

Capacity Building for the Implementation of the EU Emissions Trading Directive in the new EU Member States

**Workshop
Warszawa, 25th April 2006**

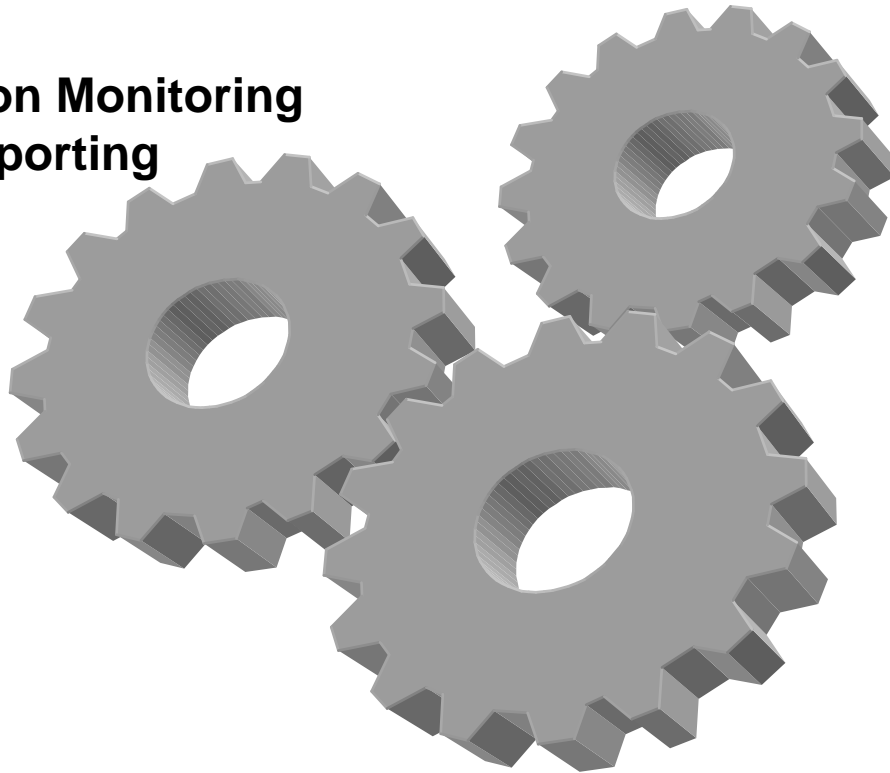
Guide on Monitoring and Reporting

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■ Interrelationship between Manuals

