

OFFSET 101

A Basic Guide To Offsetting For Aircraft Operators &
An Introduction to IBAC Carbon Credit Exchange

What Are Offsets?

Offsets are also referred to as carbon credits and are a market-based mechanism used to reduce the environmental impact of an individual, business or operation, mitigating the output of CO₂.

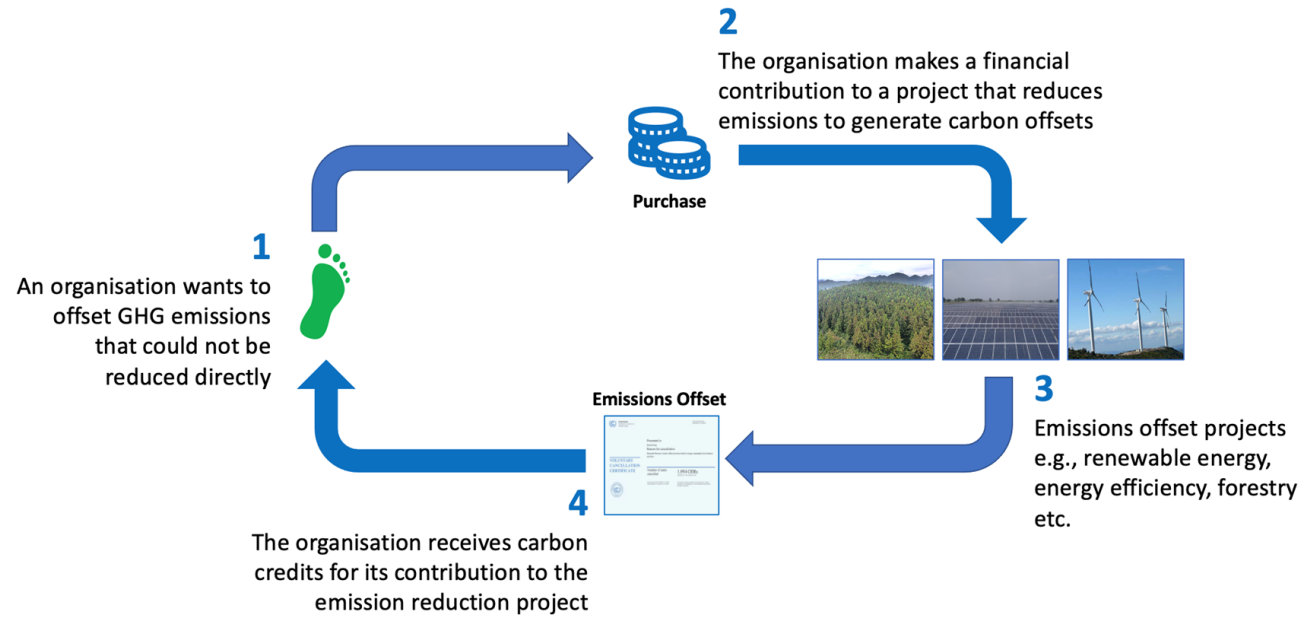
**1 Carbon Credit or Offset =
Reduction of 1 Metric Tonne CO₂**

THE OBJECTIVE OF CARBON OFFSETS

Reduce carbon dioxide and other greenhouse gases, to compensate for emissions elsewhere.

Stimulate, a low-carbon economy with projects that have a lower CO₂ output than the purchaser of the offset.





Source: Graphic Courtesy CTX

How Do Carbon Credits Work?

Carbon credits are used in aviation as a short-term supplement to other environmental improvements, such as the use of Sustainable Aviation Fuel (SAF) while waiting for longer-term advancements to take hold.

Investing in offsets provides funding for projects that involve low energy solutions, updating old technologies, access to fresh water, tree planting, or improvements in education, to name a few.

Offsetting needs to be a part of an overall plan to reduce your carbon footprint and not considered a free pass to ignore corporate environmental responsibilities.



SAF Users

SAF delivers significant reductions in CO₂ emissions that vary with the blend of SAF used. The higher the blend, the bigger reduction in CO₂.

The maximum SAF blend allowed today is 50/50 but suppliers typically serve a 15 -30% blend.

Once the blend ratio is determined, the operator can offset the remaining kerosene consumed with a simple calculation.



First Things First

Business aircraft operators should first assess the degree to which further efficiencies can be gained, at reasonable expense, from new technology and operational enhancements, including the use of SAF. The remaining emissions can then be offset.

FUEL MONITORING

Through appropriate fuel monitoring, a highly recommended practice to all operators by IBAC, the process to estimate the number of carbon credits needed to offset the CO₂ emission is simple.

FORMULA

When 10 metric tonnes of fuel are used, once burned it produces 31.6 metric tonnes of CO₂ emissions that would require 31.6 carbon credits to offset.

It is entirely up to the purchaser how much of their CO₂ output they would like to voluntarily offset.

EXAMPLES OF IMPROVEMENTS Environmental

- New Technology
- Sustainable Aviation Fuel (SAF)

Operational Improvements

- Reducing Unnecessary Aircraft Weight
- Fuel Tankering
- Electrical Ground Power Use



Introducing...



International Business Aviation Council
Carbon Credit Exchange

Offsetting your CO₂ emissions with
Carbon Trade eXchange (CTX) just got easier.

IBAC has partnered with **CTX** to offer a seamless and transparent platform for business aviation companies to voluntarily purchase carbon credits in real-time to offset their emissions as part of a broader sustainability plan.



