

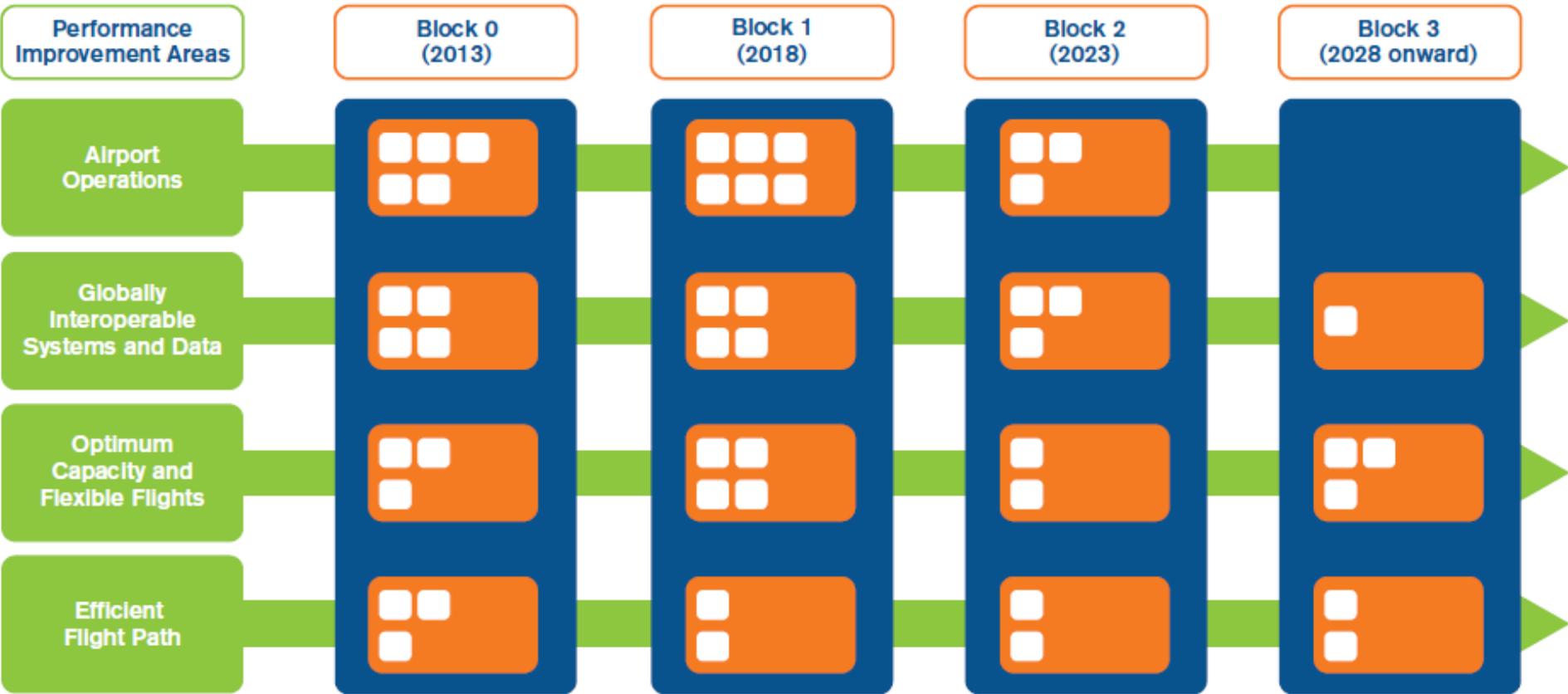
# Fuel and CO<sub>2</sub> Benefits from ASBU Block 0

