



# SUSTAINABILITY IN BUSINESS AVIATION



Head of Carbon Mitigation  
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# About Azzera

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**SEBASTIEN LACUBE**, CHIEF SCIENCE OFFICER  
Azzera





Emissions Reduction

Reduction Target Setting

Carbon Accounting

# Sustainability Solutions by Azzera, **Naturally.**

Emissions Compliance

Sustainable Aviation Fuel

Carbon Credit Portfolio





# Products and Services

As your Sustainability Partner, Azzera provides a comprehensive suite of services designed to support and enhance your business operations and clients' experiences.

FOR YOUR BUSINESS  
OPERATIONS

## Aviation

Manage your climate impact with our suite of customized products

**CARBON CREDITS (OFFSETTING)**

**SAF BOOK AND CLAIM LEDGER**

**EMISSIONS COMPLIANCE MANAGEMENT**

## Business Advisory

Manage your business' climate impact using industry best practices

**BUSINESS CARBON FOOTPRINT**

**REDUCTION STRATEGIES AND KPIs**

**NET ZERO STRATEGY**

MITIGATION SOLUTIONS

CUSTOM CARBON CREDIT PORTFOLIOS

CARBON CREDIT PROJECT ASSESSMENTS

THOUGHT LEADERSHIP

## Digital Solutions

Digital sustainability solutions for your business and clients

**EMISSIONS MANAGEMENT & MITIGATION (CELESTE)**

CARBON CREDIT MARKETPLACE API

CUSTOM EMISSIONS CALCULATORS

FOR YOUR CLIENTS

Propose a tailored solution to reduce and compensate flight emissions

**FLY GREEN PROGRAM**

GREEN MANAGEMENT PROGRAM



# The Emission Challenge

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# The Climate Change Challenge

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“We have until **2030** to cut emissions in half to maintain a **50% chance** of avoiding the worst effects of climate change.”\*



