



# ICAO Circular 303 Operational Opportunities for Fuel and Emissions Reductions

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# Outline



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# Circular Objectives



- Document the environmental benefits resulting from the use of current aircraft and infrastructure, and the related benefits of infrastructure improvements; and
- Demonstrate that the more efficient use of infrastructure and equipment is an effective means to reduce aviation emissions



# Background



## CAEP/4 agreed work program

- Task was specified to identify, disseminate, and to the extent practicable, ensure use of the industry's fuel conservation/emissions reduction protection.
- Focus on operational measures that achieve near term reductions in aircraft emissions including in-flight and ground level operation



# Principles of Fuel Savings



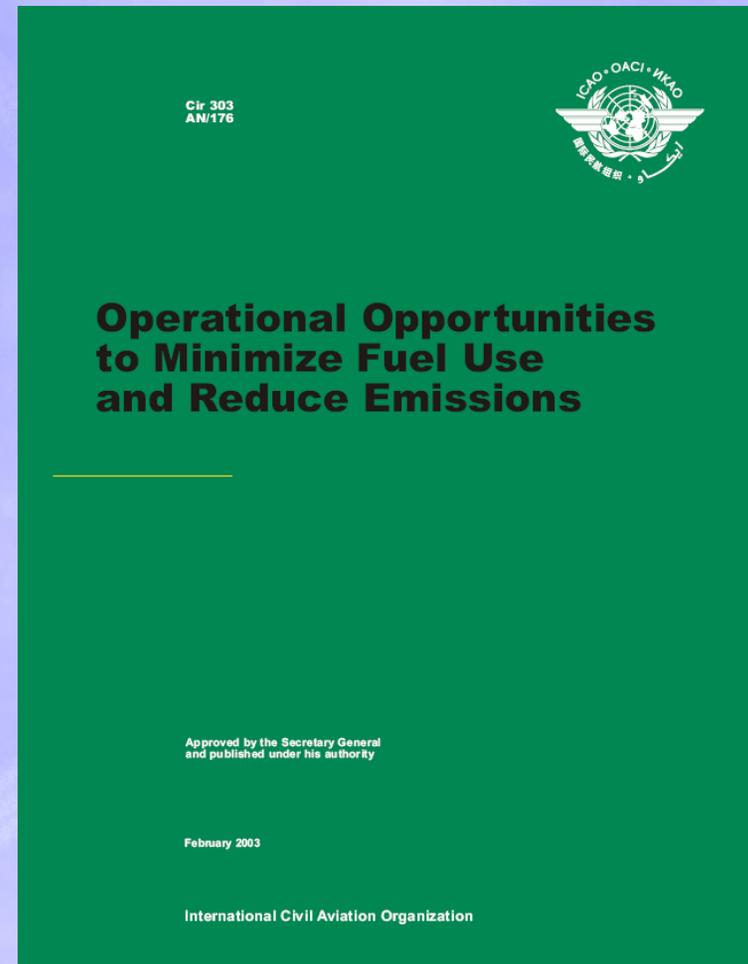
- Fly the most fuel efficient aircraft type for the sector
- Taxi the most fuel efficient route
- Fly the most fuel efficient route
- Fly at the most fuel-efficient speed
- Operate at the most economical altitude
- Maximise the aircraft's load factor
- Minimise the empty weight of the aircraft
- Load the minimum fuel to safely complete the flight
- Minimise the number of non-revenue flights
- Maintain a clean and efficient airframe and engines



# Circular Structure



- Background
- Airport Operations
- Aircraft Environmental Performance
- Maintenance
- Weight Reduction
- Air Traffic Management (ATM)
- Non-Revenue Flying
- Flight/Route Planning and Other Operational Issues
- Take-off and Climb
- Cruise
- Descent and Landing
- Load Factor Improvement
- Implementation





# Circular Findings



At airports,

- Aircraft are only responsible for about half of the emissions produced, on average.
- Other main emissions sources and fuel consumers are ground transportation and ground support equipment (GSE).
- Airports vary greatly in terms of their current situation and their potential for appropriate improvements.



# Circular Findings



- Good maintenance processes and procedures essential to assure optimum fuel consumption.
- Operational measures
  - Weight reduction
  - Reduce Non Revenue Flying
  - Weight Reduction
  - Flight Planning
- Infrastructure
  - CNS/ATM Implementation



# Stakeholders and Implementation



- Achieving significant improvements requires actions all stakeholders including:
  - Manufactures
  - Airports
  - Operators
  - Air Traffic Services provider
  - Government Regulators
  - Others (eg MET, land use policymakers, etc.)



# Additional Information



- Detailed presentations have been made at three previous Workshops on Aviation Operational Measures for Fuel and Emissions Reductions:
  - Montreal, Canada, 20-21 September 2006
  - Ottawa, Canada, 5-6 November 2002
  - Madrid, Spain, 21-22 May 2002
- Refer to the ICAO Website for access to the presentations:  
<http://www.icao.int/icao/en/env/workshops.htm>