**Guide on Monitoring
and Reporting**



Guide on Accreditation

Guide on Verification

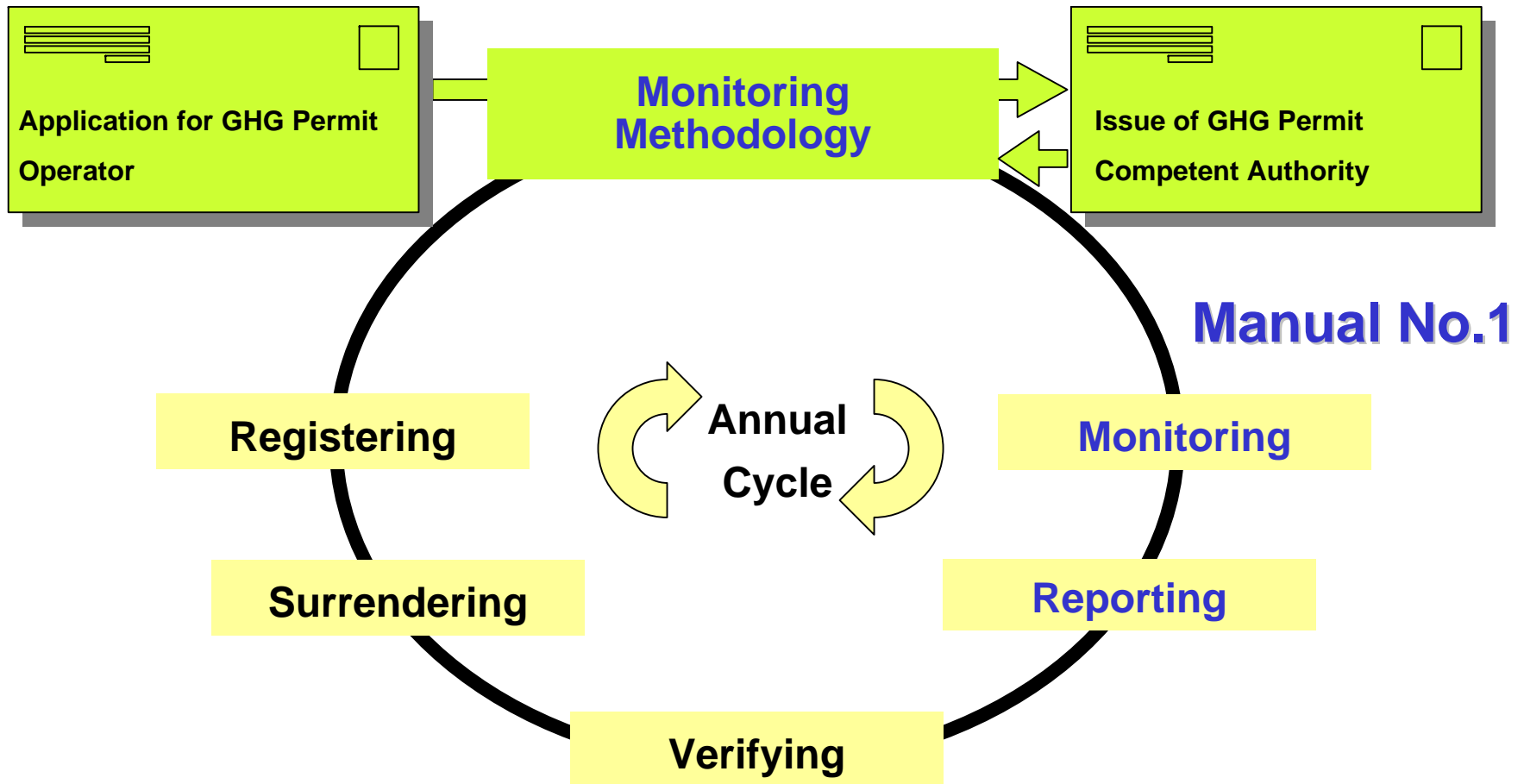


■ Content

1. **Introduction: Scope of the Manuals**
2. **Manual No.1: Guide on Monitoring and Reporting**
3. **Summary and Conclusion**



■ Scope of Manual No.1



■ GHG Permit

Member States shall ...

... assure that from 1 January 2005 no installation covered by the EU ETS undertakes any activity unless its operator holds a GHG permit ([Article 4](#))

Application for GHG Permit shall ...

... include measures planned to monitor and report emissions in accordance with the MRG ([Article 5](#))

GHG Permit shall ...

... contain monitoring requirements, specifying monitoring methodology and frequency ([Article 6](#))