Environmental Modelling Unit  
ICAO Air Transport Bureau



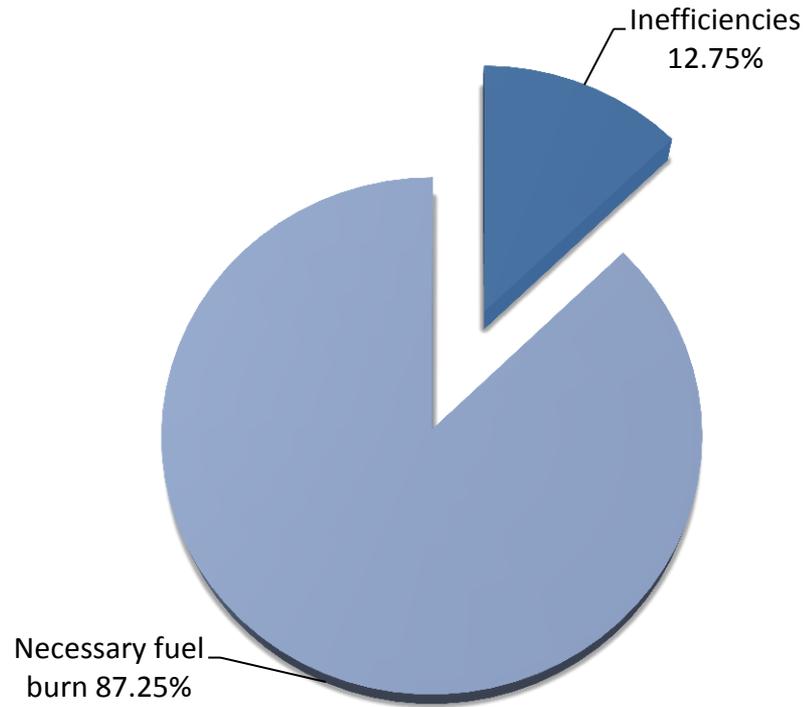


# Aviation System Block Upgrades





In 2010, the global ATM system was between 87.25% and 89.75% efficient.