**TIME** - It will take time we don't have.



**COST** - Steep mitigation is impossible, some emissions are unavoidable.

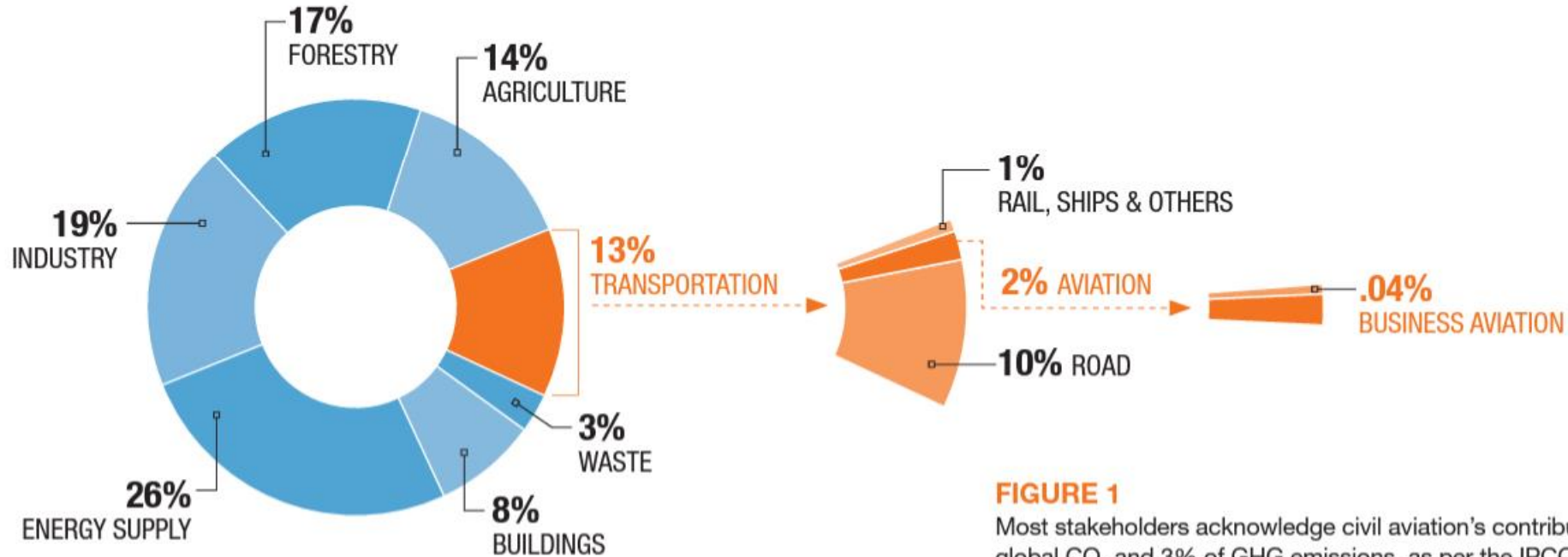


**WILLINGNESS** – We are stuck at discussing responsibilities, we need to act.

\*<https://www.ipcc.ch/report/ar6/wg3/>



# The Business Aviation Emission Challenge



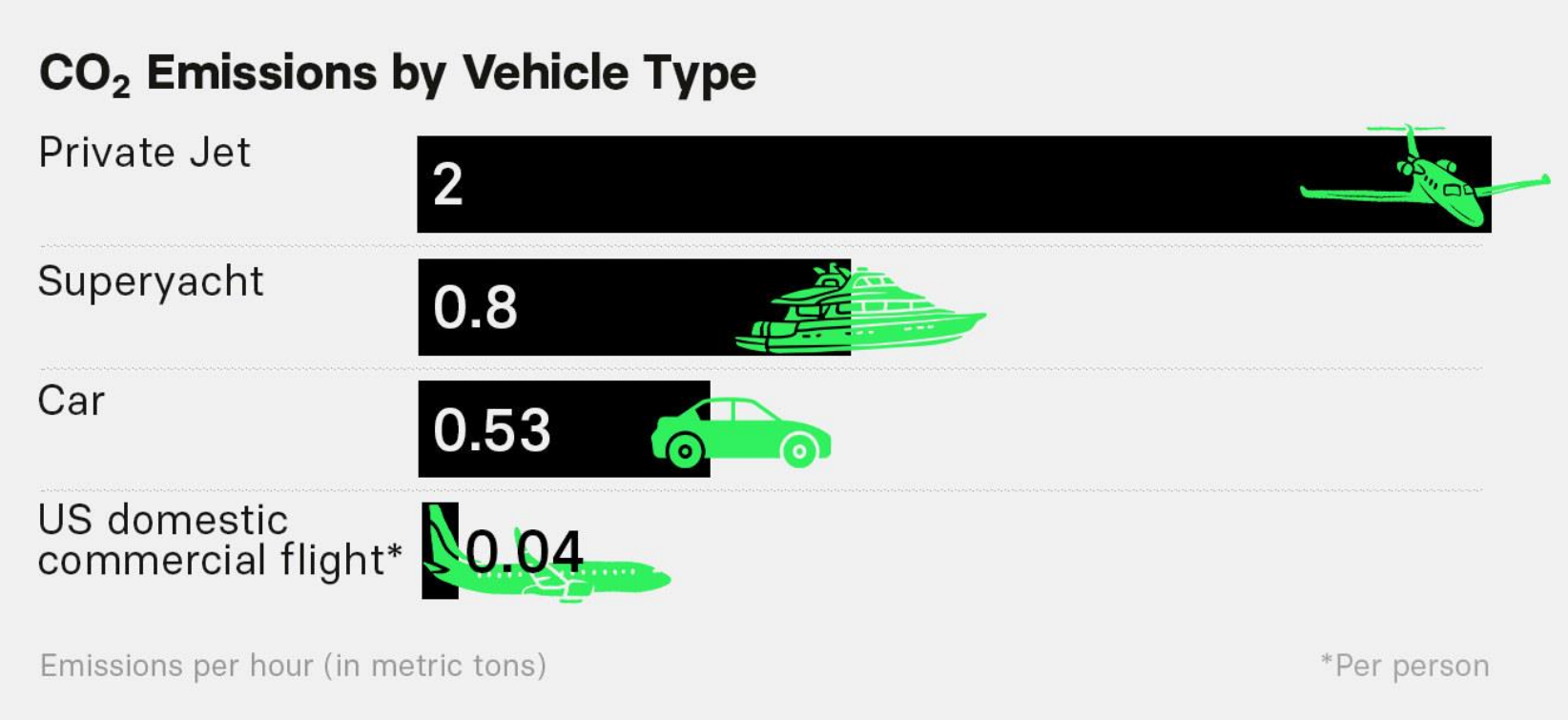
**FIGURE 1**

Most stakeholders acknowledge civil aviation's contribution of 2% of global CO<sub>2</sub> and 3% of GHG emissions, as per the IPCC report estimates. The business aviation contribution is estimated at 2% of aviation emissions or 0.04% of global emissions.

\*<https://noplanenogain.org/business-aviation-facts/sustainability/>



# The Business Aviation Emission Challenge



\*<https://www.buzzfeednews.com/article/leslieinlay/how-celebrity-private-jet-emissions-affect-environment>





# The Business Aviation Emission Challenge



\* <https://www.theguardian.com/business/2023/may/23/climate-activists-private-jet-fair-greenpeace-stay-grounded-extinction-rebellion>



*Opportunity*

# The Emission Challenge

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# The Business Aviation Footprint

