender, tender and post-contract award stages, through to the end of the life of the contract and including any disposal of equipment.

# 50%

**NETJETS EUROPE'S TARGET OF FLIGHT OPERATIONS TO BE COVERED BY SUSTAINABLE PROCUREMENT POLICIES BY 2013**



Antonio Ciriaco

Procurement and Property Manager **Antonio Ciriaco** says:

*"NetJets Europe endeavours to work with suppliers on achieving its sustainable procurement objectives. We strive to influence our suppliers to provide goods and services that comply with our sustainability criteria, as well as to achieve good value for money for our business."*

*"We are currently in the process of establishing standards and targets to be adopted; identifying areas of the business where policy should be implemented as a priority; and determining areas within the business where biggest efficiency savings and largest reductions on environmental footprint can be made."*

*"Obviously we implement the policy in accordance with our safety standards, given that safety is Netjets Europe's number one priority."*

NETJETS EUROPE HAS SET THE FOLLOWING TARGETS FOR ITS SUSTAINABLE PROCUREMENT POLICY IN 2013:

50% OF FLIGHT OPERATIONS COVERED BY THE SUSTAINABLE PROCUREMENT POLICY

FOR THE POLICY TO COVER 100 SUPPLIERS AT 27 AIRPORTS, INCLUDING PARIS, LE BOURGET, LONDON CITY AND AMSTERDAM SCHIPOL

THE ABOVE WILL COVER SUPPLIERS IN CATEGORIES INCLUDING:



HANDLING



FUEL



CLEANING



GROUND TRANSPORT



AND CATERING

*"...safety is  
NetJets Europe's  
number one  
priority"*



Waste Management

€365,258  
WORTH OF  
CATERING  
EQUIPMENT  
REUTILISED  
(30%)

WASTE MANAGEMENT

BOTH NETJETS EUROPE’S LISBON AND LONDON OFFICES HAVE COLLECTION POINTS SPREAD THROUGHOUT THE BUILDINGS FOR WASTE PAPER, ALUMINIUM CANS, PLASTIC AND BATTERIES. BINS ARE COLLECTED BY RECYCLING AGENCIES IN EACH LOCATION.

In airports with recycling facilities, NetJets Europe crews make every effort to ensure all waste is disposed of accordingly, while waste from in-flight meals has been greatly reduced thanks to our **recyclable catering box** that was introduced in 2009. The box is fashioned from sustainable bamboo, porcelain inserts can be reused and lids are biodegradable.

*“We love the new eco-friendly catering initiative with the bamboo cases. It’s a lovely dinette system with great design and low-impact materials. Bravo!”*

NetJets Europe Owner

Since the inception of the project, some **€365,258** worth of catering equipment has been reutilised. Reutilisation rates are currently running at 30% of catering equipment and the reutilisation goal has doubled from **€103,292** in **2010** to **€192,645** in **2012**.

REUTILISATION GOAL OVER 2010 HAS RISEN **100%**







# NETJETS EUROPE ENVIRONMENTAL PROGRAMME – PILLAR II: CARBON NEUTRALITY

All-inclusive carbon offsetting  
Compliance to ETS

**38**  
**50**

2°C  
MAXIMUM  
TEMPERATURE  
INCREASE BEFORE  
IRREVERSIBLE  
CHANGES TO  
THE WORLD'S  
ECOSYSTEMS

\* AVIATION AND  
THE GLOBAL  
ATMOSPHERE  
IPCC SPECIAL REPORTS ON  
CLIMATE CHANGE, 2001

# ALL-INCLUSIVE CARBON OFFSETTING

CONTEXT: GREENHOUSE GAS EMISSIONS AND THE  
NEED TO OFFSET

IT IS NOW WIDELY ACKNOWLEDGED THAT MAN-MADE GHGS ARE ONE OF THE MAIN DRIVERS OF CLIMATE CHANGE AND GLOBAL WARMING AND THAT, UNLESS THE GLOBAL TEMPERATURE INCREASE IS KEPT TO LESS THAN 2°C, THERE COULD BE IRREVERSIBLE CHANGES TO THE WORLD'S ECOSYSTEMS THAT COULD THREATEN LIFE ON OUR PLANET.

The **Intergovernmental Panel on Climate Change (IPCC)** predicts that the only way to remain below those levels is through a global reduction of emissions by **80% versus the 2005 level by 2050.**

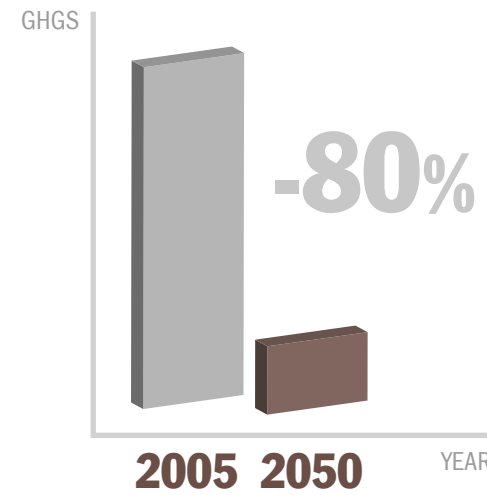
Reducing emissions is now not only a desire but an imperative for every individual and every business.

Aviation plays a significant role in the release of GHGs. According to IPCC estimates the industry is responsible for some 3.5% of anthropogenic climate change (from both CO<sup>2</sup> and non-CO<sup>2</sup> induced effects) and that

figure could reach up to 15% by 2050.

In the long term, there is much that can be done to reduce emissions, from operational and technical improvements to greener forms of energy. It is important to ensure that any solutions offered are of a truly sustainable nature.

Given that it is impossible to achieve zero emissions in the short term, the preferred short-term solution is to offset emissions through carbon offset programmes.

