



The Role of Statistics in Aviation Environmental Protection

Jane Hupe

Chief, Environment Branch





ICAO Environmental Goals

- limit or reduce the number of people affected by significant aircraft **noise**
- limit or reduce the impact of aviation emissions on **local air quality**
- limit or reduce the impact of aviation **greenhouse gas emissions** on the global climate





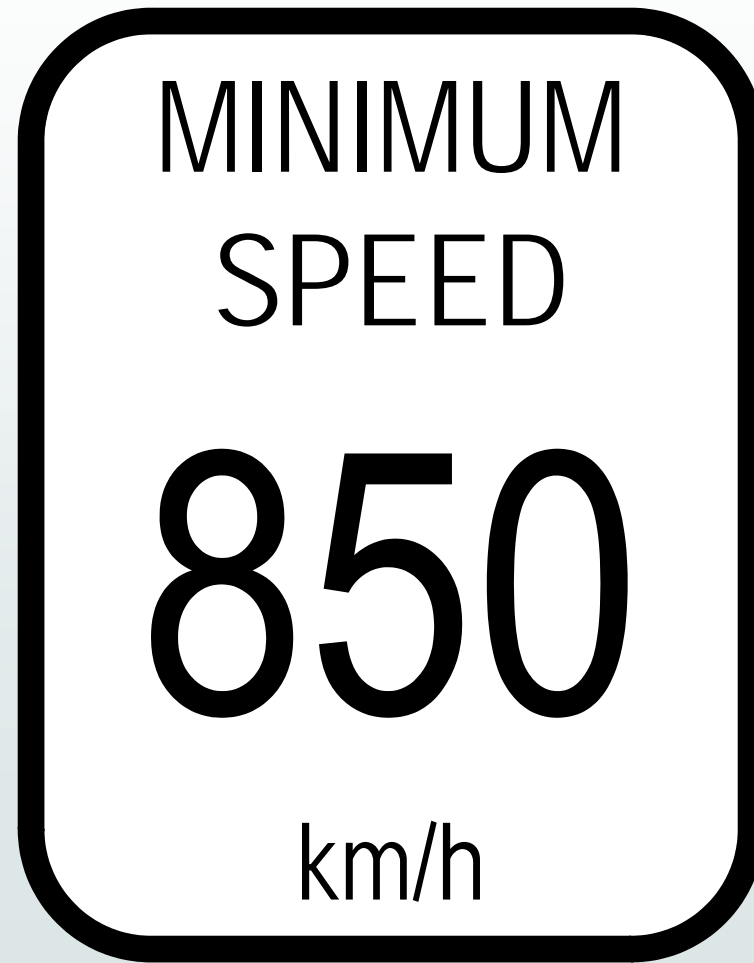
Quantification and Mitigation

- Approach to quantification through:
 - Ensure highest quality of data on aviation noise and emissions
 - Data Collection
 - Forecasting
 - Modelling
- Approach to mitigation through:
 - Technology and Standards
 - Operational measures
 - Market based measures; and
 - Alternative Fuels





