



ICAO Workshop on State Action Plans on CO<sub>2</sub> reduction activities

# Tracking of Aviation Emissions & Fuel Efficiency Improvements/ Market Based Measures

Michael Schneider  
AD Carbon Offset Business Development





- 2.6 billion passengers
- 43 million tonnes freight
- 33 million jobs
- 3.5 trillion \$\$ contribution to GDP
- Major driver of trade and tourism
- ~2% of global man-made CO<sub>2</sub> emissions

**Aviation is a key driver  
of socio-economic  
development**





# Environmental responsibility

## GROWTH LICENCE



This licence permits the growth of aviation in a responsible and sustainable manner, for the benefit of the global economy and citizens around the world.

NAME: GLOBAL AVIATION

D.O.B: 1-JAN-1914

L#: BZ975160

VALID: 31-DEC-2050

LT: 3, B, Z, ✈️, 🌍, 💡

AUTH: ICAO, YUL

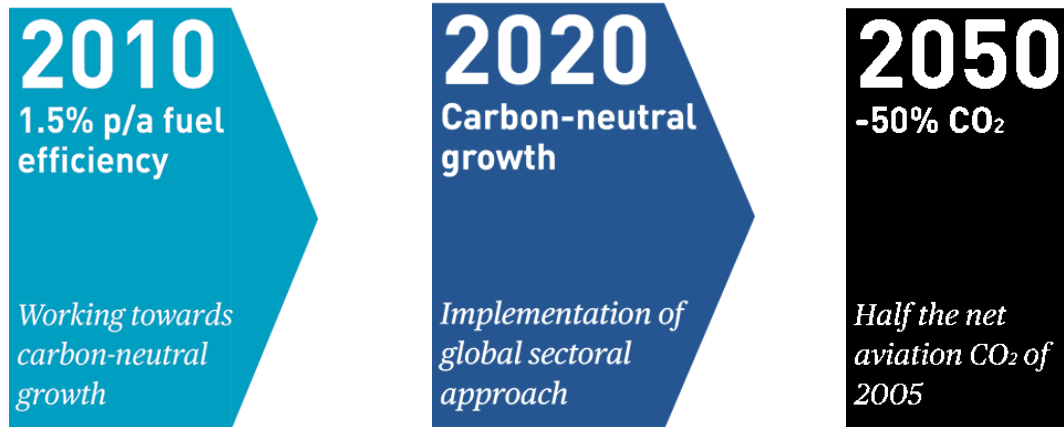
SIG:

