

Entec



Monitoring, Reporting and Verification guidelines for the inclusion of aviation in the EU-ETS

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Creating the environment for business

Contents

 **Aviation MRV framework**

 **Calendar for compliance**

 Annual emissions MRV

 Tonne-km MRV

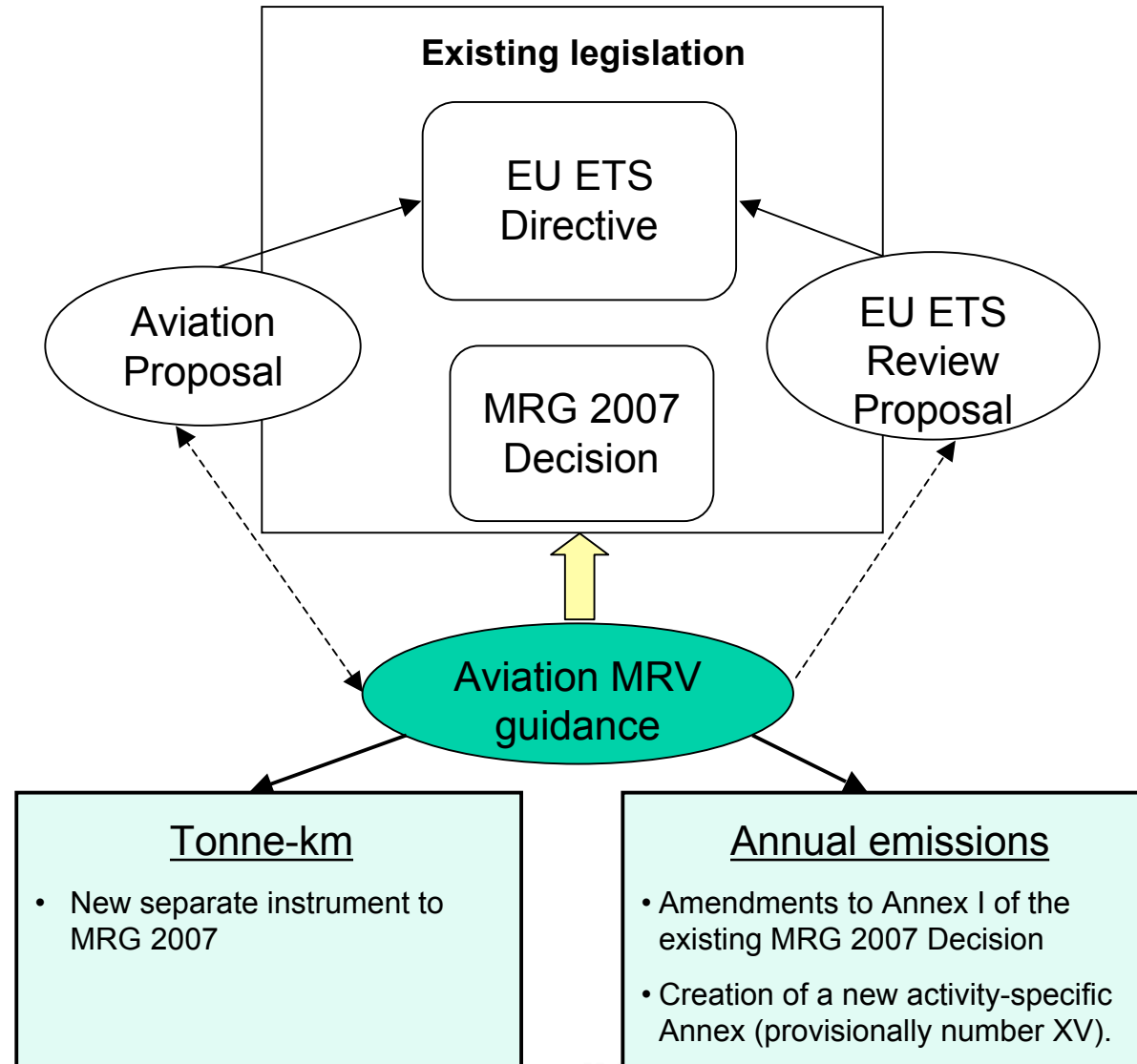
 **Key issues for discussion:**

 General issues in MRV for the aviation sector

 Monitoring and Reporting tonne km data

 Monitoring and Reporting annual emissions

Aviation MRV framework



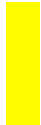
Aviation MRV framework

	What?	Why?	When?
Tonne-km data	Distance (km) x Payload (tonnes)	Application of free allowances	Once before each trading period (+ application for special reserve)
Annual emissions	Fuel consumption (TJ) X Emission factor (tCO ₂ /TJ)	Compliance	Annually