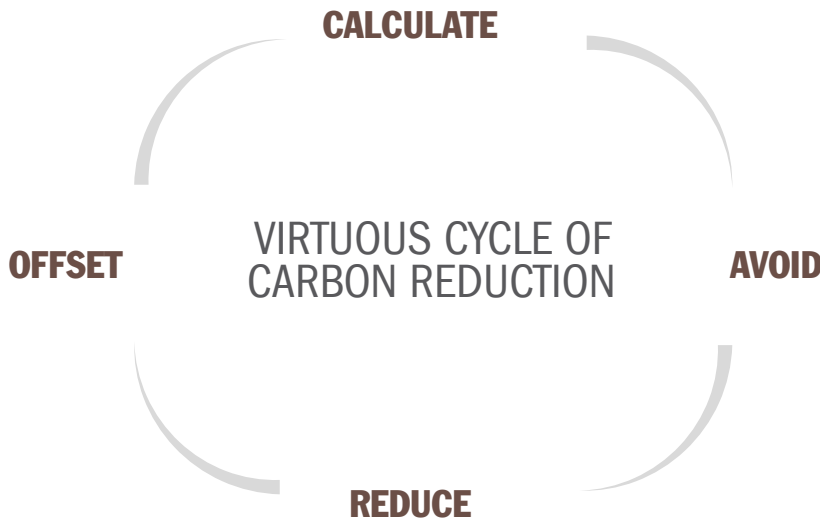


THE AMOUNT OF REDUCTION IN EMISSIONS NEEDED BY 2050 TO SLOW CLIMATE CHANGE: 80% OF 2005 VALUES

*“Achieve compensations at the lowest cost - financially and to the environment”*

Offset projects allow companies to:

- ☁ COMPENSATE THEIR EMISSIONS WITH IMMEDIATE IMPACT
- ☁ ACHIEVE THOSE COMPENSATIONS AT THE LOWEST COST - BOTH FINANCIALLY AND TO THE ENVIRONMENT





GHG PROFILE AND EMISSIONS PER PART PER  
OPERATION

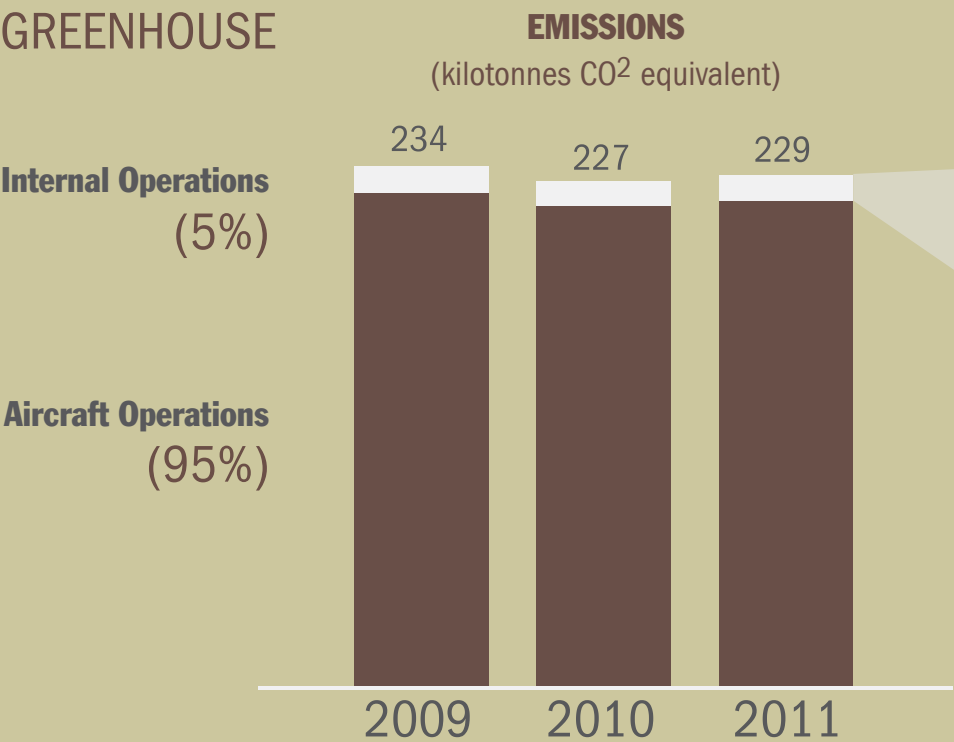
Based on the **Greenhouse Gas Protocol**, NetJets Europe has created a comprehensive profile of its GHG emissions each year since **2007**. **This includes emissions from:**

**Emissions from internal operations.** Internal operations have made up five percent of NJE's total emissions over the last three years. They have generally decreased or stayed the same but in the light of sheer volume the reduction from emissions in flight operations is much more significant.

**Emissions from flight operations.** All emissions from flights by NetJets Europe's fleet of aircraft, which represents the bulk of our carbon footprint. While a potential rise in emissions was expected with an increase in the share of short-haul flights and a change in fleet-mix, this development was counteracted by the initiatives in the Every Day Difference Pillar. We noted a net decrease in GHG emissions from flight operations. These decreased between 2009 and 2011 from 223 kiloton to 218 kiloton (2%) while flight operations decreased by 1%. So even though owners chose to fly larger airplanes on less efficient shorter routes, the fuel team's reductions in airplane fuel consumption caused total fuel consumption to decrease.

**Reporting.** Most levels of GHG reporting are qualified as high or good by Ecofys who provide independent verification of the company's carbon footprint. Only Real Estate emissions needed to be, and have improved this year. Because of higher granularity of the data (through better reporting) emissions from real estate are slightly higher than stated in previous years.