*Wilbur Wright*



# What are we doing about it?

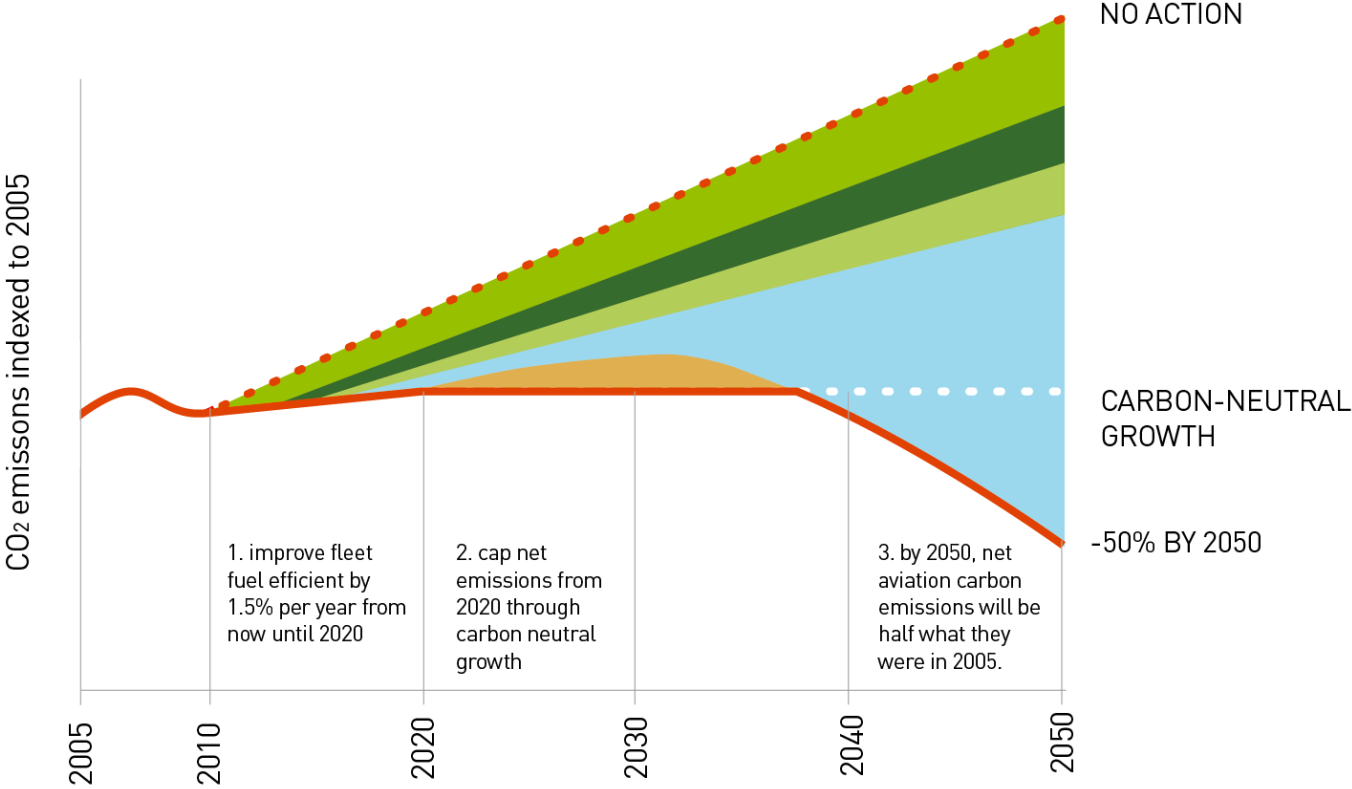
## ➤ We set targets



## ➤ We implement solutions



# OUR CLIMATE ACTION



Known technology, operations and infrastructure measures

Biofuels and additional new-generation technologies

Economic measures

Net emissions trajectory

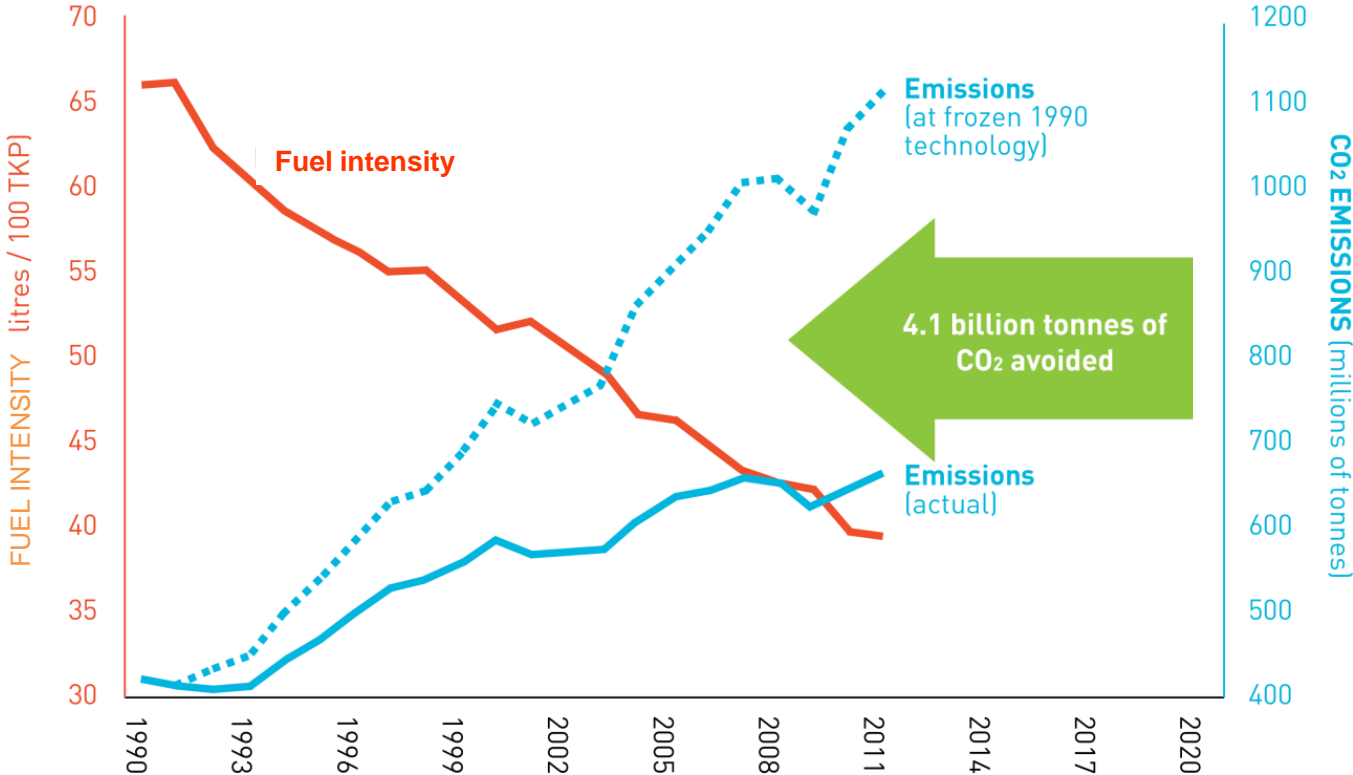
'No actions' trajectory

# Aviation emissions

**689 million**  
tonnes of CO<sub>2</sub> from air  
travel in 2012

**2%**  
of world CO<sub>2</sub>  
emissions

**70%+**  
more efficient than  
first jet aircraft



## How to Track Industry Efficiency Improvements?

- Reporting of fuel consumption has been made mandatory
- Quality of data?
- Guidance?