Aviation and the Environment BY THE NUMBERS





Aviation and the Environment BY THE NUMBERS



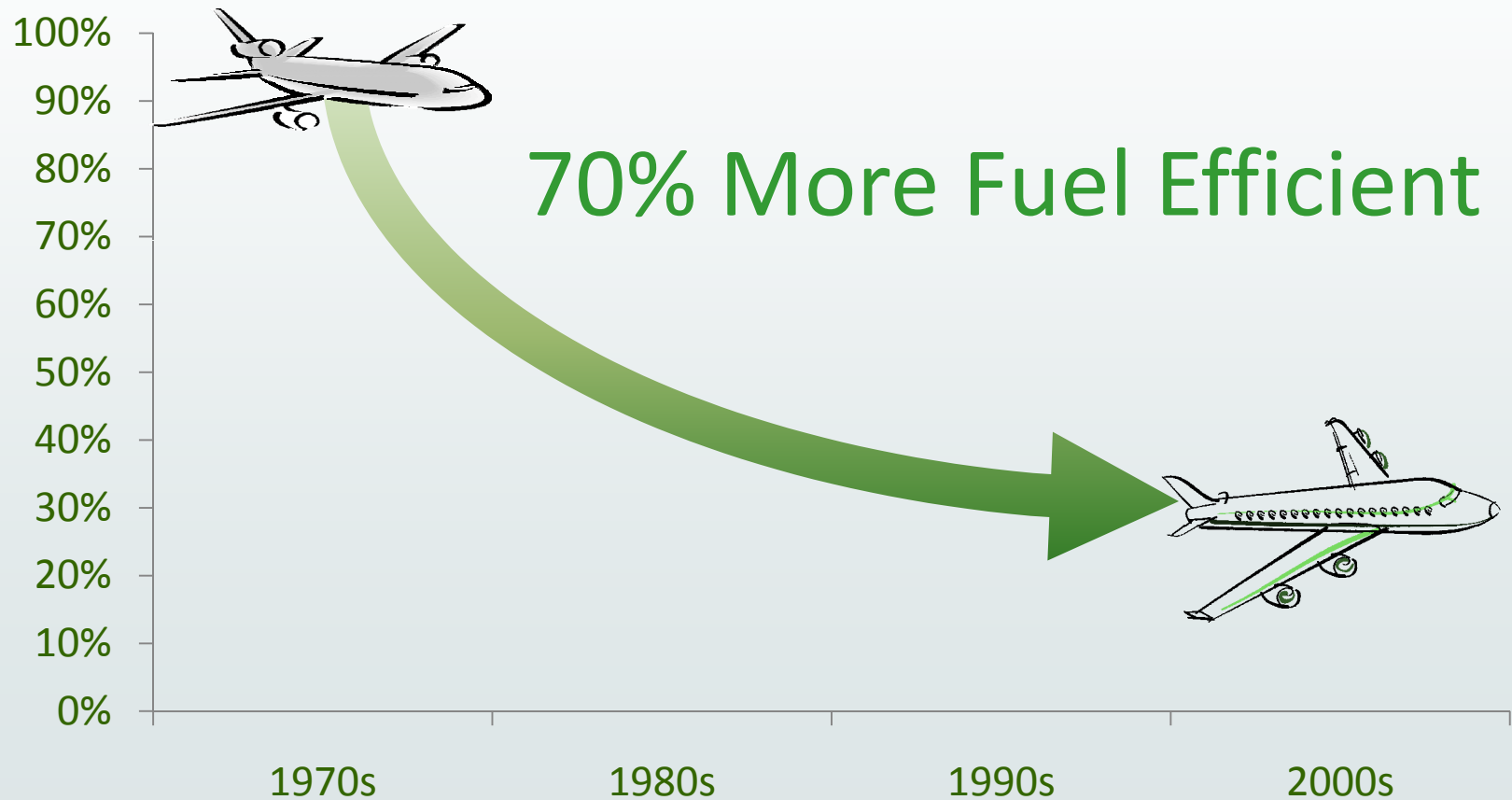
2.3 Billion passengers
carried in 2009

4.7% annual growth



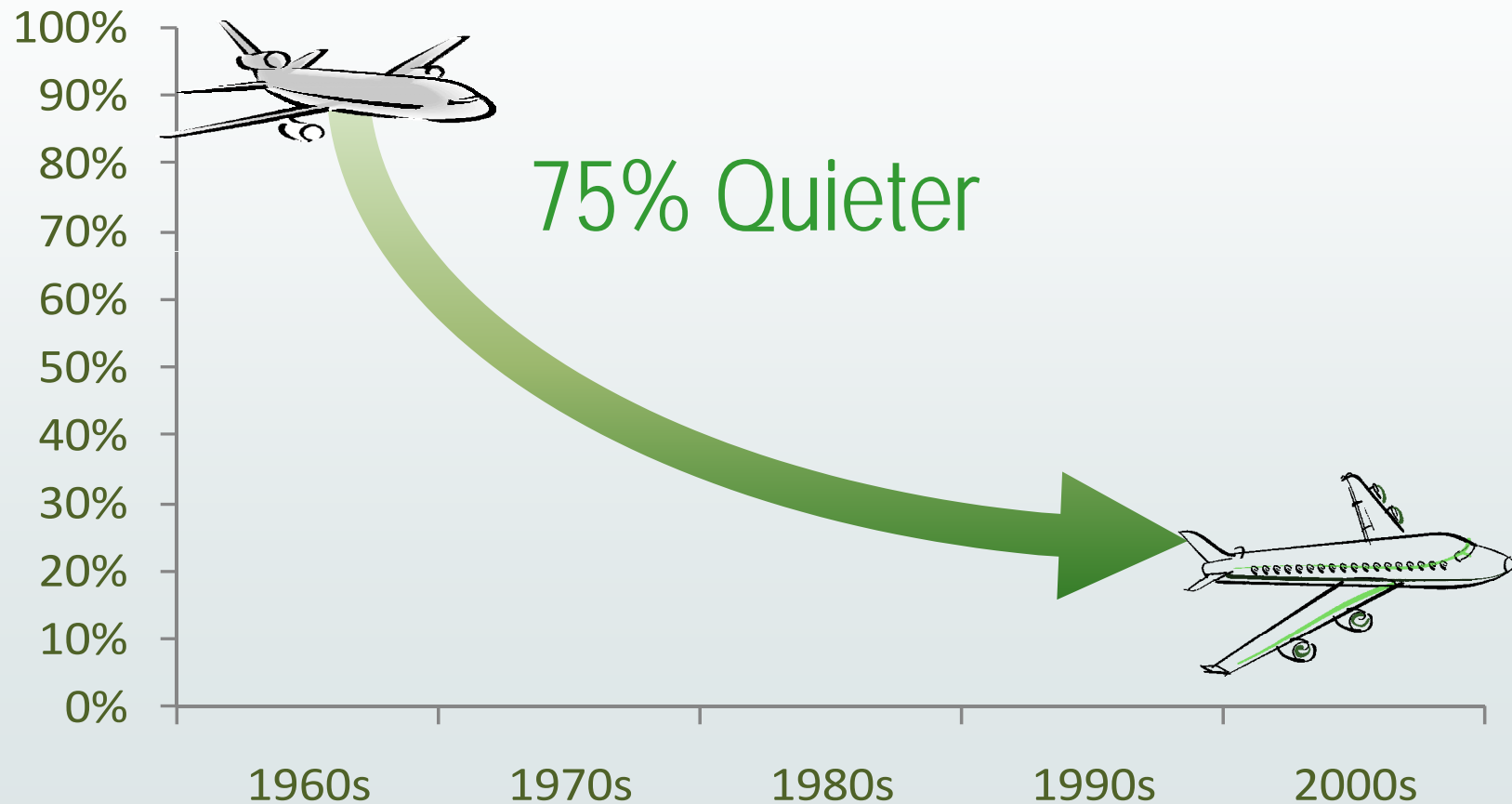


