



Monitoring, reporting and verification in the EU ETS

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Overview



- ★ The role of MRV in the EU ETS
- ★ EU MRV legislation and principles
- ★ Emissions monitoring approaches for aviation
- ★ Summary



The role of MRV in the EU ETS



- ★ Strong compliance framework is essential for the integrity of EU ETS

1 tonne CO₂ = 1 tonne CO₂

- ★ Monitoring by operators is at the heart of the EU ETS
- ★ EU ETS has well established MRV principles and practices



EU aviation MRV legislation



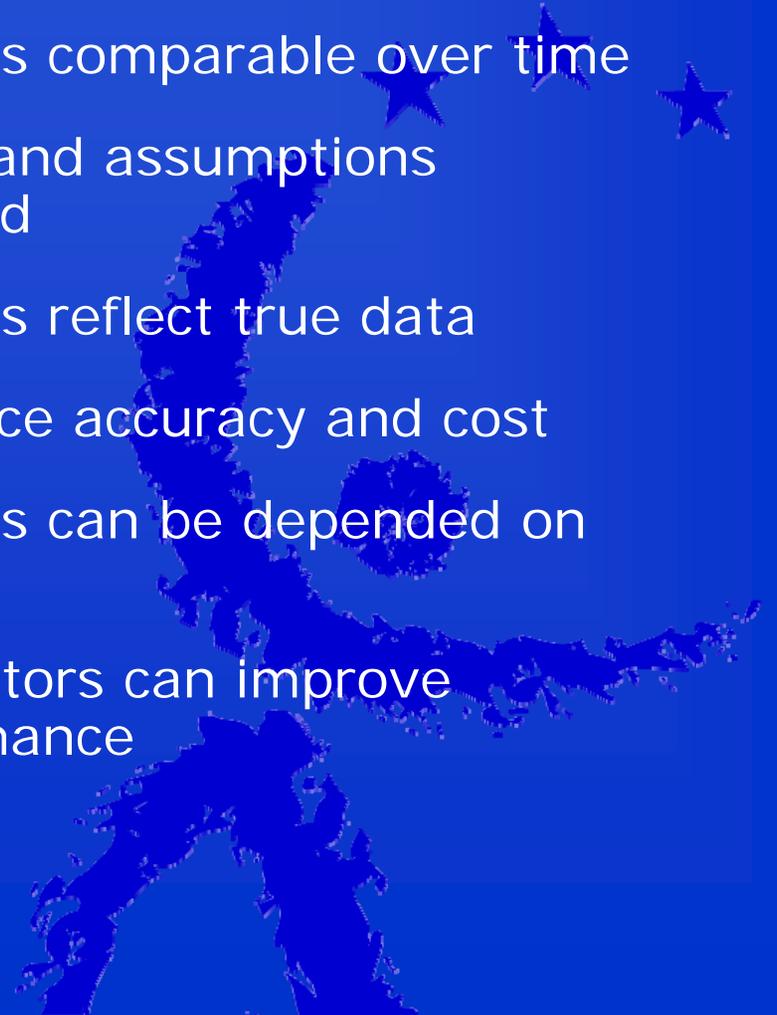
- ★ Commission Decision 2009/339/EC.
 - Provides monitoring and reporting guidelines for aviation:
 - general MRV principles;
 - emissions monitoring requirements; and
 - tonne-kilometre data monitoring requirements.
- ★ Expands MRV requirements from fixed installations to aviation
- ★ Builds on existing MRV principles
- ★ Aims to balance environmental integrity & cost-effectiveness
- ★ Where possible, consistent with international emissions reporting protocols

e.g. WBCSD/WRI GHG Protocol and IPCC 2006 guidelines for national GHG inventories

Key principles of MRV



- ★ **Completeness**
 - all emissions included
- ★ **Consistency**
 - results comparable over time
- ★ **Transparency**
 - data and assumptions recorded
- ★ **Trueness**
 - results reflect true data
- ★ **Cost effectiveness**
 - balance accuracy and cost
- ★ **Faithfulness**
 - results can be depended on
- ★ **Improvement of performance**
 - operators can improve performance



The MRV framework for aviation



1. Monitoring

- Aircraft operator measures CO₂ emissions and tonne kilometres

2. Reporting

- Each operator reports
 - Emissions – once per year
 - Tonne kilometres - once per compliance period

3. Verification

- Reports checked by an independent, accredited verifier



Key elements of the EU system



★ Operator

- develops monitoring plans according to requirements in the legislation

★ Competent authority

- reviews and approves the monitoring plans

★ Operator

- implements & runs the monitoring system

★ Verifier

- checks implementation and operator's reports

★ Competent authority

- has final decision on data presented



Monitoring plan



- ★ Each operator has specific monitoring plan
- ★ Based on common standard/format
- ★ Sets out the exact monitoring methodology including:
 - measurement methods
 - data flow management
 - internal quality controls
 - data archiving etc.