- Common protocol that ensures fuel data monitoring and recording is harmonized across the industry?
- Current fuel information systems vary between airline operators.
- Operating differences, some airlines more sophisticated than others.

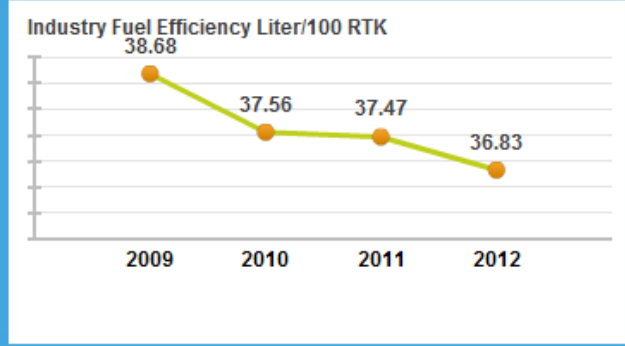
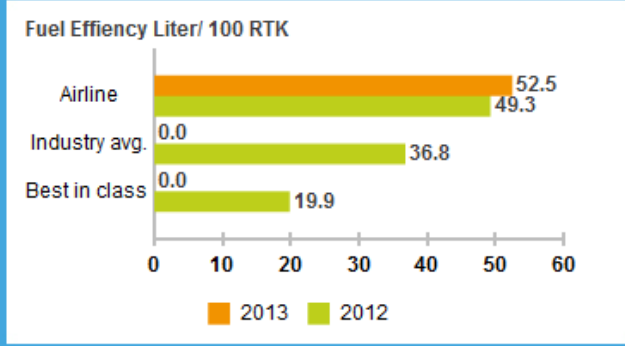


# Steps to Address the Challenge

- FRED was launched in Feb 2013
- Online reporting tool
- Functionalities:
  - Efficiency performance dashboard
  - Fuel measurement protocol - step by step tutorial
  - Fuel measurement methods (addressing airline capabilities)
  - Definitions & support functions
- Strong incentive to report data due to:
  - Blind ranking efficiency benchmark report
  - CO2 emissions reports
  - Airline efficiency Ltr/100 RTK
- IATA airline participation = 90% in 2013