Aviation and the Environment BY THE NUMBERS





Aviation and the Environment BY THE NUMBERS

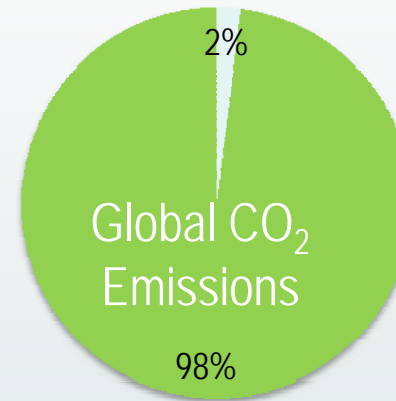




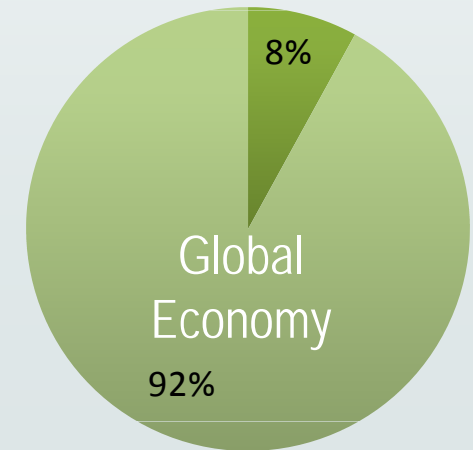
Aviation and the Environment BY THE NUMBERS