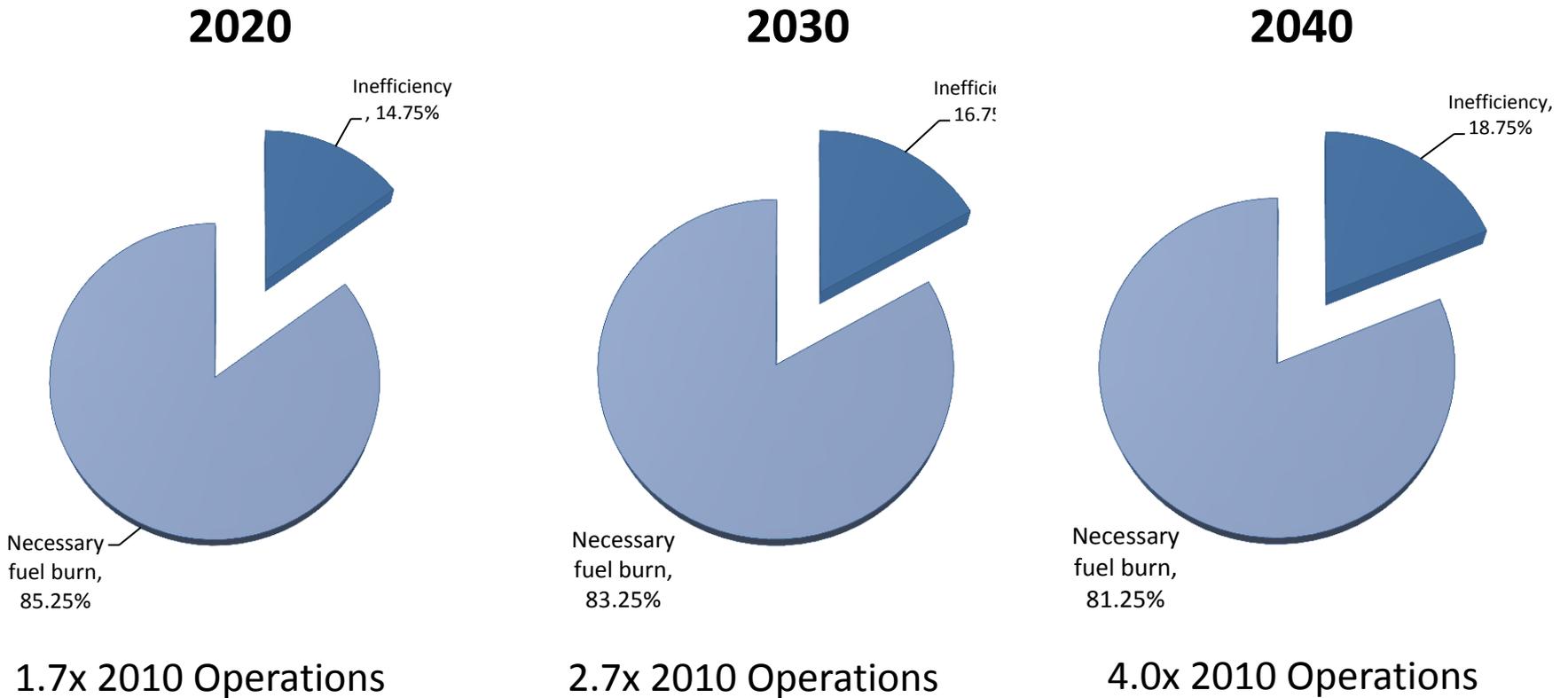
Source: IEOGG 2013





# Operational Efficiency in a Static ATM System up to 2040

If no ATM improvements are made, system efficiency will