A division of main areas of emissions

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## 1 Airports

Air Traffic Management  
Terminal Operations  
Ground Service Equipment

## 2 Flights

Fuel !!!  
Catering  
Air Conditioning  
Maintenance  
Engine & Aerodynamics

## 3 Organization

Crew Rotations  
Employee Travel  
Events

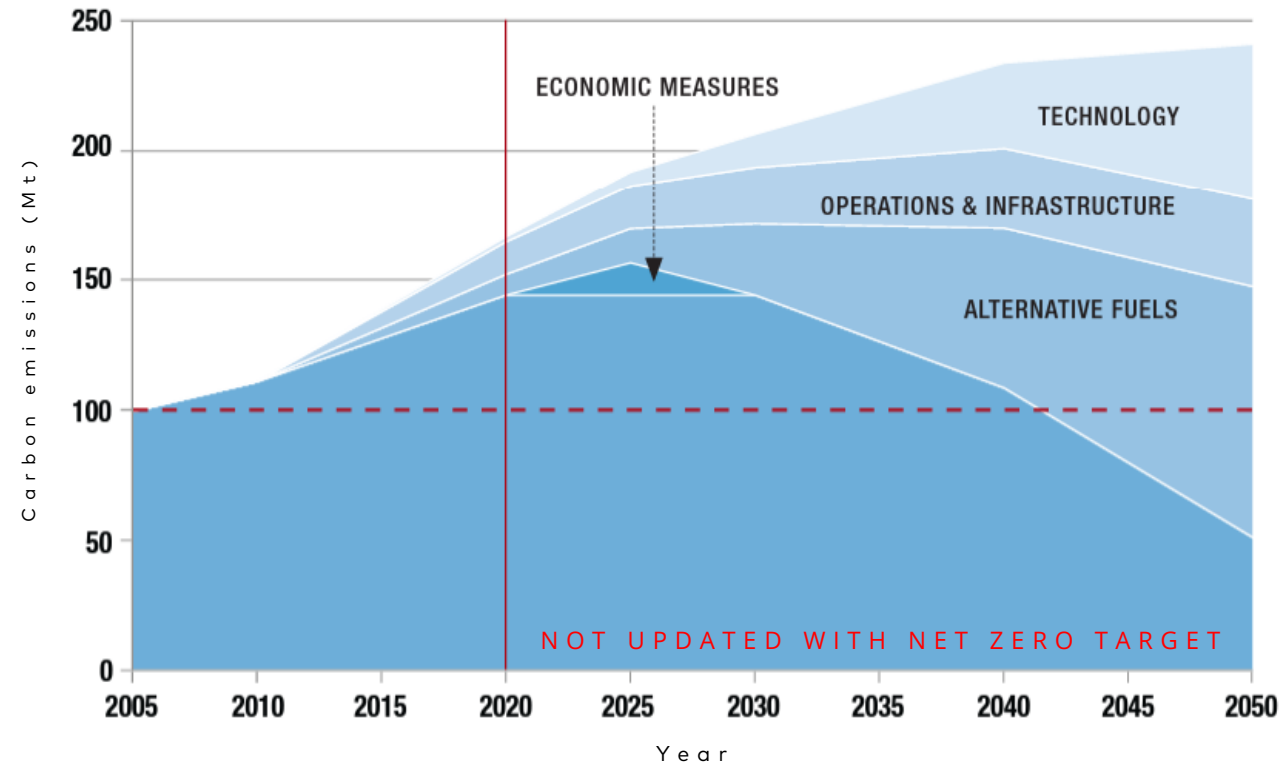


# IBAC-GAMA Commitment

On reducing the impact of Business Aviation on Climate Change

- 1 Carbon-neutral growth from 2020
- 2 An improvement in fuel efficiency of an average of 2% per year between 2020 and 2030
- 3 A goal of net zero by 2050

SOURCE: IBAC



This chart illustrates the relative contributions to emissions reduction from four key areas: technology, infrastructure and operations, alternative fuels, and market-based measures. Carbon neutral growth is achieved by 2020. Business aviation carbon emissions then stabilize and are projected to decline through 2050, at which point they reach 50% below 2005 levels in absolute terms.