NETJETS EUROPE GREENHOUSE  
GAS PROFILE



Source: Ecofys analysis

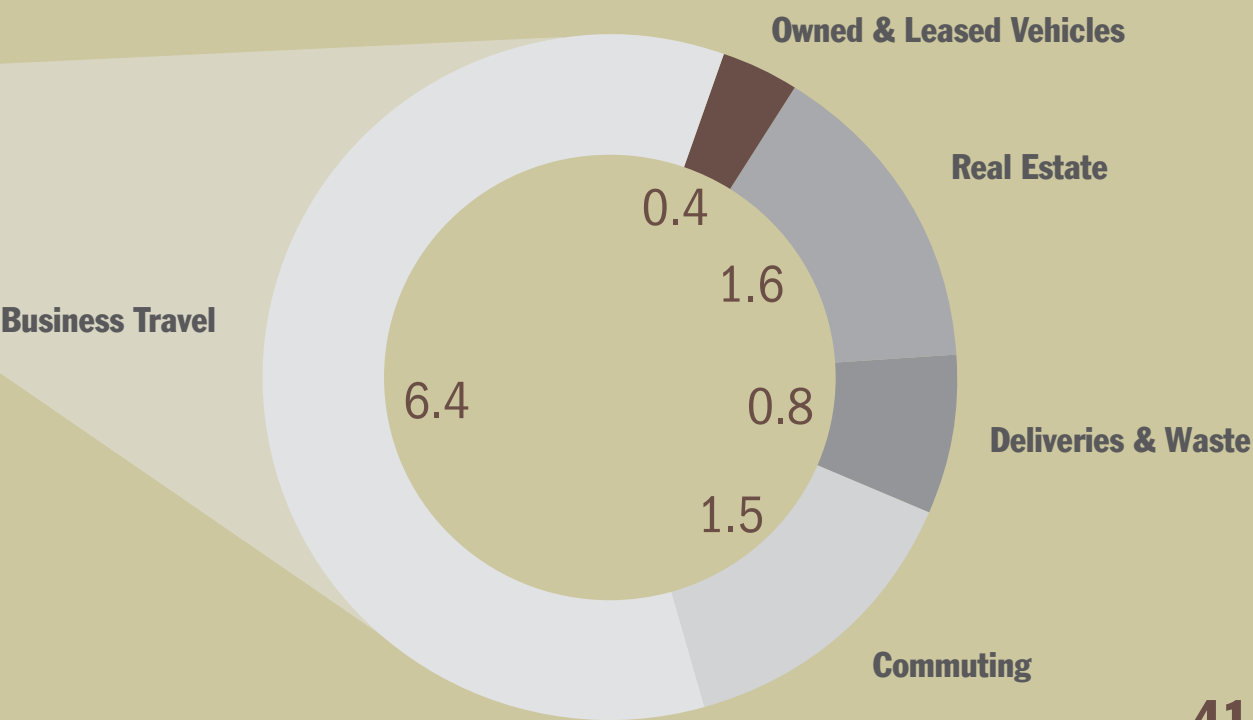
GREENHOUSE GAS EMISSIONS BY SOURCE  
KILOTONNES CO<sup>2</sup> EQUIVALENT

Emission source	2009	2010	2011	Change <sup>1</sup>	
Aircraft Operations	222.7	216.7	218	↓	Fuel consumption on short-haul and long-haul flights using both NJE-owned and subcontracted aircraft
Business Travel	7.6	6.5	6.4	↓	Business-related travel by NJE employees; crew travel between flights and other employee business travel.
Owned & Leased Vehicles	0.5	0.5	0.4	↓	Fuel consumption from cars and other NJE-owned and leased vehicles. Ranging from company cars to aircraft tugs. Includes vehicles at Egelsbach Airport
Real Estate	1.3	1.5	1.6 <sup>2</sup>	↑	Includes heating, cooling, and electricity consumption for a total of 6 offices around Europe including Egelsbach Airport
Deliveries & Waste	0.8	0.5	0.8	—	Deliveries of aircraft and parts; deliveries to offices and transport and disposal of waste; transport of passengers to and from and within the airport
Commuting	1.5	1.4	1.5	—	Travel to and from work by NJE employees, excluding crew travel to flights and business travel
Total Emissions	234	227	229	↓	

1) 2011 in relation to 2009 emissions  
2) Real estate emissions have increased as a result of data quality

Source: Ecofys analysis, NetJets 2010 Environmental Update Report

2011 INTERNAL OPERATIONS EMISSIONS  
(kilotonnes CO<sup>2</sup> equivalent)





THE AIM OF NJE'S  
CARBON OFFSET  
PROGRAMME:

**100%**  
CARBON  
NEUTRALITY IN  
**2012**

OFFSET  
2007-2011:

  
**+62,000**  
FLIGHTS

**687,343**  
TONNES OF CARBON  
FROM CUSTOMER  
EMISSIONS

## NETJETS EUROPE'S CARBON OFFSET COMMITMENT

AS PART OF NETJETS EUROPE'S COMMITMENT TO OFFSET UNAVOIDABLE EMISSIONS, A MANDATORY CARBON OFFSET PROGRAMME WAS INTRODUCED IN 2007 WITH THE AIM OF BECOMING 100% CARBON NEUTRAL BY 2012.

As the ETS came into force in January 2012 NetJets Europe understood that this added an additional cost to our Owners, so the Carbon Offset Programme has been made voluntary. We envisage it as complementary to the new regulatory requirements, and remain steadfast in our determination to be an industry leader in addressing climate change and making a Real Difference for Owners.

NetJets Europe provided existing Owners the ability to opt out of the

voluntary Carbon Offset Programme by March 31, 2012. New and renewing Owners had the option of participating in the voluntary Carbon Offsets Programme from January 1 2012 onwards.

The vast majority of NetJets Europe's Owners remain committed to the Carbon Offset scheme and with their support – as well as that of new Owners – NetJets Europe looks forward to achieving carbon neutrality.

## OUR CARBON OFFSET PROGRAMME

NetJets Europe purchases carbon credits to offset Owners' flights and its own business emissions in arrears and at six-monthly intervals. This approach enables NetJets Europe to calculate and report actual emissions data instead of relying on estimates. Once purchased, the carbon credits

in the NetJets Europe portfolio have to be retired into the appropriate international registries within 90 days. This helps ensure that the emissions reductions occurred within a similar timeframe to the flight emissions they are offsetting.

Since the start of the offset programme through the end of 2011, more than **62,000 flights (687,343 tonnes of carbon from customer emissions)** have been offset;

**224,520 tonnes** of offsets are being purchased from ClimateCare to offset 2011 customer emissions (final total subject to verification);

The agreed portfolio comprises a mix of projects similar to 2010 portfolio, continuing support for four of the six projects from previous year;

The 2011 portfolio was approved by the **EAB** in the October 2010 meeting;

A forestry project was included in the 2011 portfolio for the first time. The **Rukinga Kasigau REDD+ project** (see page 43) is the first forestry project in the world to be certified.



*“NetJets Europe took on the unprecedented challenge of becoming the world's most environmentally responsible private aviation company.”*





# INTRODUCING OUR 2011 CARBON OFFSET PORTFOLIO

In 2009 NetJets Europe’s former carbon-offset partners Ecosecurities joined with **ClimateCare**, as part of the investment bank JP Morgan. With its particular experience in supporting corporate voluntary offsetting initiatives, ClimateCare took on the management of the NetJets Europe Carbon Offset Programme in 2010. Since August 2011, ClimateCare has become an independent company again and continues to work in partnership with NetJets Europe to deliver the programme.