degrade by 2% every decade.



Source: IEOGG 2013 and CAEP/9 Forecast



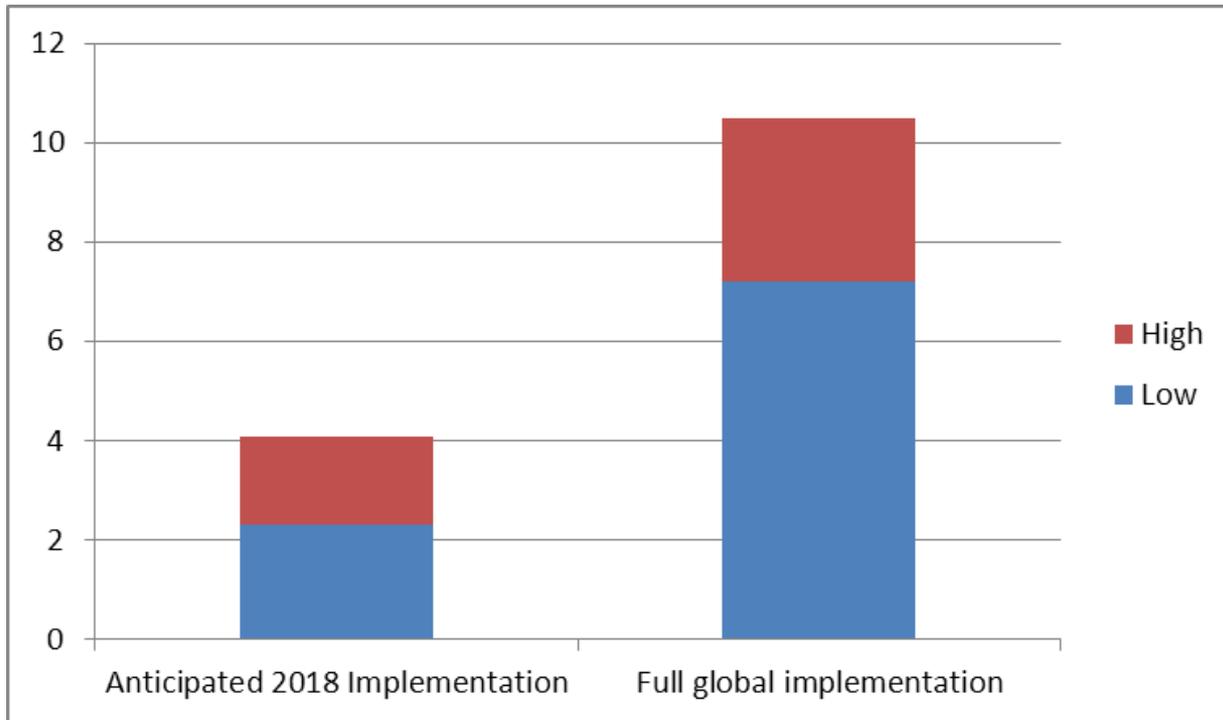
# CAEP International Aviation Net CO<sub>2</sub> Emissions Trends