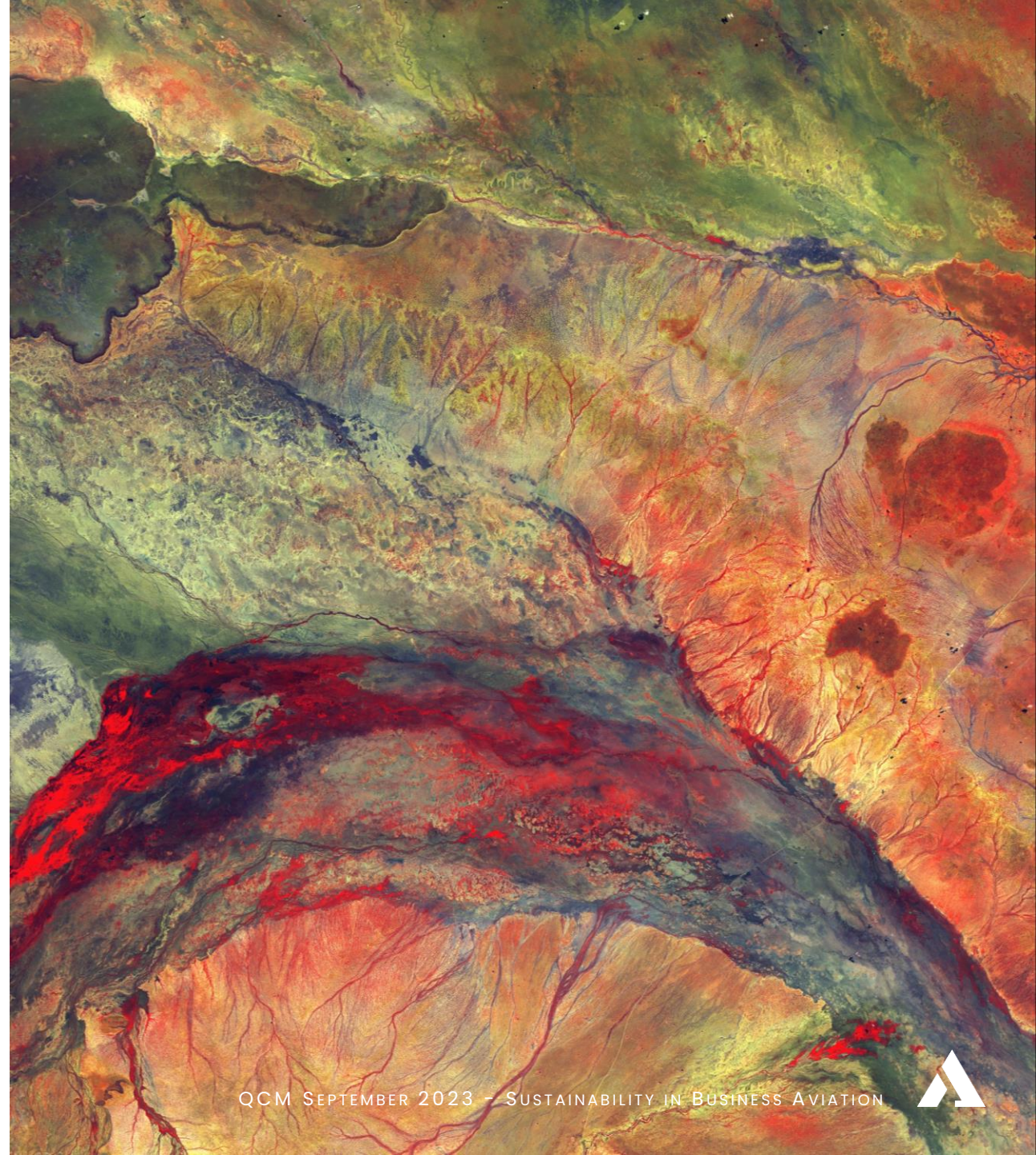
# The 4 pillars

Business Aviation\*  
commitment to Net Zero:

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- 1 Improved Technology,  
Fleet Modernization
- 2 Operation efficiency
- 3 Infrastructure
- 4 Market Based Measures

\*IBAC, Aviation Commitment to Net Zero





# Strategy for Decarbonization



IATA members:  
Net Zero by 2050

65% SAF

3% Operational Efficiencies

19% Offsets & Carbon capture

13% New Tech: Electric, Hydrogen



Net Zero by 2050

"SAF and initiatives like carbon-offsets will continue to be a key piece of the puzzle in carbon-emissions reduction" Director, International Business Aviation Council (IBAC)



Net Zero by 2050

2% annual increase in fuel efficiency till 2030

Sustainable Aviation Fuel (SAF)

Carbon Offsets



# State of the Industry

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# General Aviation is ahead in the game

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## In 2009 (Business Aviation):

Improving fuel efficiency 2% per year from 2010 until 2020

Achieving carbon-neutral growth from 2020

Reducing CO2 emissions 50% by 2050 relative to 2005

## General Aviation has the upper hand:

New innovations first tested by business and general aviation (Eurocontrol).

Innovations realized through Fleet Renewals: Shorter lifespan than commercial (16/23).