ClimateCare works with NetJets Europe to build an offset portfolio in a range of locations. The projects promote clean technologies in developing countries and are chosen under a strict selection process to meet certain criteria.

**These include:**

## CRITERIA FOR ELIGIBLE PROJECTS

### Standards

Projects must reach the most recognised carbon standards;

### Additionality

Projects would not happen without finance from the sale of carbon credits;

### Permanence

Emission reductions must be permanent;

### Verification

Projects must be verified by accredited auditors to Kyoto levels;

### Transparency

Projects must be transparent by listing carbon offsets on online registries.

## 2011 CARBON OFFSET PORTFOLIO



THE NETJETS EUROPE PORTFOLIO OF OFFSET PROJECTS FOR 2011 INCLUDED:

### KASIGAU CORRIDOR REDD PROJECT

The Rukinga Wildlife Sanctuary, in the Kasigau Wildlife Corridor, Kenya, is preserving 75,000 acres of dry forest under threat from agriculture and charcoal production. The project provides alternative livelihoods for locals as game wardens, in sustainable charcoal making and at a clothing factory. It is the world’s first project to be issued with REDD (Reducing Emissions from Deforestation and Degradation) credits.

**Other activity and benefits include:**

The supply of elephant dung as fertiliser to the local Imani Women’s Group who commercially farm mushrooms.

Establishment of five nurseries in surrounding villages, which create more employment, and provide further agroforestry as well as training.

Restarting a three-year reforestation project on the slopes of Mt Kasigau that aims to plant 20,000 indigenous hardwood trees.

**3 YEARS**  
**20000 TREES**







UGANDA

## EFFICIENT COOKING WITH UGASTOVES

Inefficient and polluting cooking apparatus is commonplace in Uganda. The Ugastoves project reduces greenhouse gas emissions by disseminating fuel-efficient stoves for use in households and institutions

### Other activity and benefits include:

Reduction in fuel costs for families which therefore frees up money for other uses, thereby improving livelihoods of the poor;

throughout the country. This project improves health and living conditions especially for women and children who spend long hours each day in conventional kitchens.

The new Ugastoves stoves are less smoky, reducing emissions of hazardous air pollutants and improving the health of the cooks, typically mothers and children;

Significant savings in GHG emissions through a reduction in charcoal consumption.



BRAZIL

## ENVIRONMENTAL, SOCIAL AND ECONOMICAL BENEFITS

## ASSUNÇÃO SOCIAL CARBON BRAZIL

This project takes place in Brazil at a ceramics factory that makes building materials, which was using fossil fuels and non-renewable hard wood from the Atlantic Rainforest to

fuel ceramics kilns. The project replaces these fuels with renewable biomass, which is sourced from waste wood, palm husk and sustainably managed reforestation projects.

### Other activity and benefits include:

Increased local job opportunities as the plants require more manpower than the pre-project scenario;

Assunção donates to the Davis Lar Children's Home, a full-care organisation for children and adolescents who suffered neglect and violence;

The project will also encourage other ceramic businesses in Brazil to adopt such practices.



### REDUCTION IN:

**FUEL COSTS,  
POLLUTANTS,  
GHG EMISSIONS**





## XILINGUOLE HUITENGLIANG WIND POWER

Situated on the planes of Inner Mongolia, this wind farm makes use of the reliable local wind resource to produce renewable electricity to be exported to the Inner Mongolia grid – part of the North China Grid. The local grid is more than twice as carbon intensive as the UK grid with power

mostly generated by coal-fired power stations. Other than wind, the area lacks potential renewable resources, so demonstrating the feasibility of such a project is key to the development of the wind generation sector in this province.

### Other activity and benefits include:

Increased employment opportunities in the area where the project is located – approximately 15 people will be permanently employed for the project operation;

Enhanced local investment environment and therefore improved local economy;

Diversified sources of electricity generation, important for meeting growing energy demands and the transition away from diesel and coal-supplied electricity generation.

**TRANSITION FROM  
DIESEL AND COAL-  
SUPPLIED ELETRICITY  
GENERATION TO WIND**



MONGOLIA

**THE LOCAL  
ELECTRICAL GRID IS  
CURRENTLY MORE  
THAN TWICE AS  
CARBON INTENSIVE AS  
THE UK GRID**



GUATEMALA

**500  
TEMPORARY  
JOBS  
5000  
TREES**

## AMATITLAN, GEOTHERMAL POWER PLANT, GUATEMALA

This geothermal power project, with an expected installed capacity of 25 MW, is located in Guatemala. The project is 28km southeast of Guatemala City in the Pacaya Volcano National Park region, near the Laguna Calderas, which is part

of the Michotoya River basin. The purpose of the project is to utilise the geological resources of the Amatitlán Geothermal Field in a state-of-the-art geothermal power plant to generate renewable energy and dispatch it to the national grid.

### Other activity and benefits include:

The project will directly generate approximately 500 temporary jobs during the construction phase and 20 permanent operational jobs;

Geothermal-derived electricity is relatively free of seasonal or fuel-driven supply fluctuations, therefore

the project increases stability of power supply to consumers and to the national economy;

The project includes a programme to reduce flooding of the local area through the repair of road infrastructure and the reforestation of hillsides with more than 5,000 trees.

SUPPORTED PROJECTS FOR 2012 ARE STILL BEING FINALISED



## THE EU EMISSIONS TRADING SCHEME (ETS)

FROM JANUARY THIS YEAR, THE AVIATION INDUSTRY HAS BEEN INCLUDED IN ETS WHICH AIMS TO REDUCE AND LIMIT THE QUOTA OF ALLOWED EMISSIONS OF GHGS IN CERTAIN HEAVY ENERGY-CONSUMING INDUSTRIES.

### UNDER ETS, AIRLINES MUST:



Monitor and annually report their CO<sup>2</sup> emissions



Surrender to authorities carbon credits which equal the amount of CO<sup>2</sup> they emit. The carbon credits are available to buy from a carbon-credit trading market. The cost of credits will fluctuate depending on supply and demand.