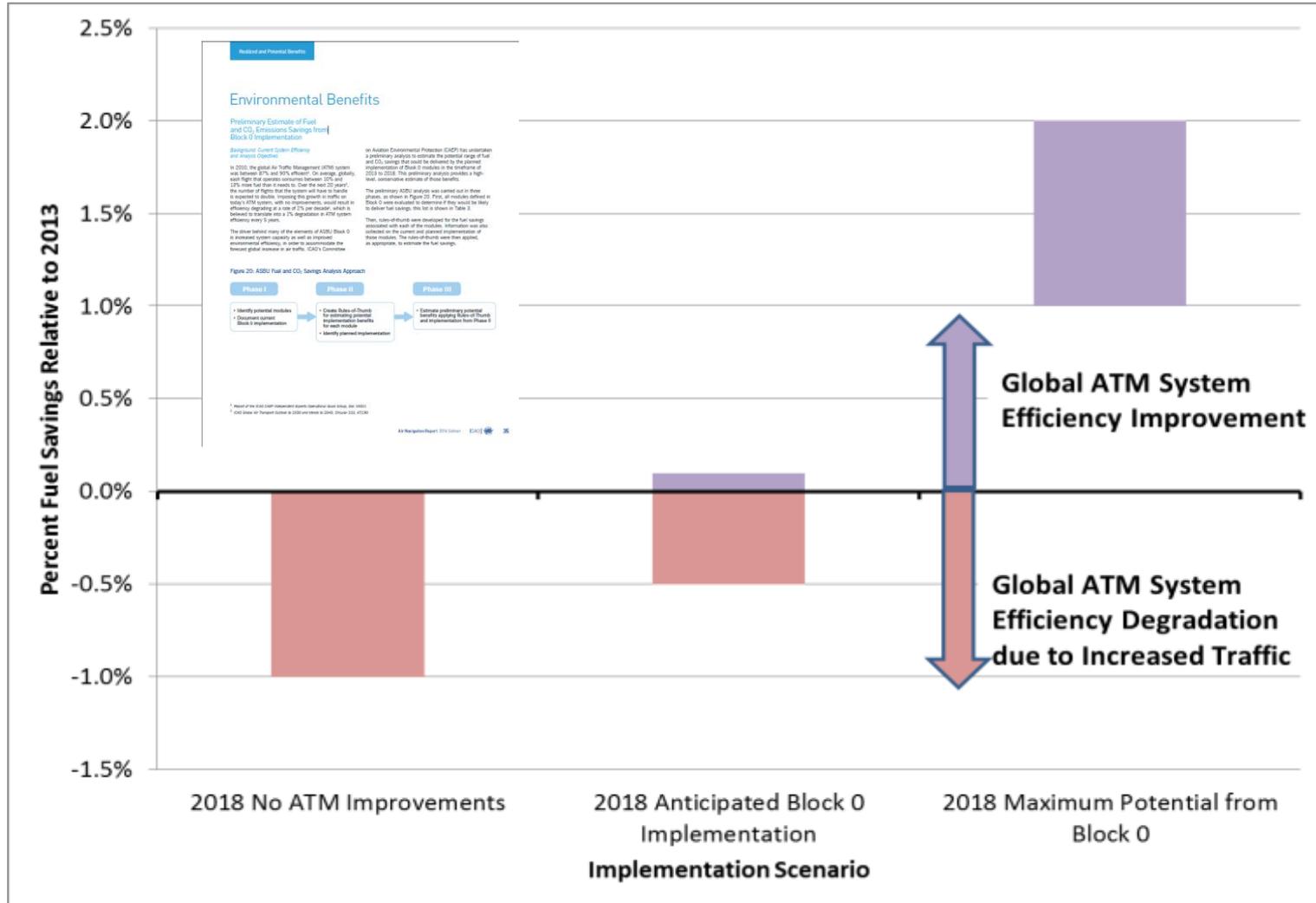
| Module         | Title                                 | Benefits   |
|----------------|---------------------------------------|--|
| <b>B0-CDO</b>  | Continuous Descent Operations         | <b>Reduced fuel burn on arrival</b>                              |
| <b>B0-FRTO</b> | Free Route Operations                 | <b>Reduced in-flight fuel burn</b>                               |
| <b>B0-RSEQ</b> | Runway Sequencing                     | <b>Reduced airborne holding and taxi-out time</b>                |
| <b>B0-CCO</b>  | Continuous Climb Operations           | <b>Reduced fuel burn during climb</b>                            |
| <b>B0-NOPS</b> | Network Operations                    | <b>Reduced fuel burn in all phases of flight, including taxi</b> |
| <b>B0-TBO</b>  | Trajectory Based Operations           | <b>Reduced in-flight fuel burn</b>                               |
| <b>B0-WAKE</b> | Wake Turbulence Separation            | <b>Reduced taxi-out time and reduced in-flight fuel burn</b>     |
| <b>B0-ACDM</b> | Airport Collaborative Decision Making | <b>Reduced taxi-out time</b>                                     |
| <b>B0-ASUR</b> | Alternative Surveillance              | <b>Reduced in-flight fuel burn</b>                               |
| <b>B0-OPFL</b> | Optimum Flight Levels                 | <b>Reduced in-flight fuel burn</b>                               |