Standardised MRV templates



- ★ MRV templates developed for aviation
 - Available on our website in 22 languages
 - Examples provided of completed monitoring plans
- ★ More sophisticated systems by Member States allowed
- ★ An XML schema for all EU ETS is under development



Monitoring of Fuel Consumption



★ Actual fuel consumption measured for each flight

★ **Method A**

= Amount of fuel contained in aircraft tanks once fuel uplift for the flight is complete

– Amount of fuel contained in aircraft tanks once fuel uplift for subsequent flight is complete

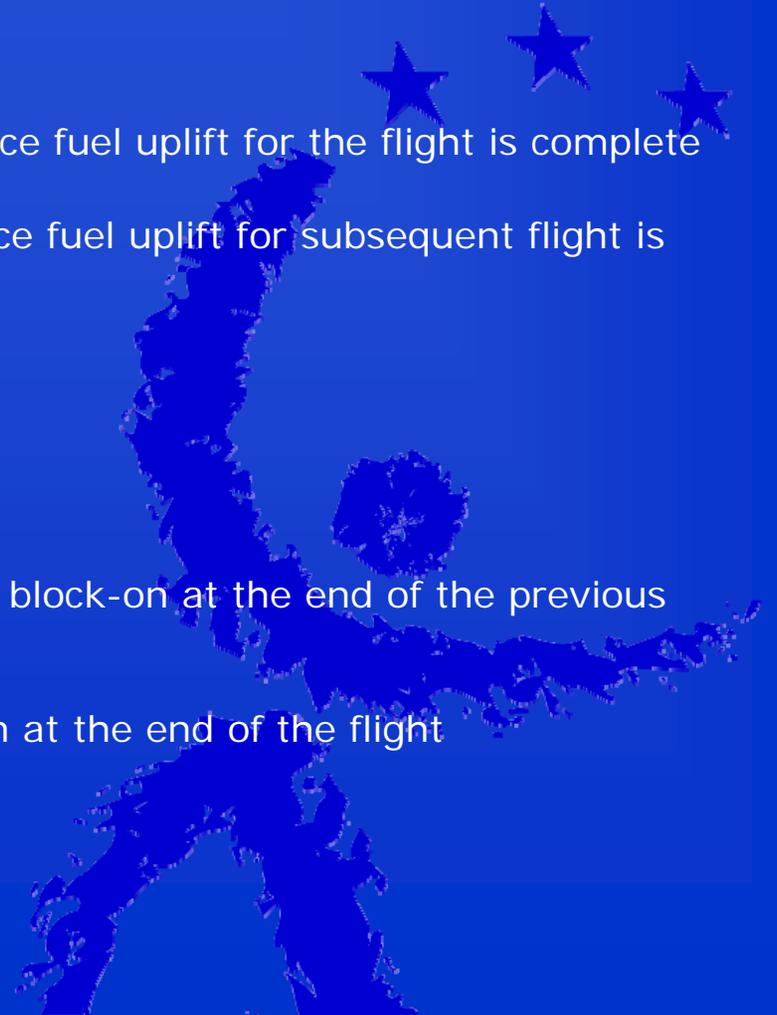
+ Fuel uplift for that subsequent flight

★ **Method B**

= Amount of fuel remaining in aircraft tanks at block-on at the end of the previous flight