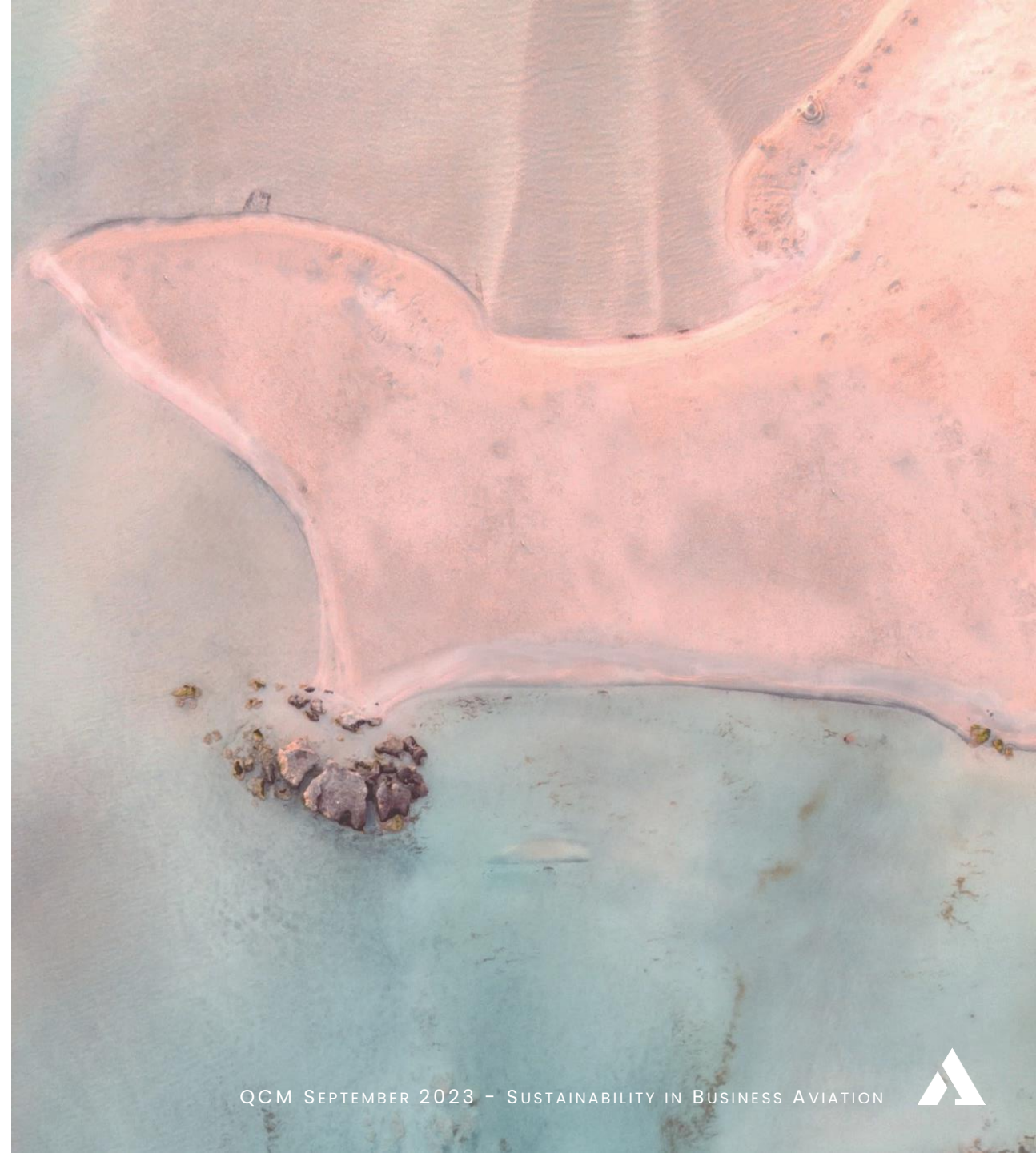
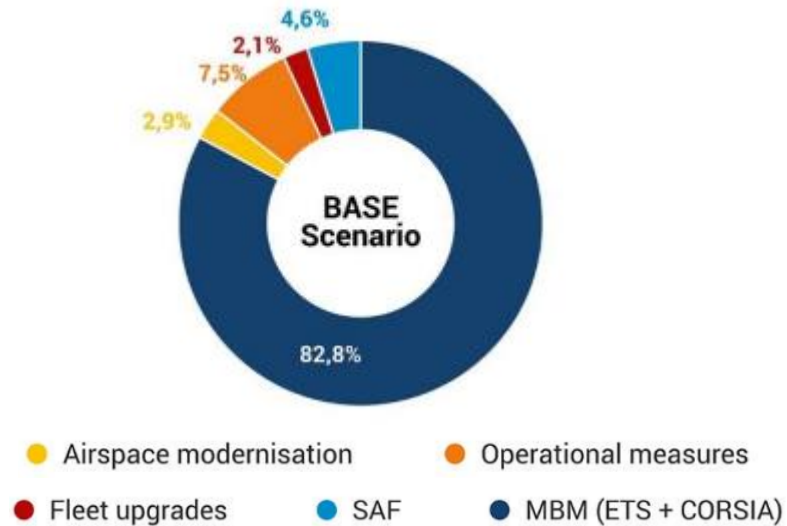
# 1 Fleet Modernization, Improved technologies

The 4 pillars of Business Aviation  
commitment to Net Zero

Accelerate the pace of fleet renewal by 3-7 years  
(Objective Skygreen)



**Airframe design  
Engine Evolution**



# 1 SAF Physical or Book and Claim

Whenever it is not possible to use SAF locally, operators can purchase **SAFc credits** instead. The actual SAF is burnt elsewhere.

Under Book and Claim, the SAF burnt is logged as standard jet fuel while the associated reduction in emissions are claimed by the buyer of the SAFc credit.