2% of Global CO₂



8% of Global Economy





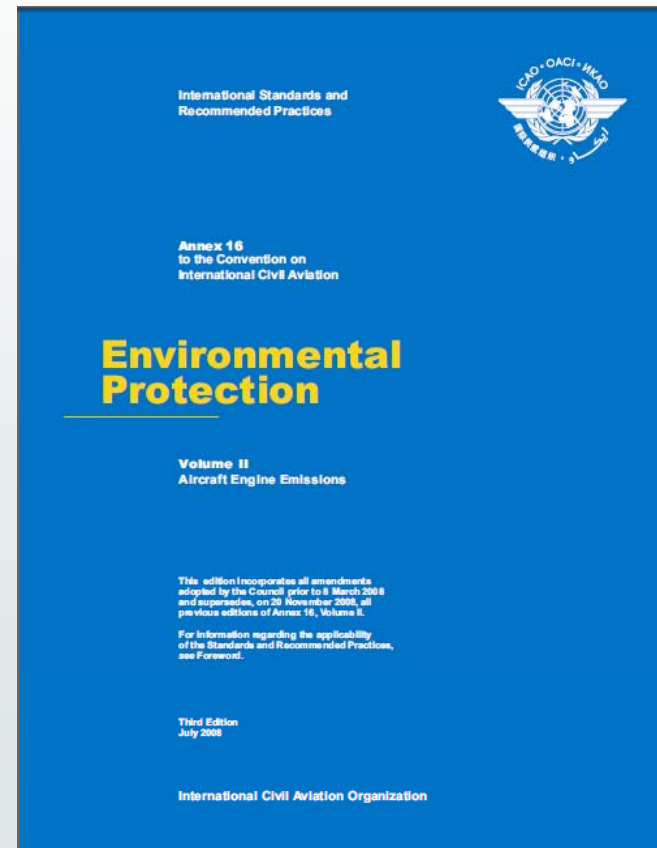
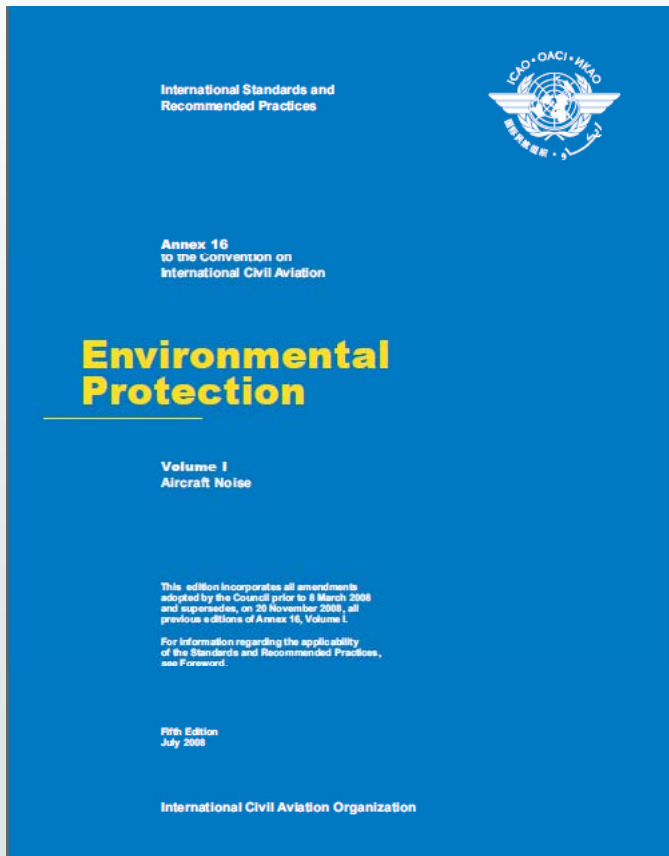
ICAO Data and Statistics

- Key global information only available from ICAO
 - Aviation traffic
 - Passenger and freight load factors
 - ICAO/CAEP Noise dB
 - ICAO/CAEP Aircraft Engine Emissions Databank