CTX Allows IBAC Participants To:

- Choose from preselected active projects that align with your company sustainability plan in a variety of locations around the world
- Access CORSIA compliant credits if required by your operation
- Appreciate a simple and secure platform to support your plan for CO₂ emissions reduction and carbon neutrality
- Get Started Here: <https://ctxglobal.com/business-aviation/>



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Offset Standards

CTX works with the leading global carbon offset standards and gives participants the option from preselected offset projects, and those that satisfy UN Sustainable Development Goals (SDG) or identify credits that are CORSIA compliant if required by the operator.



Members of the exchange choose from a wide range of offset projects certified by the world's three leading carbon credit standards:

The Gold Standard

UNFCCC Clean Development Mechanism (CDM)

Verra Verified Carbon Standard (VCS)

CORSIA Eligible Emission Units

Eligible emissions units are central to the ongoing success of the CORSIA offsetting program and are made available through approved registries.

The ICAO Technical Advisory Body has evaluated programs to establish that they fulfil ICAO CORSIA requirements and has recommended them for immediate availability to airlines and operators.

The CTX platform has CORSIA Eligible Emission Units, contact info@ibac.org for assistance.

CORSIA Obligations

Having completed the "Baseline" phase, the CORSIA program has now entered its "Pilot" phase. This pilot phase consists of countries that have elected to volunteer to participate to the scheme.

The CORSIA program will enable the civil aviation industry to contribute to its goal of carbon-neutral growth (CNG) from 2020 onwards, including business aviation.

Once the pilot phase is completed at the end of 2023, CORSIA will enter its first phase and then the compliance phase at the beginning of 2027.

OFFSET REGISTRIES

American Carbon Registry

**China GHG Voluntary Emission
Reduction Program**

Clean Development Mechanism

Climate Action Reserve

The Gold Standard

Verified Carbon Standard Program

How Are Offsets Priced?

The pricing of offsets vary because there are different levels of the quality of projects, the overall reduction in CO₂ for the project, and the number of offsets attached to each project.

Certified carbon credits at CTX vary per tonne and provide a variety of options to meet any offset budget.

Once carbon credits are purchased, the offset will be issued, and unique certificates of cancellation that cannot be sold or claimed again will be provided to the buyer.

CTX works directly with project developers therefore offering prices at a wholesale rates. There are no intermediaries between CTX and Project Developers, resulting in an efficient and transparent offset purchasing experience.



Measuring CO₂ Emissions

A useful measure to consider is that 10,000 tonnes of CO₂ emissions are roughly equivalent to one million U.S. gallons or four million liters of fuel.

ICAO and other agencies typically measure CO₂ in metric tonnes and offsets are sold in tonnes.

It is always recommended that fuel uplifted/used is also converted to metric tonnes, so it can then be measured in the same way.

This enables the operator to calculate emissions output from fuel use and be consistent with measurement units used.

ILLUSTRATIVE ANNUAL CO₂ EMISSIONS*

The table below provides a general idea of the degree to which your operations may be covered.

Aircraft Type	@400 Hrs/Yr	@900 Hrs/Yr
	Tonnes of CO ₂	Tonnes of CO ₂
Bombardier 605	1270	2857
Cessna Sovereign	1081	2432
Gulfstream G650	1932	4348

Based on Average seating, stage length of 600 NM

* These figures are for illustrative purposes and may vary from flight to flight

Budgeting for CO₂ Emissions

Flight	Round trip	
Aircraft	CJ1	
Destination	EGLC – LFMN	LFMN - EGLC
Duration per leg	2 hours	2 hours
Fuel burn (500l/h)	1 000l	1 000l
Total fuel burn (l)	2 000l	
CO2 emissions (kg)	$3.16 \times 2000l = 6\,320\text{kg}$	
Amount of carbon credits to offset the flight	7 carbon credits	
Cost per carbon credit	\$5	
Price of offsetting flight	$7 \times \$5 = \35	
Price per flight (\$4000 per hour)	\$8000	\$8000
Total price per trip	\$16000	
% offsetting contribution	0.2%	

Flight	Round trip	
Aircraft	CL35	
Destination	KMIA - KJFK	KJFK - KMIA
Duration per leg	3 hours	3 hours
Fuel burn (300gal/h)	900 gal (3 400l)	900 gal (3 400l)
Total fuel burn (l)	1 800 gal (6 800l)	
CO2 emissions (kg)	$3.16 \times 6\,800l = 20\,400$	
Amount of carbon credits to offset the flight	21 carbon credits	
Cost per carbon credit	\$5	
Price of offsetting flight	$21 \times \$5 = \105	
Price per flight (\$6 000 per hour)	\$18 000	\$18 000
Total price per trip	\$36 000	
% offsetting contribution	0.3%	

Summary

IBAC EX can help you and your organization reduce your carbon footprint as part of an overall set of emissions reduction measures.

- First, assess the degree to which further fuel efficiencies can be gained, at reasonable expense, from new technology, operational enhancements, and the use of SAF.
- Make sure you have an appropriate fuel monitoring tool.
- Visit CTX to learn more about their offering at www.ctxglobal.com/business-aviation.
- Decide how many offsets you want to purchase to cover your emissions and determine a budget.
- If your operations are covered by the CORSIA offsetting component, understand your obligations under the scheme.
- If you are using SAF, you will need to factor its use into your calculations.