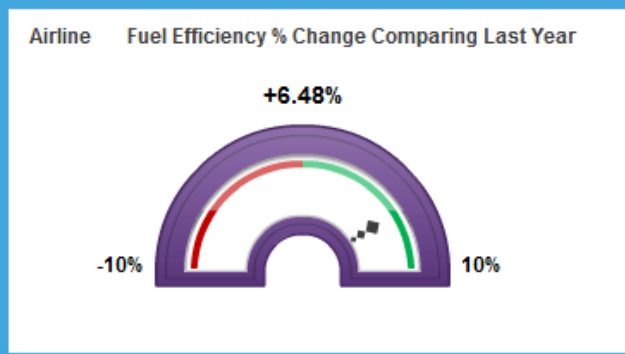
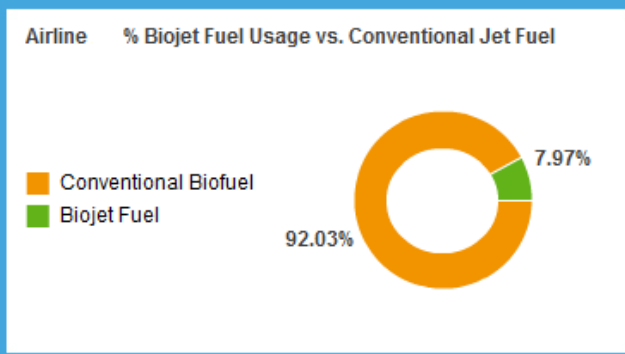




### Fuel Data Submission form

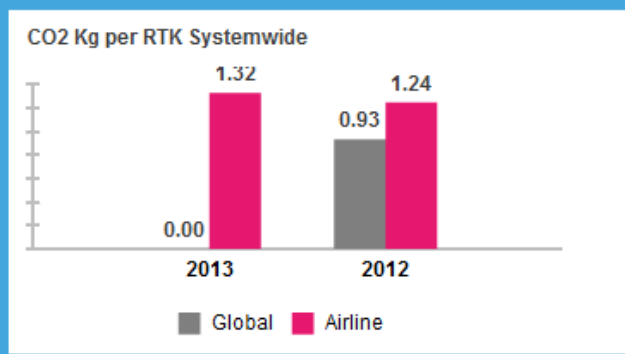
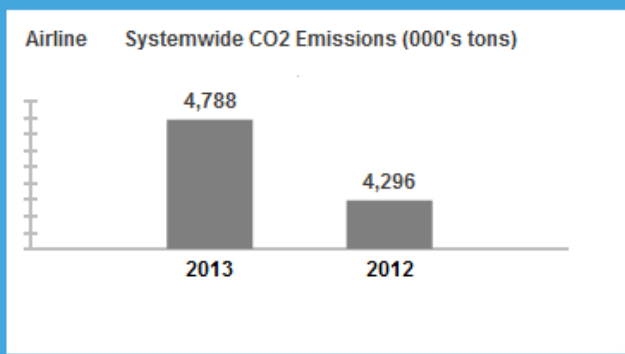
Submit data

### How to Measure & Report Fuel



### Fuel Definition

### Fuel Measurement Methods



### My Efficiency Ranking & CO2 Reports!

# A Global MBM for Aviation



- **Industry believes that a Global MBM under ICAO is the best way to close aviation’s “emissions gap”**
  
- **To be effective, the Global MBM must:**
  - Ensure environmental integrity
  - Minimise market and competitive distortion
  - Be administratively simple – especially for small operators
  - Be easy to implement for all States by 2020
  
- **Industry offsets mechanisms must also be recognized to reach post-2020 targets**




## Carbon Offsetting: Aviation

- Passengers (individuals and corporations) offset their share of a flight's emissions by investing in carbon reduction projects that generate carbon credits
- Voluntary offset market is worth more than US \$400 million
- No information-sharing between airlines and offset providers, difficult to determine the "real balance" of aviation's emissions.
- More than 30 IATA airlines have launched their own schemes using different carbon calculators and investing in emission reductions
- Voluntary offset programs operating with varying degree of success







# IATA Carbon Offset Program: TAP Screen Shots (1)



TAP PORTUGAL  
A STAR ALLIANCE MEMBER

## Book your flight online



DEUTSCH DUTCH **ENGLISH** ESPAÑOL FRANÇAIS ITALIANO PORTUGUÊS

 SEARCH  
 SELECT  
 PURCHASE  
 CONFIRMATION

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### Itinerary Review

Please review your flight details carefully. Intermediate stops and other important information will be shown if applicable.

Flight	Product	From	To	Departure	Arrival	Cabin	Miles
TP0424 		Lisbon	Paris (CDG)	10 Jun, 07h20	10 Jun, 10h55	Economy	458

Departure from Lisbon on Terminal 1. Arrival at Paris on Terminal 1.