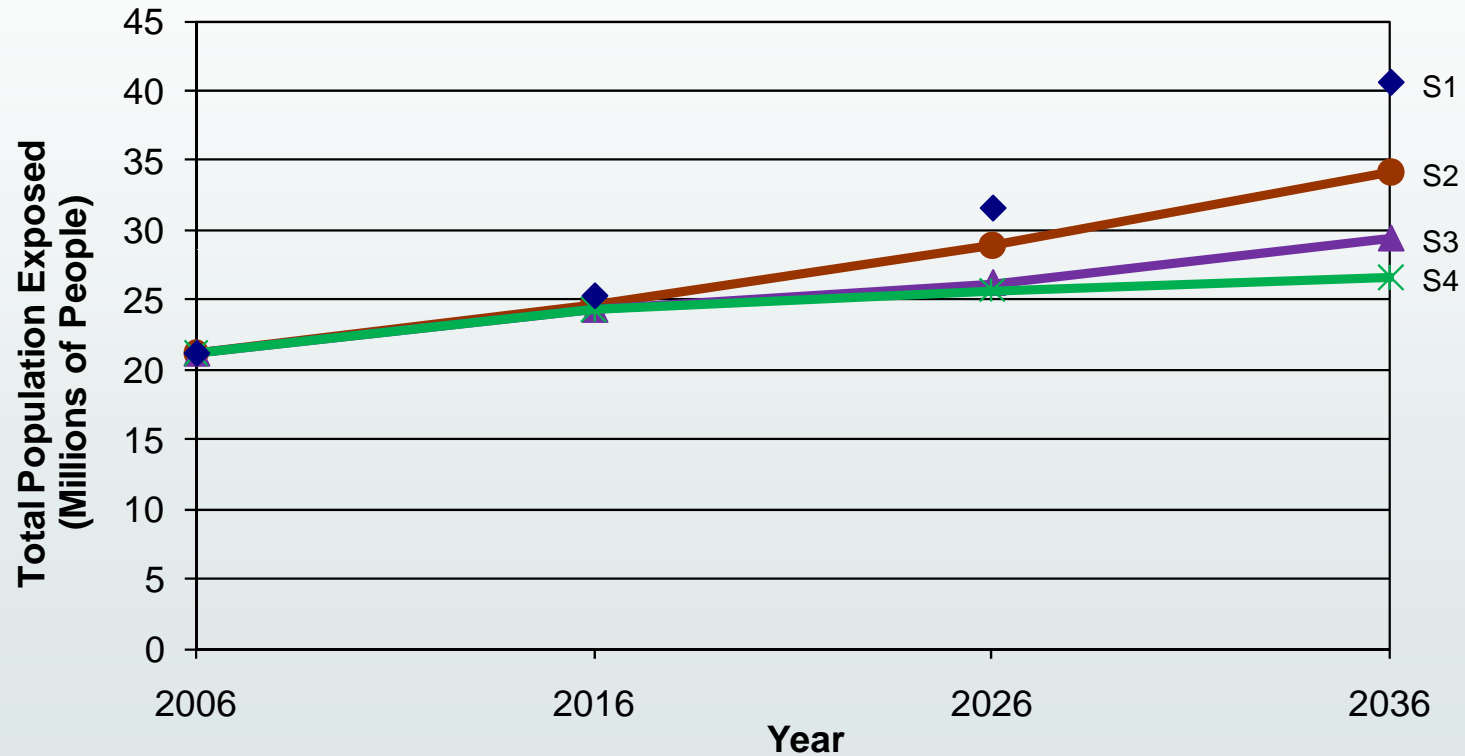
Robust Data and Statistics Enable





Robust Data and Statistics Enable

Global Population Exposed to Aircraft Noise Above 55 DNL



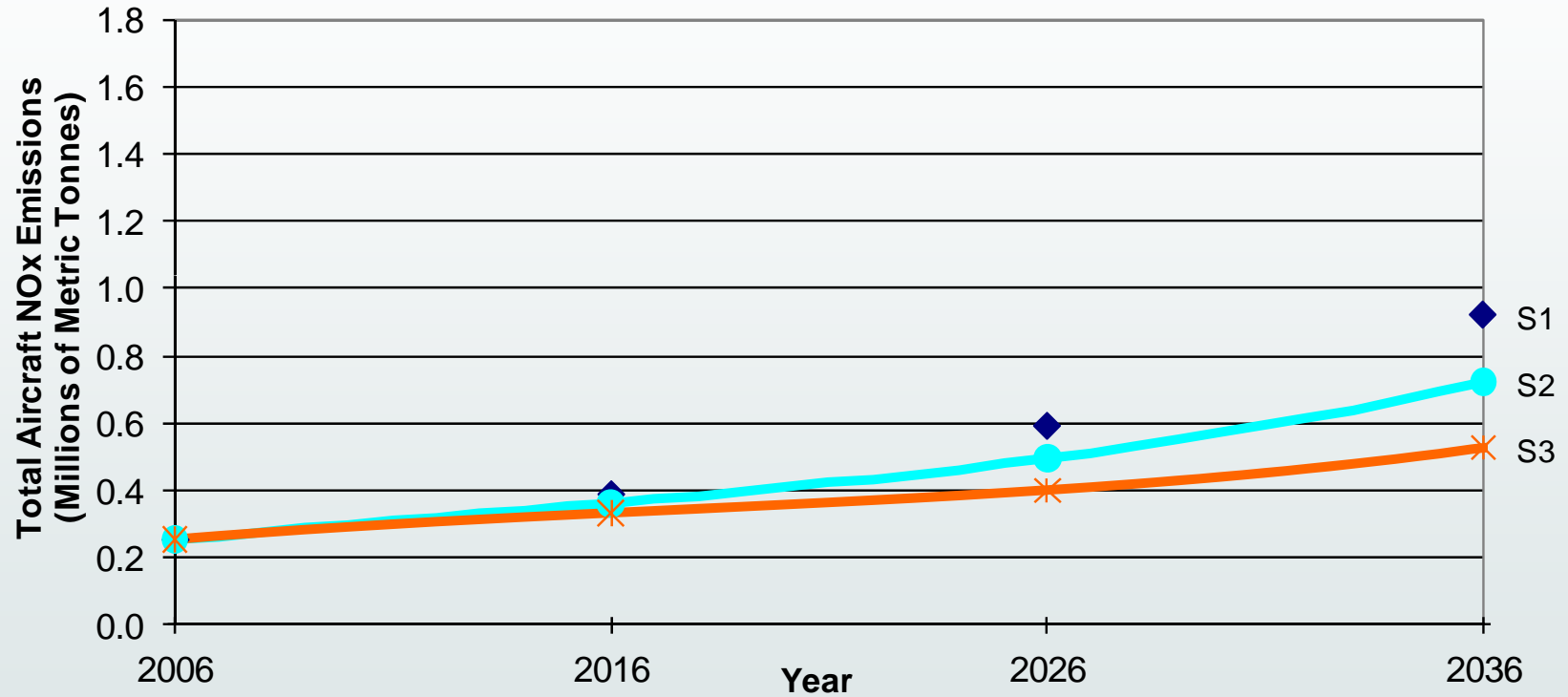
Note: Population exposed relative to 2006 baseline.
Population levels are assumed constant from 2006 to 2036.