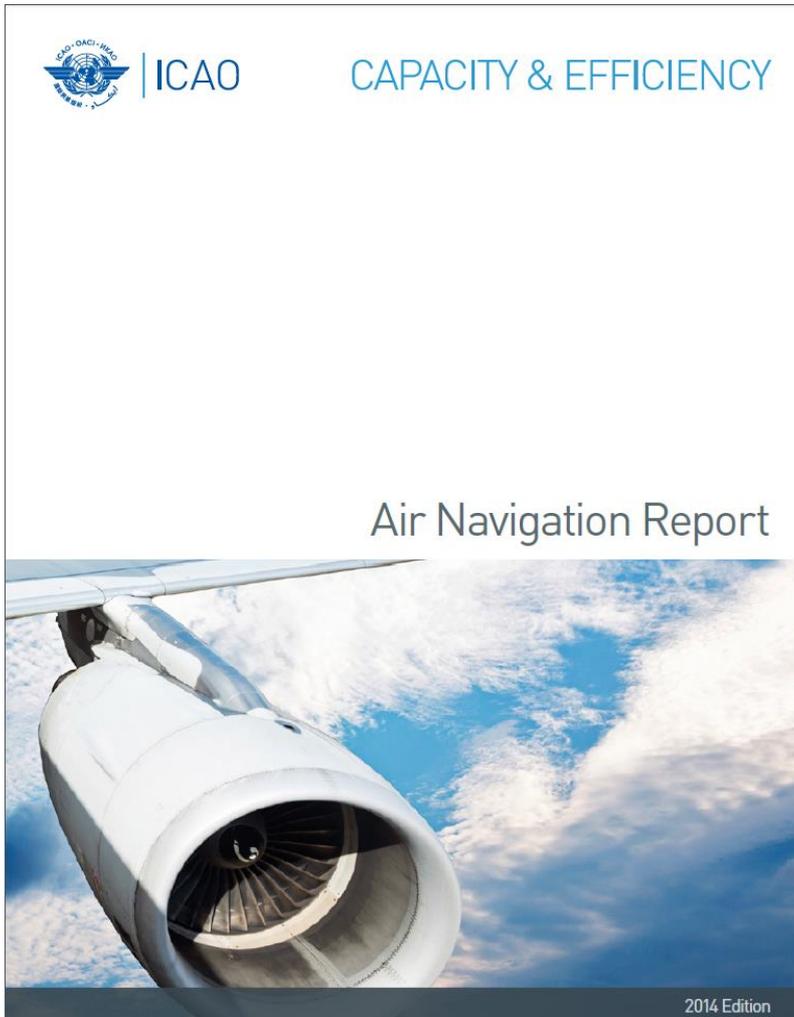




2018 Fuel Savings compared with 2013 Baseline (Mt)





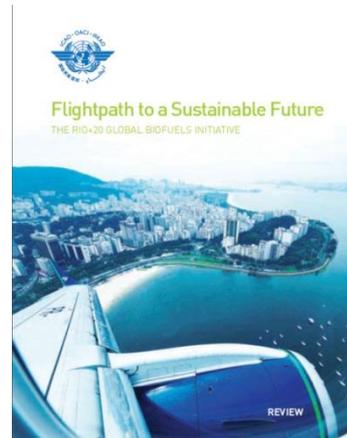
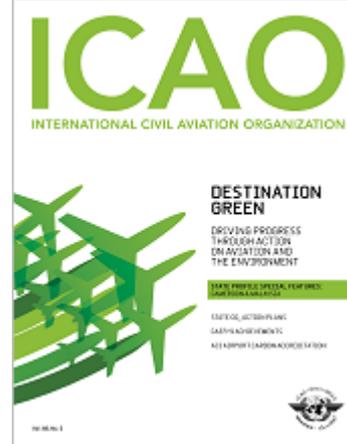
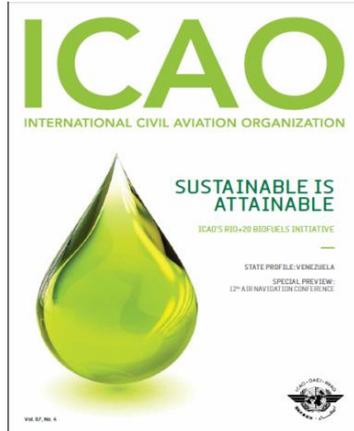
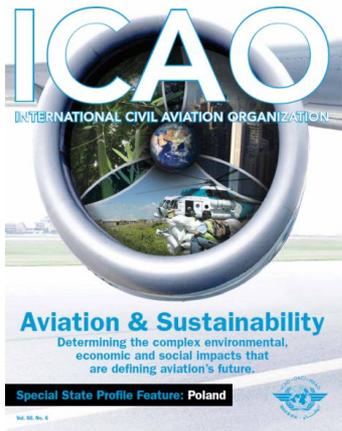


- Assuming a 1% degradation in ATM system efficiency in the absence of any action during the 2013-2018 timeframe...
- The implementation of ASBU Block 0 concept would **limit that degradation to 0.5%** with the possibility to provide a **net benefit in efficiency gains of 1.0 to 2.0%** based upon full global implementation of the Block 0 modules.



- Robust analysis of Block 0 – new modules added:
  - APTA (approach procedures including vertical guidance)
  - RSEQ (AMAN/DMAN)
  - SURF (A-SMGCS, ASDE-X)
  - FICE (increased efficiency through ground-ground integration)
  - DAIM (digital AIM)
  - AMET (Met information supporting enhanced operational efficiency)
- Preparing for Block 1 evaluation





For more information on our activities, please visit ICAO' website: <http://www.icao.int>