#### AIRPORT CODES:

CDG - Charles de Gaulle

Please check your flight details at left.

[Know all about TAP Products](#)

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### Offset your Carbon Emissions


Please be aware that your carbon offset contribution isn't mandatory and can not be refunded once it is paid. TAP does not benefit from this Programme.

Total Distance for this itinerary (km): 1471  
CO2 emission for this itinerary (tonnes): 0.189

**Total offset cost 2,59 EUR** per person

Which Project am I helping?

Add the contribution amount to my flights




Help the Environment and reduce the impact from your flights by offsetting your carbon emissions. Your money will be donated to U.N. certified emission reduction projects.






# IATA Carbon Offset Program: TAP Screen Shot (2)





**TAP PORTUGAL**  
A STAR ALLIANCE MEMBER


## Book your flight online

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SEARCH

  
SELECT


  
PURCHASE

  
CONFIRMATION

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### Itinerary R

Please review your flight

Flight	Pr
TP0424 	

Departure from Lisbon

### Aquarius Hydroelectric Project

The Aquarius Hydroelectric Project is a small-scale, renewable energy project in Brazil. The project is a grid connected run-of-river hydropower plant (with no dam or flooding) at Itiquira, Mato Grosso State, Brazil and is registered under the United Nations Framework Convention on Climate Change (UNFCCC) Clean Development Mechanism (CDM). The project has an installed capacity of 4.2 MW and utilises the water of the Correntes river. It partly replaces fossil fuel-based electricity generation and is expected to reduce greenhouse gas (GHG) emissions by approximately 15,000 tonnes CO2 equivalent per year. The independent verification report confirmed that, in the period between 15 December 2006 and 31 December 2007, the project reduced emissions by 19,024 tonnes CO2 equivalent.

**AIRPORT CODES:**  
CDG - Charles de Gaulle

Please check your flight details at left.

[Know all about TAP Products](#)

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### Offset you

Please be aware that you are participating in the Carbon Offset Programme.

Total Distance for this flight is 458 Miles  
CO2 emission for this flight is 19,024 tonnes

**Total offset cost 2,51**


Which Project am I helping?


Add the contribution amount to my flights

**Miles**

458

on this

Close 



Help the Environment and reduce the impact from your flights by offsetting your carbon emissions. Your money will be donated to U.N. certified emission reduction projects.

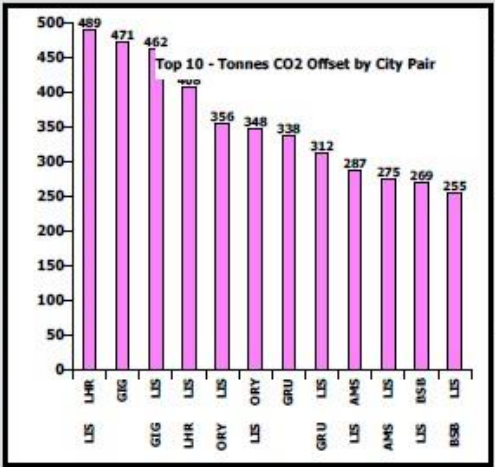
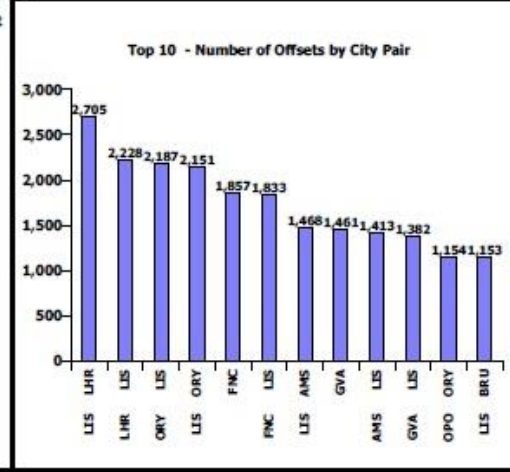
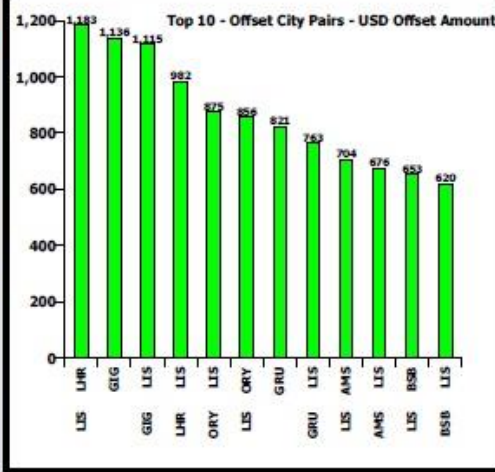