### THE OBJECTIVE

OF ETS IS TO ENSURE THAT BY **2020**  
**GHG EMISSIONS** ARE CUT BY **20%**  
BELOW THE LEVELS OF **1990**

The scheme affects all flights that either enter or depart the **European Economic Area (EEA – the 27 EU states, Liechtenstein, Iceland and Norway)** and carbon emissions are calculated for the duration of the whole flight.

The introduction of ETS for aviation has not been without its critics. Commercial aviation – including large passenger jets – have a number of ‘free’ allowances that can reach up to 95% of their emissions, while general aviation, including business airlines such as NetJets Europe, receive a small amount of free allowances that equate to less than 5% of total emissions. The large difference in free allowances has led to criticisms of the scheme being lopsided and in favour of commercial carriers.

Non-EU member states, including India, Russia, China and the USA, meanwhile have argued that the EU should not legally be able to regulate flights that are not in its skies.

For its part, the EU claims the regulation is applied to all carriers and that it does not contravene international regulations. The EU also says that, in the absence of global measures, it was forced to act. The scheme does, however, include exemption clauses for flights to or from countries with “equivalent measures”.

**CARBON EMISSIONS ARE  
CALCULATED FOR ENTIRE  
FLIGHTS THAT ENTER OR  
DEPART THE EEA**



**MONTHLY  
CALCULATIONS  
FOR CARBON  
EMISSIONS**

**MARCH 31  
ANNUAL REPORTS  
FOR PREVIOUS YEAR'S  
EMISSIONS**

## NETJETS EUROPE COMPLIANCE WITH ETS

NETJETS EUROPE HAS APPOINTED A REPUTABLE BROKER TO ENSURE THAT OWNERS OBTAIN THE BEST VALUE FOR MONEY WHILE COMPLYING WITH REGULATORY REQUIREMENTS.

At the end of each month starting in January 2012, NetJets Europe calculates the carbon emissions for flights within, to and from ETS locations and purchases the mandatory carbon credits.

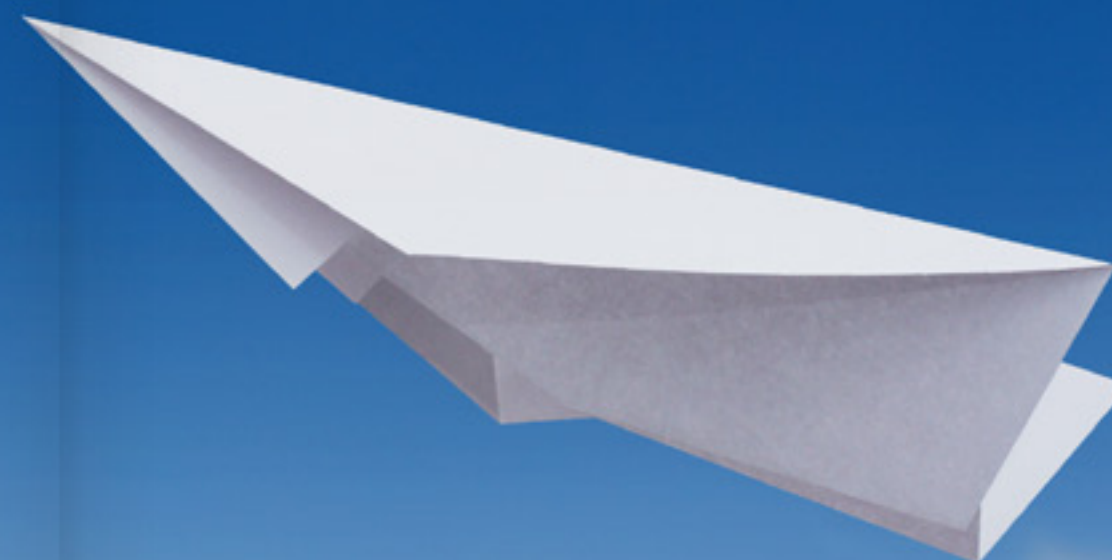
These ETS credits will be surrendered to the relevant authorities as and when required, making our flights compliant with ETS regulations

## ETS GOVERNANCE

Under ETS regulations, on March 31 NetJets Europe has to report annual emissions for the previous year to the Portuguese Environmental Agency and provide evidence for the relevant carbon credits.

Every month, NetJets Europe's emissions for both Owner and positioning flights

are recorded and monitored by NetJets Europe and verified by CICS – a leading global expert in carbon verification and consultancy and certification services. Credits are then purchased on NetJets Europe's behalf by STX, carbon brokers for the acquisition of compliance allowances.



*“NetJets Europe ensures that Owners get the best value for money while complying with regulatory requirements”*

## CASE STUDY

### TENDERING VIA VIDEO CONFERENCE

The implementation of ETS presented a challenge to NetJets Europe's IT department. Tendering for an ETS carbon broker for the purchasing of allowances was conducted via videoconference in order to reduce emissions and logistical complexity. Vendors from Canada, the US and the Netherlands were able to successfully deliver simultaneous presentations to team members who were located in the UK, US, Portugal and China.



# NETJETS EUROPE ENVIRONMENTAL PROGRAMME – PILLAR III: GREEN HORIZONS



Biofuel / sustainable aviation

56

New Aircraft

60





15 billion

THE NUMBER OF GALLONS OF JET FUEL IT IS CLAIMED ARE AVAILABLE BY REPROCESSING WASTE GASES FROM INDUSTRIAL STEEL PRODUCTION

# GREEN HORIZONS

## CONTEXT: ALTERNATIVE FUELS – BACKGROUND AND CURRENT MARKET DYNAMICS

WITH IT NOW BEING WIDELY ACKNOWLEDGED THAT GHGS ARE ONE OF THE MAIN DRIVERS OF CLIMATE CHANGE AND GLOBAL WARMING, THE AIRLINE INDUSTRY IS IN RECOGNITION OF THE URGENCY WITH WHICH EMISSIONS NEED TO BE REDUCED.

The industry is also aware that the most likely long-term solution to reduce GHGs from aviation comes from the replacement of carbon-based fuels with **sustainably sourced and produced alternative fuels**.

Unlike other methods of transport, aviation is fully reliant on fuels with the energy density of fossil fuels and most aircraft coming on the market today have an operating lifespan of up to 40 years – both factors that make a “drop-in” alternative fuel substitute the only viable medium-term alternative to kerosene.