# 2 Infrastructure and 3 Operational Efficiency

The 4 pillars of Business Aviation  
commitment to Net Zero

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Airspace Modernization

Operational Improvements

- Reducing on-Engine distances
- Electrification of GSE
- Avionics Improvements
- Predictive Maintenance

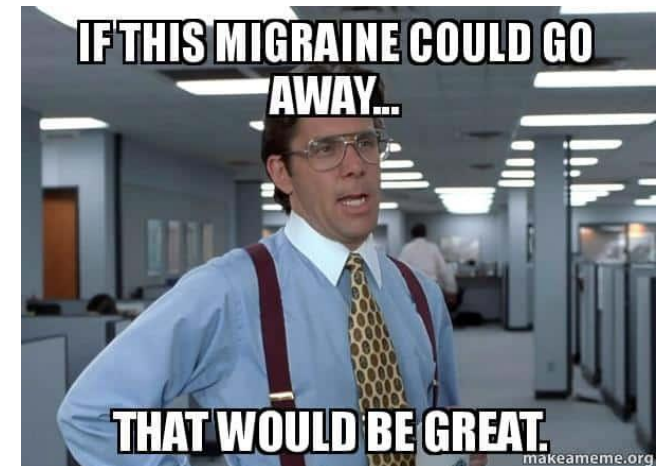
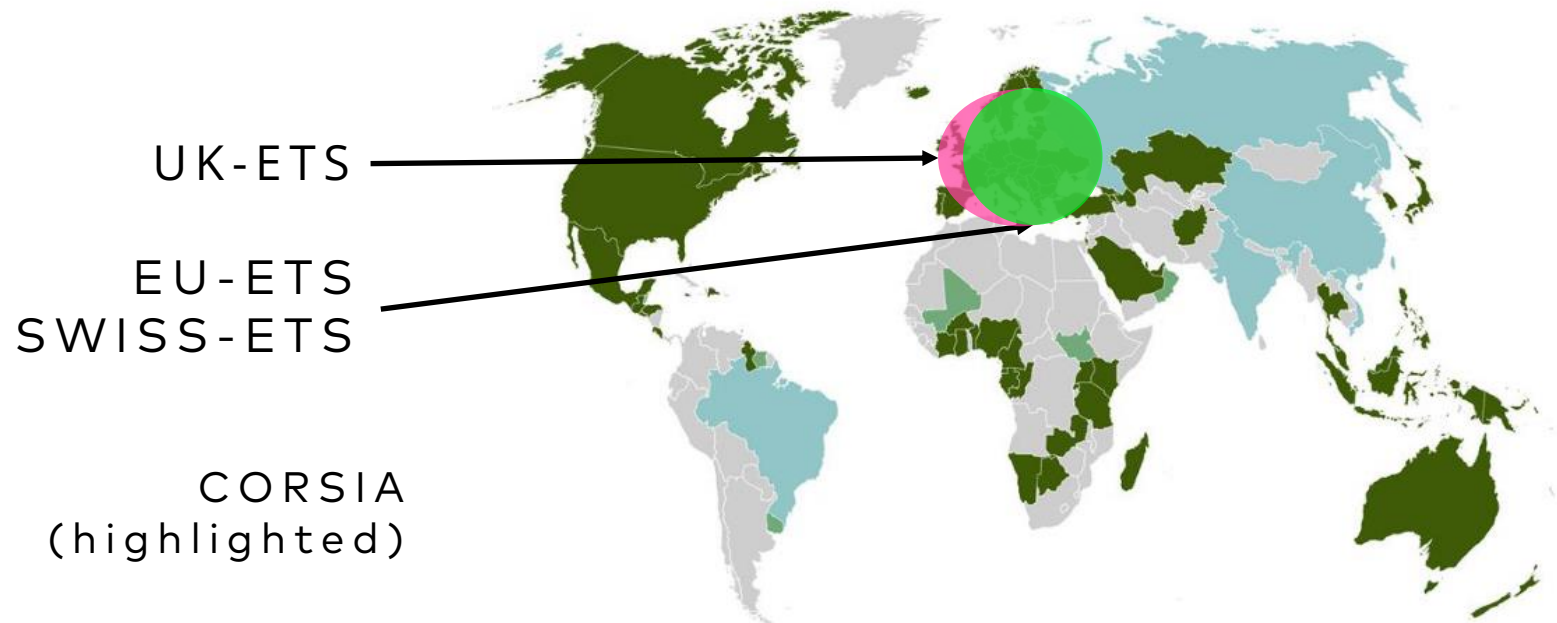
"Operational improvements and fleet upgrades by 2030 could **reduce airline fuel consumption by 13.4%- 24.1%** over the same period." (Skygreen)





## 4 Overlapping Emission Markets

There are multiple emission trading schemes applying to flights within and between the EU, UK, Switzerland and Internationally through CORSIA.