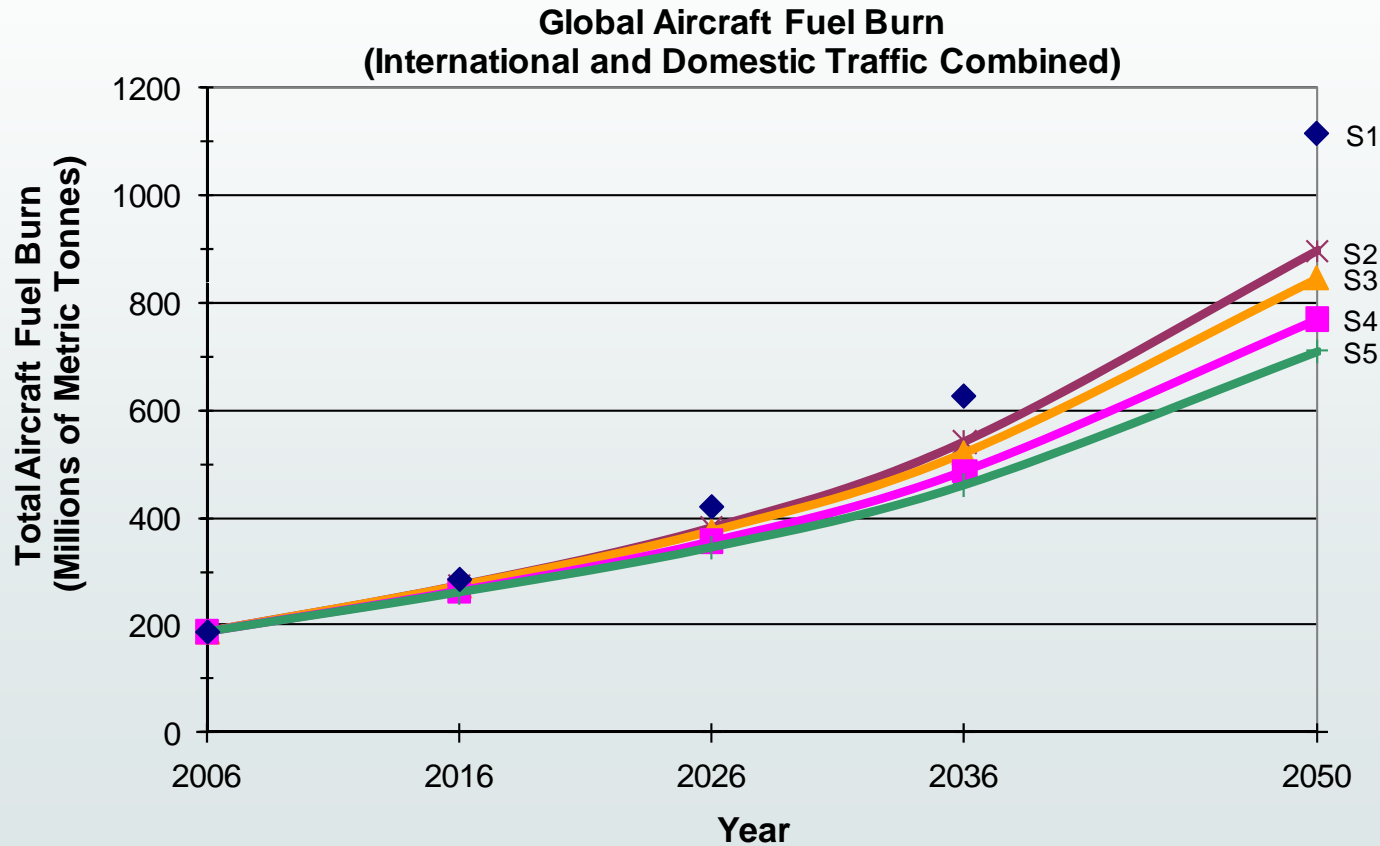
Robust Data and Statistics Enable

Global Aircraft NOx Below 3,000 Feet





Robust Data and Statistics Enable



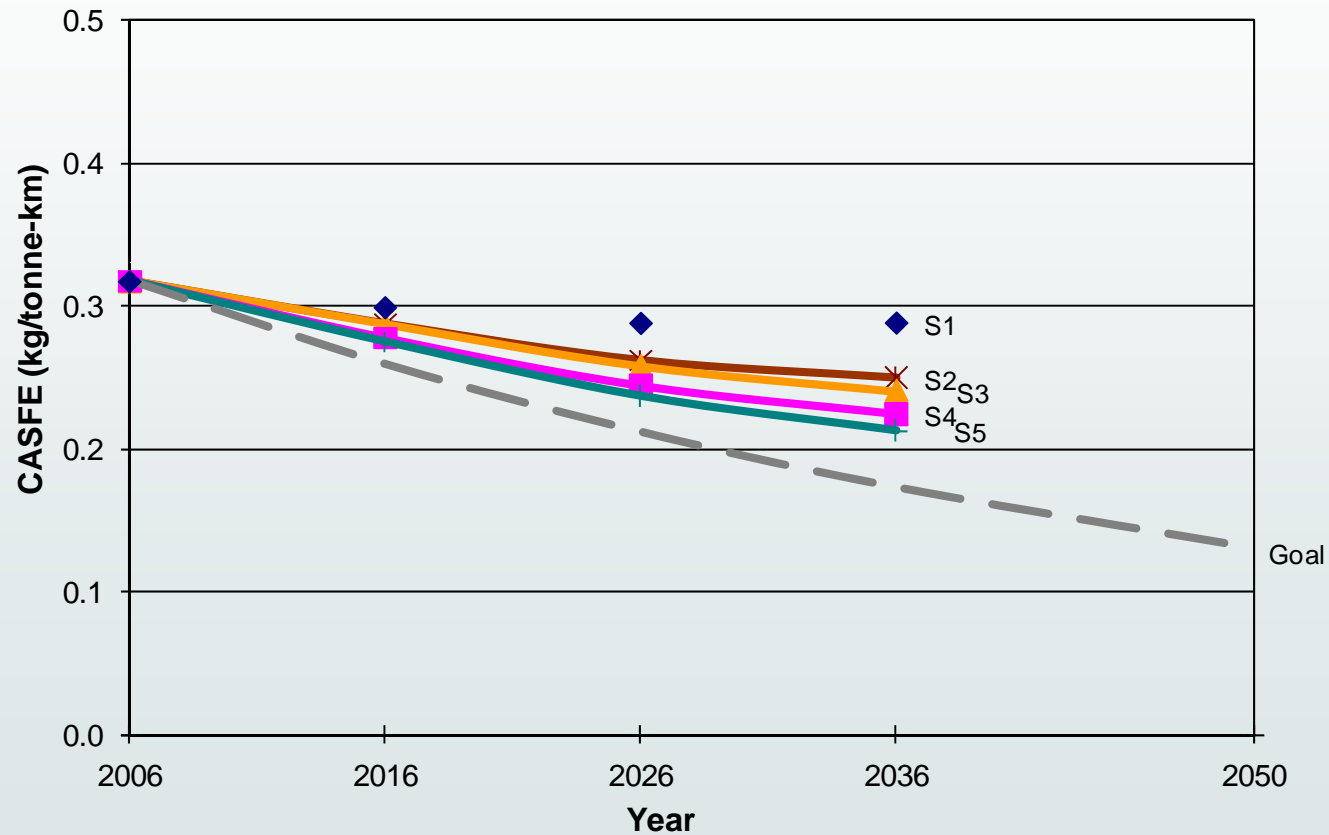
Note: Results were modelled for 2006, 2016, 2026, and 2036, then extrapolated to 2050.





Robust Data and Statistics Enable

Global Commercial Aircraft System Fuel Efficiency (CASFE) Full-Flight Results



Note: Lower CASFE values = more efficient operations





Robust Data and Statistics Enable

Home - Microsoft Internet Explorer provided by ICAO ICT
http://www2.icao.int/en/carbonoffset/Pages/default.aspx

International Civil Aviation Organization
Home English

Carbon Emissions Calculator

Click here to read the ICAO Methodology FAQ
Help us to improve the calculator

ICAO Public > Home > Carbon Emissions Calculator

ICAO has developed a methodology to calculate the carbon dioxide emissions from air travel for use in offset programmes.

The ICAO Carbon Emissions Calculator allows passengers to estimate the emissions attributed to their air travel. It is simple to use and requires only a limited amount of information from the user.

The methodology applies the best publicly available industry data to account for various factors such as aircraft types, route specific data, passenger load factors and cargo carried.

For additional information, please see the accompanying methodology to the ICAO Carbon Emissions Calculator.

You can find your carbon footprint by entering your city of origin and destination

From: MONTREAL (YUL) To: CANCUN (CUN)

My ticket is: Economy Class Premium Class (Economy Premium, Business, or First)

Number of passengers: 1 One-Way Round Trip

Restart Calculate Add a Flight

Trusted sites 100%





Robust Data and Statistics Enable

Home - Microsoft Internet Explorer provided by ICAO ICT

http://www2.icao.int/en/carbonoffset/Pages/default.aspx

File Edit View Favorites Tools Help

Home

You can find your carbon footprint by entering your city of origin and destination.