# 2013 Airline Carbon Offset Report - TAP Air Portugal

Number of offsets per destination	From	To	Km Offset	CO2 Kg Offset	USD Offset
2,705	LIS	LHR	4,307,683	489,415	1,183
2,228	LHR	LIS	3,563,358	407,715	982
2,187	ORY	LIS	3,253,368	355,528	875
2,151	LIS	ORY	3,185,829	347,928	856
1,857	LIS	FNC	1,801,091	210,230	511
1,833	FNC	LIS	1,777,883	207,920	505
1,468	LIS	AMS	2,747,976	286,705	704
1,461	LIS	GVA	2,208,052	248,809	611
1,413	AMS	LIS	2,637,096	274,669	676
1,382	GVA	LIS	2,089,710	235,530	574
1,154	OPO	ORY	1,403,936	161,568	393
1,153	LIS	BRU	1,990,602	206,480	503
1,152	BRU	LIS	1,985,445	206,476	503
1,115	ORY	OPO	1,357,058	156,400	382
1,067	LIS	FOO	2,047,192	208,620	509
1,025	FOO	LIS	1,847,778	200,340	486
1,007	OPO	LGW	1,296,640	167,232	401
983	LGW	OPO	1,263,360	161,784	387
928	BCN	LIS	948,235	126,808	312
904	LIS	BCN	914,405	122,354	301
895	LIS	ZRH	1,591,252	170,337	420
872	LIS	HAM	1,931,600	205,972	513
856	HAM	LIS	1,892,000	201,545	502
827	ZRH	LIS	1,463,676	156,397	388
780	LIS	FRA	1,485,792	154,560	380
737	FRA	LIS	1,405,124	145,920	357

**70,000 Offsets**  
**150m km**  
**15m kg CO2 saved**

606	LIS	MUC	1,224,745	128,702	316
590	GIG	LIS	5,302,780	462,284	1,115
585	LIS	FAO	128,920	31,748	77
575	MUC	LIS	1,157,255	119,364	291
549	LIS	ODL	1,524,050	150,588	367
549	OPO	GVA	719,739	90,861	228
519	GVA	OPO	680,409	85,116	212
508	OSL	LIS	1,410,439	138,306	337
469	LIS	DUS	873,747	106,141	260
457	DUS	LIS	855,117	103,689	254
451	LIS	PRG	1,020,024	110,463	261
427	LIS	GRU	3,729,019	338,008	821
421	PRG	LIS	955,296	101,760	239
413	LGW	LIS	655,080	86,408	210
408	VCE	LIS	801,306	77,714	185
392	GRU	LIS	3,442,783	311,998	763
392	LIS	FOR	2,389,775	215,803	527
384	FOR	LIS	2,282,938	204,621	501
382	LIS	BLQ	698,274	80,212	192
381	LIS	VCE	745,713	72,254	174
370	RLD	LIS	677,948	76,388	182