Calendar for compliance: Tonne-km

	Phase II																Phase III			
	2009				2010				2011				2012				2013			
	Jan'09	Apr'09	Jul'09	Oct'09	Jan'10	Apr'10	Jul'10	Oct'10	Jan'11	Apr'11	Jul'11	Oct'11	Jan'12	Apr'12	Jul'12	Oct'12	Jan'13	Apr'13	Jul'13	Oct'13
Publish list of aircraft operators	◆																			
Submit monitoring plan		◆																		
Obtain monitoring plan approval			◆																	
Monitoring period					■															
Write tonne-kilometre report									■											
Verify data					■															
Submit verified data to CA									◆											
Submit applications to EC										◆										
Calculate allocation benchmark											◆									
Publish allowance allocations												◆								
Issue allowances													◆							

European Commission



Aircraft operators



Competent Authority / Member States



Verifiers



Calendar for compliance: Annual emissions

Task	Phase II																Phase III			
	2009				2010				2011				2012				2013			
	Jan'09	Apr'09	Jul'09	Oct'09	Jan'10	Apr'10	Jul'10	Oct'10	Jan'11	Apr'11	Jul'11	Oct'11	Jan'12	Apr'12	Jul'12	Oct'12	Jan'13	Apr'13	Jul'13	Oct'13
Submit monitoring plan to CA			◆																	
Approve monitoring plan				◆																
Pre-trading scheme monitoring period					■															
Monitoring period													■							
Write emissions report										■				■					■	
Verify emissions and report					■															
Submit verified report to CA										◆				◆					◆	
Surrendered allowances																			◆	

European Commission ■

Aircraft operators ■

Competent Authority / Member States ■

Verifiers ■

Existing MRG framework

Monitoring and Reporting Principles

- **Completeness:** All process and combustion emissions from all emission sources and source streams covered by Directive 2003/87/EC, while avoiding double counting
- **Consistency:** Monitored and reported emissions shall be comparable over time. The methodology can be changed if it increases accuracy, subject of approval of the Competent Authority.
- **Transparency:** Monitoring data, including assumptions, reference, activity data, emission factors, oxidation factors and conversion factors shall allow verifier and CA to reproduce the determination of emissions.
- **Trueness:** Identify and reduce sources of uncertainties as far as practicable. All metering or testing equipment shall be appropriately applied, maintained and calibrated and checked.
- **Cost effectiveness:** Balance between accuracy and costs: aim at the highest accuracy unless it is technically not feasible.
- **Faithfulness:** of the verified emissions report
- **Improvement of performance** in monitoring and reporting emissions

Key issues for discussion: General issues

Responsibility of emissions

- **Key issues**
 - Completeness
 - Avoid duplication
- **Key questions**
 - ICAO or AOC designators?

Eligibility for the Special Reserve

- **Key issues**
 - Eligibility if new or additional activity are not in whole or in part a continuation of an activity performed by another aircraft operator
- **Key questions**
 - How to monitor eligibility for high-growth operators?

Key issues for discussion: Monitoring and reporting tonne-km data

$$\text{T-km} = \text{Distance} \times \text{payload}$$

- **Key issues:**

- Level playing field for all operators
- Avoid gaming
- Simplicity and cost-effectiveness
- Accuracy

- **Key questions:**

- How to ensure consistency of methods among different aircraft operators?
- How to avoid under-over estimation of activity data by restricting available options?
- How to use existing procedures for measuring tonne-km to minimise cost for operators?

Key issues for discussion: Monitoring and reporting annual emissions

$$\text{tCO}_2 = \text{Fuel consumption} \times \text{EF}$$

- **Key issues:**
 - Level playing field for all operators
 - Consistency with the existing MRG framework
 - Simplicity and cost-effectiveness
 - Accuracy
- **Key questions:**
 - How to balance simplicity and accuracy?
 - How to ensure minimum uncertainty?
 - Will aircraft operators be able to adapt to new information requirements of fuel consumption at the same pace?

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