Here is your footprint

1 passenger, flying round trip from MONTREAL (YUL) to CANCUN (CUN) (5,916 Km), in Economy Class, generates about **440.11 Kg of CO₂**

[More Details](#)

[New Calculation](#)

[Help us improve the calculator](#)

Disclaimer

This calculator uses aggregated modelled data to estimate the typical emissions associated with a given route between any airport pair. As this data is indicative only and is not representative of any particular airline, flight, or aircraft type, it is not suitable as a comparison tool.

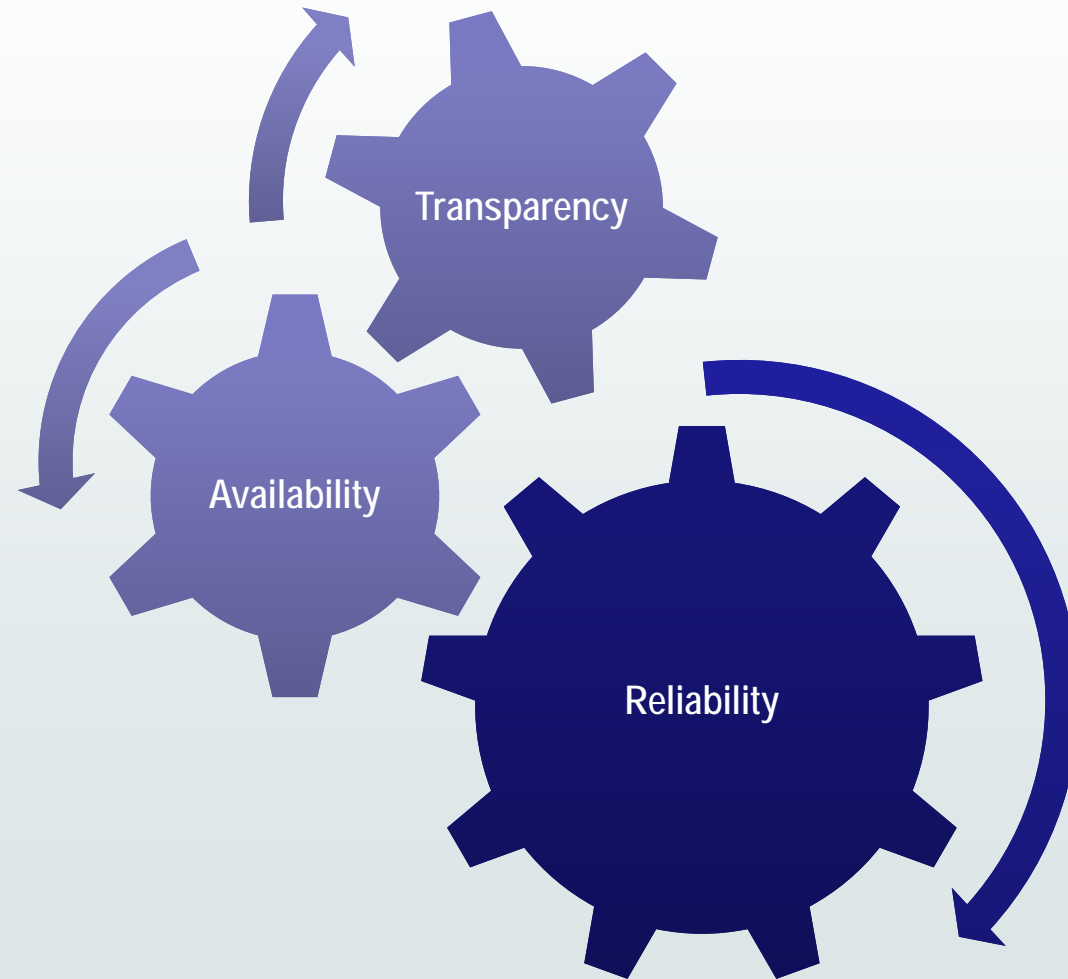
Copyright 1995-2010, ICAO All Rights Reserved

Done Trusted sites 100%





Robust Data ... also





Assembly Resolution A37-19



ASSEMBLY - 37TH SESSION

28 SEPTEMBER - 8 OCTOBER 2010
ICAO HEADQUARTERS, MONTRÉAL

- States requested data from ICAO throughout discussions
- Sound policies based on sound data





Elements of A37-19 Requiring Data and Statistics

- CO₂ Standard for aircraft
- MRV - global international aviation GHG emissions
- Compile information in relation to achieving global goals (2%, carbon neutral growth, etc.)
- and others





Final Thoughts

ICAO's work on environmental protection:
Sound policies based on sound data... for more
than 40 years

The result:

ICAO is the first United Nations Agency to lead a sector
in the establishment of a globally harmonized
agreement for addressing its CO₂ emissions





For more information

www.icao.int