**Offset Statistics by Travel Class**

Travel Class	USD Offset amount
Economy	34,302
Premium	2,262

94% Economy, 6% Premium

Travel Class	CO2 Kg Offset
Economy	14,096,388
Premium	943,022

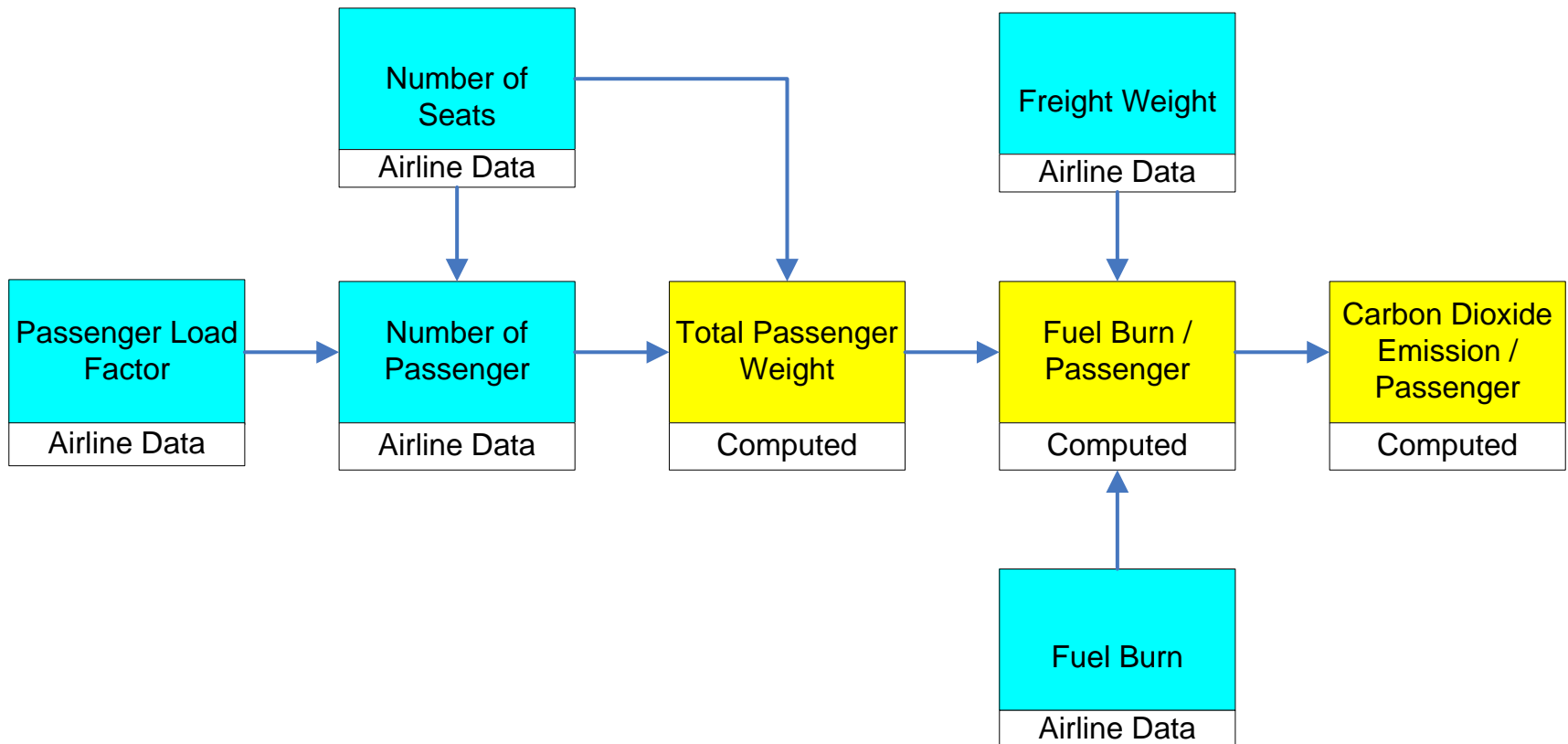
94% Economy, 6% Premium

Travel Class	Km Offset
Economy	140,290,823
Premium	4,928,691

97% Economy, 3% Premium



# IATA's Carbon Calculator Tool



## Carbon Offset Projects/Carbon Credits

- Wide choice of offset projects available
- Criteria for Project Selection
  - Price
  - Availability
  - Robustness
  - Compatibility with carbon requirements under a future global mechanism
- Best Practices for Offset Project Selection
  - Use of high quality carbon credits
    - **CERs - CDM projects under Kyoto Protocol**
    - **VERs - Gold Standard, VCS+**
  - Non controversial renewable projects, exclusion of HFC, large dam, flaring , nuclear etc.
  - No mark-up, profits or premium on carbon credits.





## ICAO Resolution 38-18, October 2013

“...voluntary carbon offsetting schemes constitute a practical way to offset CO<sub>2</sub> emissions, and invites States to encourage their operators wishing to take early actions to use carbon offsetting, particularly through the use of credits generated from internationally recognized schemes such as the CDM.”



17



2 April 2014





ICAO

ENVIRONMENT

# Thank you for your attention