For each of them:

1. Gathering & Correcting data
2. Auditing and Reporting
3. Procurement of allowances





# SaaS platform for fleet emission management

Address the challenge of emission management in a singular platform: compliance management and reporting, compensation and reduction.

## STREAMLINE YOUR EMISSIONS COMPLIANCE BURDEN

- Segregate flights automatically across emission compliance markets
- Get notified of threshold exceedance automatically
- Extract emission compliance reports in one click
- Visualize all compliance markets status in a single dashboard

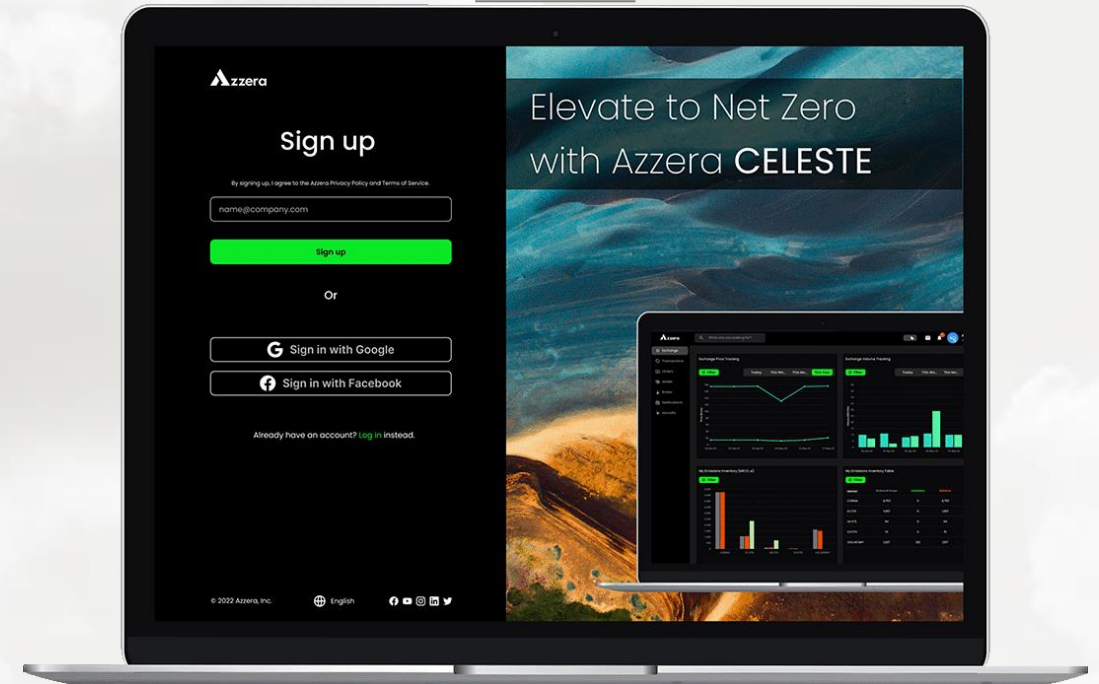
## MITIGATE EMISSIONS WITH PEACE OF MIND

- De-risk your climate contribution using Azzera's project ratings
- Access carbon credits and sustainable aviation fuel in a few clicks
- Secure your transactions through Azzera's quantum-ledger

## IMPROVE YOUR BOTTOMLINE

- Secure best prices of allowances through realtime tracking
- Resell excess carbon credits and allowances for profitability

## Azzera CELESTE



WWW.AZZERACELESTE.COM





# SUSTAINABILITY IN BUSINESS AVIATION

Thank you!



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# Questions & Answers