– Amount of fuel contained in tanks at block-on at the end of the flight

+ Fuel uplift for the flight



Emissions from aviation activities



★ Emissions = Fuel consumed (tonnes) * Emission factor

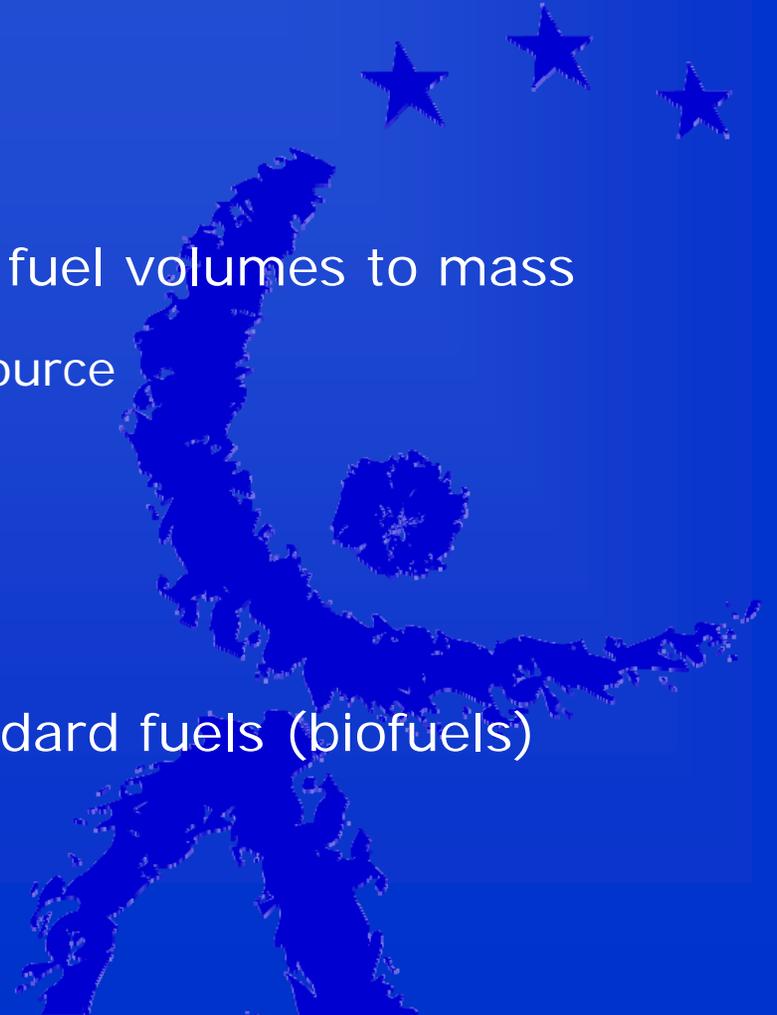
★ Standard emission factors used

- jet kerosene = 3.15 t CO₂/t

★ Density - if needed for converting fuel volumes to mass

- to be taken from best available source
 - onboard measurement, or
 - fuel supplier
 - if not available - standard value

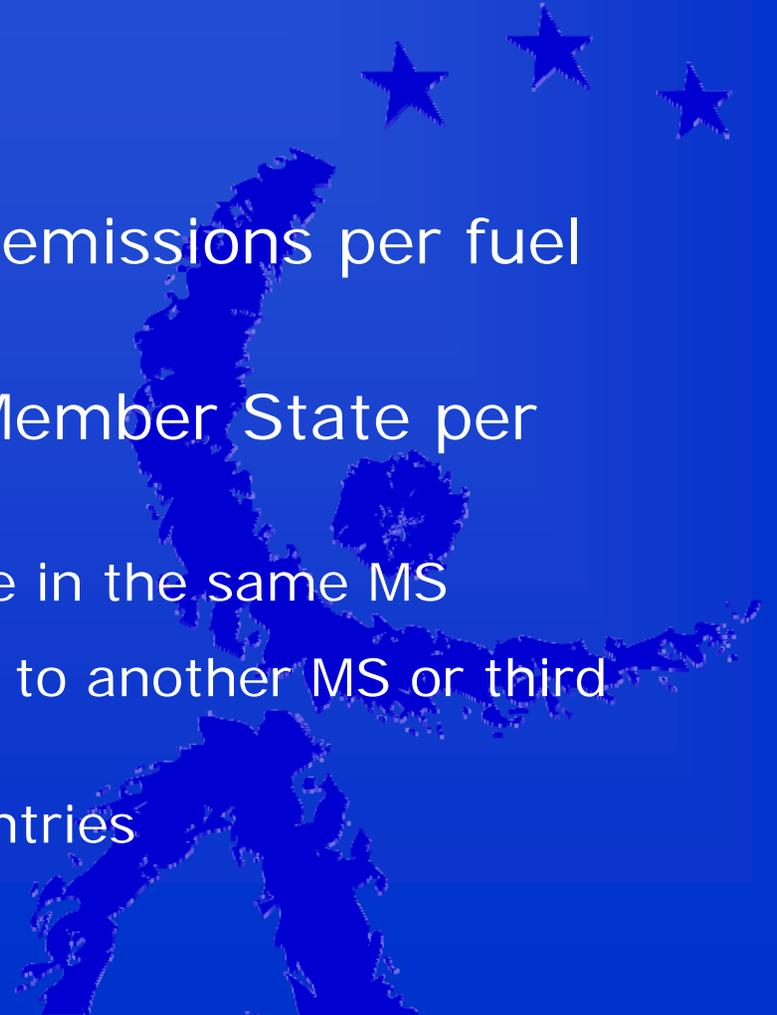
★ Special requirements for non-standard fuels (biofuels)



Reporting of annual emissions



- ★ Aircraft registration numbers and aircraft types used
- ★ Total number of flights
- ★ Total fuel consumption and emissions per fuel type
- ★ Aggregated emissions per Member State per fuel type
 - Flights which depart and arrive in the same MS
 - Flights departing from one MS to another MS or third country
 - Flights arriving from third countries



Simplified MRV procedures for small emitters



- ★ MRV legislation provides simplified procedures for small emitters
- ★ Enables small emitters to model rather than measure emissions
- ★ Modelling tool developed by Eurocontrol should be approved for use soon
 - Simple spreadsheet model
 - Free to use
 - To be available on their website

Key messages



- ★ MRV is an important component of the EU ETS
- ★ MRV approach has recently been extended to aviation
- ★ Emissions monitored for each flight
- ★ Simplified MRV approaches for small emitters
- ★ Templates and good practice examples available on our website



Further information



Aviation and climate change
website:

http://ec.europa.eu/environment/climat/aviation_en.htm

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