The first commercial alternative fuel flight took place in early 2008 when Virgin Atlantic flew a Boeing 747 from London to Amsterdam carrying a **20% mix of alternative fuel** derived from coconut and babassu oil.

Since then, many other airlines have trialed alternative fuel mixes and in July 2011 the **American Society for Testing and Materials (ASTM)** approved **Hydroprocessed Esters and Fatty Acids (HEFA)** fuel. The approval for a direct drop-in of a 50% mix with conventional fuel has now paved the way for the first commercial flights powered by alternatives to kerosene.

Despite the positive messages alternative fuels offer when it comes to emissions reductions, they have still drawn criticism from green campaigners for the lack of sustainability in production and the fact that some early biomass materials lead to a food-versus-fuel controversy.

The industry counters that these early adaptations of alternative fuel are as much for demonstration purposes to show that there are alternatives to kerosene and that much research is already being done into second- and third-generation alternative fuels that use more sustainable biomass sources.

Until such fuels are widely available however, there are four key market challenges with regard to alternative fuels for aviation. **These are:**

- Sustainability - as detailed above;
- Continuous supply - alternative fuels are not yet produced on a mass market basis;
- Availability - alternative fuels are not yet available at all major airports;
- Cost - while the price of oil has continually increased over the last decade, alternative fuels remain more expensive for the time being. This is expected to decrease as demand increases.



*“NetJets Europe has been a leader in the business aviation sector on alternative fuels”*

## ALTERNATIVE FUELS – NETJETS EUROPE’S VISION

NETJETS EUROPE HAS BEEN A LEADER IN THE BUSINESS AVIATION SECTOR ON ALTERNATIVE FUELS, AS EVIDENCED BY OUR SUPPORT OF THE INITIAL PHASE OF THE PRINCETON NEXT GENERATION FUEL PROJECT.

Despite this support coming to an end in 2010, NetJets Europe remains committed to finding ways to support the development and use of alternative fuels.

However, we also believe that it is important for decisions that affect the future of both the earth and the aviation industry to be taken with

care and attention to wholesale sustainability rather than jumping on what some may see as a “bandwagon”.

We believe it is important to have an overall view of all options before making binding decisions on alternative fuels.

**To date, we have:**



PERFORMED AN EXTENSIVE MARKET SCAN INCLUDING TYPES OF FUEL, PRODUCTION TECHNOLOGY AND KEY PLAYERS



ATTENDED CONFERENCES ON FUTURE FUELS, INCLUDING WORLD BIOFUEL MARKETS AND THE INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA) FUEL FORUM



PRESENTED TO OUR ENVIRONMENTAL ADVISORY BOARD TWICE ON ALTERNATIVE FUELS, INCLUDING PRESENTATIONS FROM EXTERNAL THIRD PARTIES AND SUPPLIERS SUCH AS SHELL, SKYNRG, HONEYWELL, DASSAULT AND ROLLS ROYCE



RECEIVED ‘NO TECHNICAL OBJECTION’ STATEMENTS FROM ALL OUR ORIGINAL EQUIPMENT MANUFACTURERS (OEMS) ON THE USE OF DROP-IN FIRST GENERATION ALTERNATIVE FUELS IN THEIR ENGINES



Robert Nuttall

*“At Rolls-Royce we have been performing our own alternative fuels tests since the 1990s and are proud to offer our support and expertise on environmental issues to another forward thinking company such as NetJets Europe. As one of their key engine suppliers, we look forward to working with them in future as the search for a more sustainable alternative to fossil fuel continues.”*

ROBERT NUTTALL, VP STRATEGIC MARKETING

## GREEN HORIZONS – SESAR

WHILE THERE HAVE BEEN SEVERAL ATTEMPTS IN THE PAST TO CREATE A SINGLE EUROPEAN SKY AND HENCE IMPROVE THE EFFICIENCY OF EUROPEAN AVIATION, THEY HAVE PRODUCED LIMITED RESULTS. PAST INITIATIVES WERE CONDUCTED WITH LIMITED INVOLVEMENT, IN PARTICULAR FROM END USERS, AND DEVELOPED IN A LABORATORY ENVIRONMENT.

Their limited success was one of the drivers for the introduction of the **SESAR programme** in 2004. The programme looks at the modernisation of **Air Traffic Management (ATM)** on a pan-European level in an effort to improve efficiency and reduce fuel consumption.

As part of the programme, a staged release approach allows validation of solutions in an operational environment and helps prepare for their deployment.

**This should allow for early improvements to the ATM system resulting in:**



AIRLINES SEEING SAVINGS IN OPERATIONAL COSTS THROUGH INCREASED PUNCTUALITY AND MORE EFFICIENT FLIGHTS. THIS WILL ALSO LOWER THE ENVIRONMENTAL IMPACT;



PASSENGERS WILL PROFIT FROM IMPROVED PUNCTUALITY AND SHORTER FLIGHT DURATION, AS THE GRADUAL REMOVAL OF AIR TRAFFIC BOTTLENECKS IN BUSY AREAS CONTINUES;



OVERALL, THE SESAR PROGRAMME AIMS TO REDUCE THE ENVIRONMENTAL IMPACT OF FLIGHTS BY AT LEAST 10%.

NetJets Europe supports the SESAR program as part of the **European Business Aviation Association (EBAA) Consortium** that comprises of the EBAA as an industry association, manufacturer **Dassault** with its technical competence and **NetJets Europe** with its operational excellence.

For example, NetJets Europe has offered support to the **Remote Virtual Tower** concept that aims at enhancing Air Traffic Services at remote locations providing direct access and reducing diversions. The first validation exercise ran at the end of 2011 with more planned for 2012.

The EBAA Consortium has input into 50 out of a total of 300 SESAR projects.

**10%**

THE POTENTIAL REDUCTION IN OVERALL AVIATION EMISSIONS IN EUROPE EXPECTED THANKS TO IMPROVEMENTS UNDER THE SINGLE EUROPEAN SKY ATM RESEARCH (SESAR) PROGRAMME



## INTRODUCTION OF NEW AIRCRAFT

As part of our long-term planning and on-going commitment to provide unparalleled safety and service in aircraft uniquely customised for our Owners, since the last report and until then end of 2011, NetJets, Inc has announced two major aircraft orders. One with **Embraer** for the purchase of the **Phenom 300**, light aircraft – and the second order with **Bombardier** for the **Global** long and ultra-long range series (**Global 5000, 6000, 7000, 8000**). Globally, we always place a combination of contracted and optional aircraft orders. Typically 50% are for rejuvenation of existing

fleet and an additional 50% are an option for potential growth in the longer term. This gives us options and flexibility and allows NetJets Europe to assess its aircraft needs as part of a 10-year planning process relevant to Owner demand.

This is a strategic, global investment that demonstrates our commitment to providing our current and potential Owners with aircraft designed to meet their exacting standards with the latest developments in safety, technology, comfort, reliability, and operating efficiency.

### Phenom 300

OVER THE COMING YEARS, ACCORDING TO MARKET DEMAND, WE ARE LOOKING TO GRADUALLY REPLACE OUR CURRENT GLOBAL FLEET OF LIGHT JETS WITH MORE FUEL-EFFICIENT AIRCRAFT.

WITH THE INTRODUCTION OF THE PHENOM 300 INTO THE GLOBAL FLEET FROM 2014 ONWARDS, WE WILL BE ABLE TO REDUCE THE AVERAGE CONSUMPTION AT CRUISING ALTITUDE OF OUR LIGHT JET FLEET BY APPROXIMATELY 2.7% IN COMPARISON WITH 2011.



### The Global 6000

THE GLOBAL 6000 HAS A CONSUMPTION THAT IS SIMILAR TO THAT OF THE GULFSTREAM G550. GIVEN THAT THE GLOBAL 6000 IS ALMOST 10% HEAVIER THAN THE GULFSTREAM G550, THIS IS AN ACHIEVEMENT.

ALTHOUGH THE GLOBAL 6000 DO NOT MATCH THE FUEL EFFICIENCY OF THE FALCON 7X, IT IS EXPECTED THAT THE NEXT GENERATION OF ULTRA-LONG SERIES OF AIRCRAFT, THE 7000 AND 8000, WILL HAVE A LOWER FUEL CONSUMPTION THAN THE GULFSTREAM G550 AND THE GLOBAL 6000.







# STAKEHOLDER ENGAGEMENT

Owners communications

64

Employee communications

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# STAKEHOLDER ENGAGEMENT AND STRATEGIC PARTNERS

WE REALISE THAT OUR ‘REAL DIFFERENCE’ PROGRAMME HAS TO INFUSE ALL AREAS OF THE BUSINESS AND THAT COMMUNICATIONS PLAY A KEY ROLE IN ENSURING THE SUPPORT OF OUR OWNERS, EMPLOYEES, PARTNERS AND THE PUBLIC VIA THE MEDIA. NETJETS EUROPE MAKES EVERY EFFORT TO ENSURE COMMUNICATIONS ON ENVIRONMENTAL ISSUES ARE DONE IN A TIMELY, EFFICIENT AND ACCURATE MANNER.

## OWNER COMMUNICATIONS

NetJets Europe publishes a quarterly Owner Newsletter that contains regular articles with environmental updates and initiatives. Our monthly invoices thank Owners who choose to participate in our offset programme by showing them how much they are paying for offsets as well as detailing our commitment to the EU-ETS.

# EMPLOYEE COMMUNICATIONS

NetJets Europe publishes a bi-monthly staff magazine Horizon that also details the company’s environmental strategies and initiatives.

In 2010 NetJets Europe also decided to engage employees more fully in the Environmental Programme and created a regular ‘Day of Difference’ to update staff on aspects of the Environmental Programme, share ideas with them to push activity forward and encourage support in remaining the leading business aviation company on environmental matters.

Since the 2010 publication of the environmental report, three of these days have been held covering NetJets Europe’s Carbon Offset Programme, ETS and the company’s Fuel Reduction Programme.

Briefings were held in offices in Lisbon, London and Farnborough and those who could not be present could follow on a conference call session. The days intend to encourage greater focus and engagement among employees, both in the office and in the air (see box).



Astrid Etchells

## DAYS THAT MAKE A DIFFERENCE

DURING THE ‘DAY OF DIFFERENCE’ WHICH FOCUSED ON OUR FUEL REDUCTION PROGRAMME, OFFICE STAFF IN LISBON WERE GIVEN THE OPPORTUNITY TO TRY THEIR HAND ON ONE OF THE COMPANY’S FLIGHT SIMULATORS.

“THEY WERE TAKEN THROUGH A SIMILAR TRAINING PROCESS THAT OUR PILOTS GO THROUGH IN ORDER TO FLY IN THE MOST FUEL-EFFICIENT WAY,” SAYS **ASTRID ETHELLES, SENIOR EXECUTIVE, CORPORATE AFFAIRS**. “IT WAS AN ENGAGING WAY TO SHOW STAFF AN IMPORTANT PART OF OUR FUEL REDUCTION PROGRAMME AND IT’S BEEN GREAT TO SEE HOW PASSIONATE COLLEAGUES ARE ABOUT BEING MORE SUSTAINABLE.”

## PUBLIC REPORTING

NetJets Europe is committed to transparent reporting on our carbon footprint and our environmental programmes and holds regular briefings with key media on sustainability and environmental issues.



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# APPENDIX I: MORE ON ALTERNATIVE FUELS

## ALTERNATIVE FUELS - RECENT INDUSTRY MILESTONES



ASTM certification of Hydroprocessed Esters and Fatty Acids (HEFA) fuel up to 50% mix with conventional jet fuel in July 2011 to add to FischerTropsch (FT) process certified since 2009;



Lufthansa recently concluded six months of scheduled flights (1,187 flights) on a single A321 aircraft flying between Hamburg and Frankfurt using a 50% mix of Jet/BioJet on one engine, supplied by NesteOil of Finland;



KLM operating scheduled flights between Amsterdam and Paris using a pool of A320 aircraft powered by 50% mix on both engines, supplied by SkyNRG;



First transatlantic flight – a Gulfstream 450 from Morristown New Jersey to Paris – one engine powered by a 50% mix supplied by Honeywell UOP;



Lufthansa conducted a first transatlantic commercial flight on January 12, 2012 carrying approximately 40 tonnes of BioJet mix.

## BIOJET - THE CURRENT MARKET



BIOJET IS TRANSPORTED, STORED AND DELIVERED INTO PLANES UNDER SEGREGATED CONDITIONS AS EU REGULATIONS DO NOT YET ALLOW FOR MIXING;



THE AVIATION FUEL JOINT INSPECTION GROUP (JIG) HAS APPROVED BIOJET AND IT CAN BE MIXED INTO CONVENTIONAL JET FUEL SYSTEMS AT A 1:1 RATIO;



THE ONLY EUROPEAN PRODUCER IS NESTEOIL (FINLAND) USING VIRGIN VEGETABLE OILS AND WASTE FATS;



SKYNRG, A BIO JET FUEL SUPPLIER IN EUROPE, IS IMPORTING PRODUCT FROM USA, MANUFACTURED FROM USED COOKING OIL;



HONEYWELL UOP IS PRODUCING ON A DEMO SCALE IN USA BUT DOES NOT PRESENTLY IMPORT INTO EUROPE ON A COMMERCIAL SCALE;



BIOFUEL IS CERTIFIED AT ZERO EMISSIONS FOR EU-ETS PURPOSES.

# APPENDIX II – STRATEGIC PARTNERS AND ACADEMIC PARTNERSHIPS

## ENVIRONMENTAL ADVISORY BOARD

NetJets Europe’s Environmental Advisory Board is a group of environmental management experts who consult with the company on the latest thinking on climate and environmental issues. The EAB meets regularly with NetJets Europe to provide advice, review plans and identify opportunities to improve the company’s environmental initiatives.

### Members of the board, include:

#### MARITTA R. VON BIEBERSTEIN KOCH-WESER

Worked on environmental programmes at the World Bank for 18 years and served as Director General of the World Conservation Union, the world’s largest umbrella organisation of environmental institutions. She is CEO of the Global Exchange for Social Investment and Founder/President of Earth3000. She is also currently coordinating the project “Amazonia in Transformation: History and Perspectives” at the University of São Paulo, Brazil.

#### JAN-OLAF WILLUMS

Is Chairman of Inspire, a group that invests in young enterprises with environmental agendas. He is the current Chairman of the Zero Emissions Mobility Initiative, having previously served as CEO of electric car company THINK. He is a professor at the Norwegian School of Management, co-founder of its Centre for Corporate Citizenship, and a member of the World Economic Forum Automotive Agenda Council and of the environmental advisory board of the EBRD.

#### JOHN MCCALL MACBAIN

A NetJets Owner and the founder, former President and CEO of Trader.com, is a philanthropist with interests in environmental protection. He serves as the Chair of the Board at the European Climate Foundation. He was a Rhodes Scholar at Oxford University and holds an MBA from Harvard Business School.

#### OLIVER RAPF

Is the Executive Director of the Buildings Performance Institute Europe, a Brussels-based think tank with a focus on the built environment. He is a member of the Executive Committee of the Global Buildings Performance Network, an initiative of the ClimateWorks Foundation family. Before that, he spent 14 years with the global conservation organisation WWF in various roles, and led WWF’s global business partnership work on climate change and energy issues. Leading an international team, he advised multinational companies on climate change and energy issues.



## ENVIRONMENTAL PARTNERS

NETJETS EUROPE HAS THREE MAIN ENVIRONMENTAL PARTNERS THAT ASSIST WITH ADVICE ON THE ENVIRONMENT AND SUSTAINABILITY, MONITOR OUR GREENHOUSE GAS EMISSIONS AND PRODUCE A CARBON OFFSET PORTFOLIO.

### spring associates

NetJets Europe's environmental agency is Amsterdam-based consultancy Spring Associates. Spring advises companies on strategic decisions and supports NetJets Europe in its quest to become more competitive, more innovative and more sustainable.

Spring advises NetJets Europe on its environmental programme and on its investigations into alternative fuels. The company operates from a core belief that companies should consider all energy consumption, as well as the use of materials and water, in their extended supply chain and strive to manage that chain in a sustainable manner.



NetJets Europe's carbon offset programme is managed by independent 'profit for purpose' organisation ClimateCare.

ClimateCare runs some of the world's largest corporate carbon offsetting programmes and originates and sources compliance and voluntary carbon credits on behalf of large organisations and nation states. In addition, it develops and finances innovative emissions reduction and sustainable development projects in some of the world's least developed countries.



Netherlands-based Ecofys is a leading consultancy in renewable energy, energy and carbon efficiency, energy systems and markets and energy and climate policy. The company aids NetJets Europe in auditing its carbon footprint.

## ACADEMIC PARTNERSHIPS

NetJets Europe has partnered with a leading German university to conduct research into its efforts to improve the efficiency of its aircraft operations.

The tie-in with **Darmstadt Technical University** sees research student **Katja Hein** undertaking a technical study that will look into the possibility of NetJets Europe aircraft using reduced flap landings that reduce fuel consumption and offer a lower noise footprint.

While routine in commercial aviation, reduced flap landings are not approved in business aviation unless in abnormal situations. The study will include the viability of reduced flap landings on three aircraft: Cessna Citation Excel, Hawker 750/800 and the Embraer Phenom 300 and will look into runway limitations, the minimum visibility required and the possibility of zero flap landings.

**Captain G550, Regulatory Affairs, Joe Bauer** says: "We assessed different universities as we wanted to partner with one that would allow us to benefit from its expertise in certain areas which could help us bring our environmental programme and strategy to the next level."

"We have chosen a technical topic and asked for a Master thesis so we – both the University and ourselves – can see how we work together and set the basis for a long-term partnership as there are many more topics which can be researched and our company can benefit from."

Katja will undertake the research under the guidance of **Prof. Dr.-Ing. Uwe Klingauf**, Director of the University's **Institute of Flight Systems and Automatic Control**, with **Esther Hohberger** and **Jendrick Westphal** as her tutors.



*"An important goal of the research work at the Institute of Flight Systems and Automatic Control, Technische Universität Darmstadt, is to minimise the environmental footprint of aviation. We try to optimise flight paths in order to reduce noise emissions and fuel consumption by applying new navigation procedures and information technology."*

*"As we always look for the practical relevance of our research, we appreciate our cooperation with NetJets Europe as it provides access to operational data and use cases."*

**PROF. DR.-ING. KLINGAUF**



Katja Hein

*"It is good to support NetJets Europe's environmental programme, since reduced flap landings contribute to reduced fuel consumption and carbon emissions as well as noise pollution."*

**KATJA HEIN**





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