(1) Theory not practise

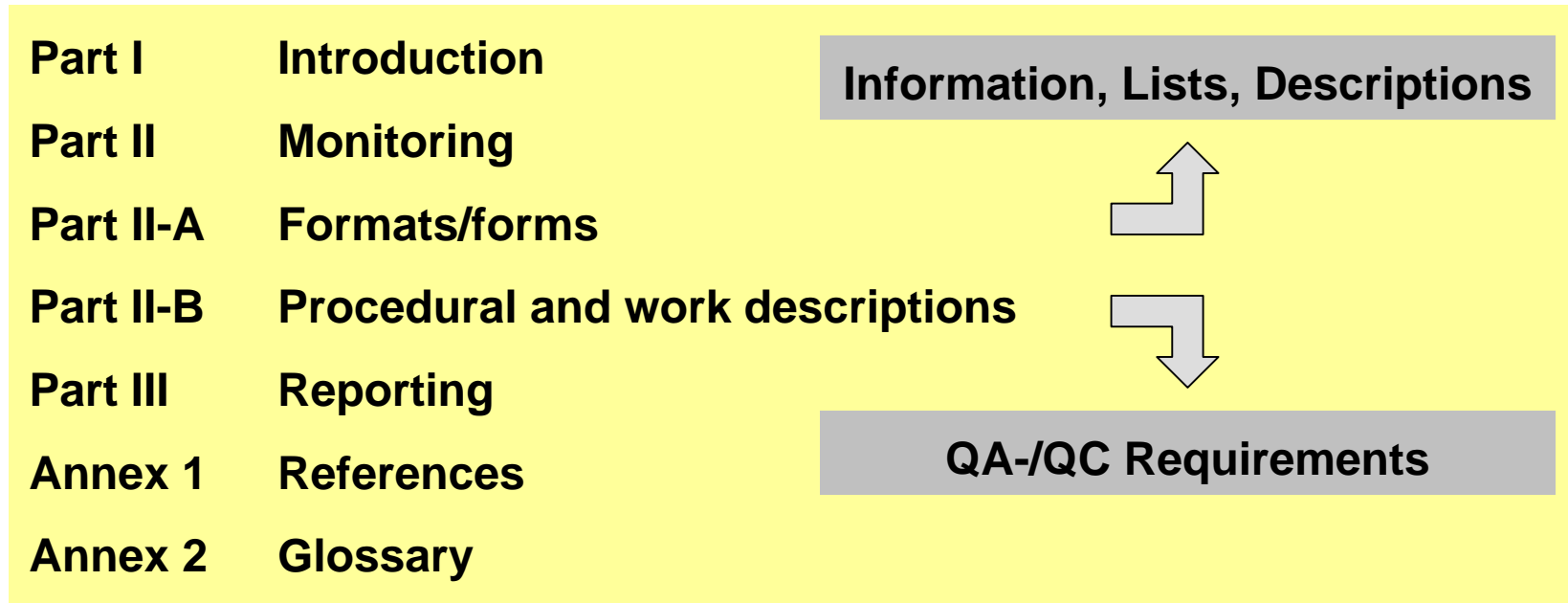
(2) Practise differs from MS to MS and within MS

■ Content

1. Introduction: Scope of the Manuals
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- 3.
4. Summary and Conclusion



■ Structure of Manual No.1



Case Study explains formats/forms and QA-/QC measures!



■ Case Study



- **Power Station**
- **400 MW**
- **2 Sources (combustion; flue gas cleaning)**
- **3 Streams (coal, timber, limestone)**
- **2 Streams (not linked to sources)**
 - **Furnace Bottom Ash (FBA) and**
 - **Pulverised Fuel Ash (PFA)**

■ Monitoring Methodology

Information, Lists and Descriptions

Information on

- the installation and its activities
- responsibilities for M&R
- links with EMAS

List of

- fuel and material streams
- sources
- tiers

Description of

- the metering devices
- the sampling of fuel and materials
- the sources or analytical approaches
- CEM
- QA/QC for data management



■ Definition of the Installation and Activities

A. Data of the Installation

- Category of Activity, Activity
- Codes (IPPC, EPER, CRF, NAP)
- Permits (IPPC, ETS)

B. Non-technical Summary of the details of the installation

- *e.g. IPPC Permit and add aspects relevant for CO₂-emissions*

C. Process flow sheet of the installation

- *e.g. IPPC permit and add sources, streams, samplings, metering*

D. CO₂ emissions of the installation

- allocated emissions per year
- reported emissions per year



■ Definitions (1)

LEVEL		SIMPLE EXAMPLE
01: Installation	→	Power Plant
02: Category of Activity	→	Energy Activities
03: Activity	→	Combustion
04: Source	→	Gas Turbine
05: Streams	→	Natural Gas

INSTALLATIONS

means stationary technical units where one or more activities are carried out

ACTIVITIES

means the activities listed in Annex I of The ETS Directive

SOURCES

means separately identifiable points or processes in an installation from which GHG are emitted



■ Definitions (2)

LEVEL		COMPLEX EXAMPLE
01 Installation	→	Integrated Steel Works
02 Category of Activity	→	Energy Activities, <i>Production and Processing of Ferrous Metals</i>
03 Activity	→	Combustion, Coke Oven, <i>Sintering Installation, Installation for the Production of Steel</i>
04 Source	→	Incineration, Flue Gas Cleaning, <i>(N.N.)</i>
05 Streams	→	Coal, Gas Oil, Limestone, <i>(N.N.)</i>

Define the installation´s:

(1) Categories of activity

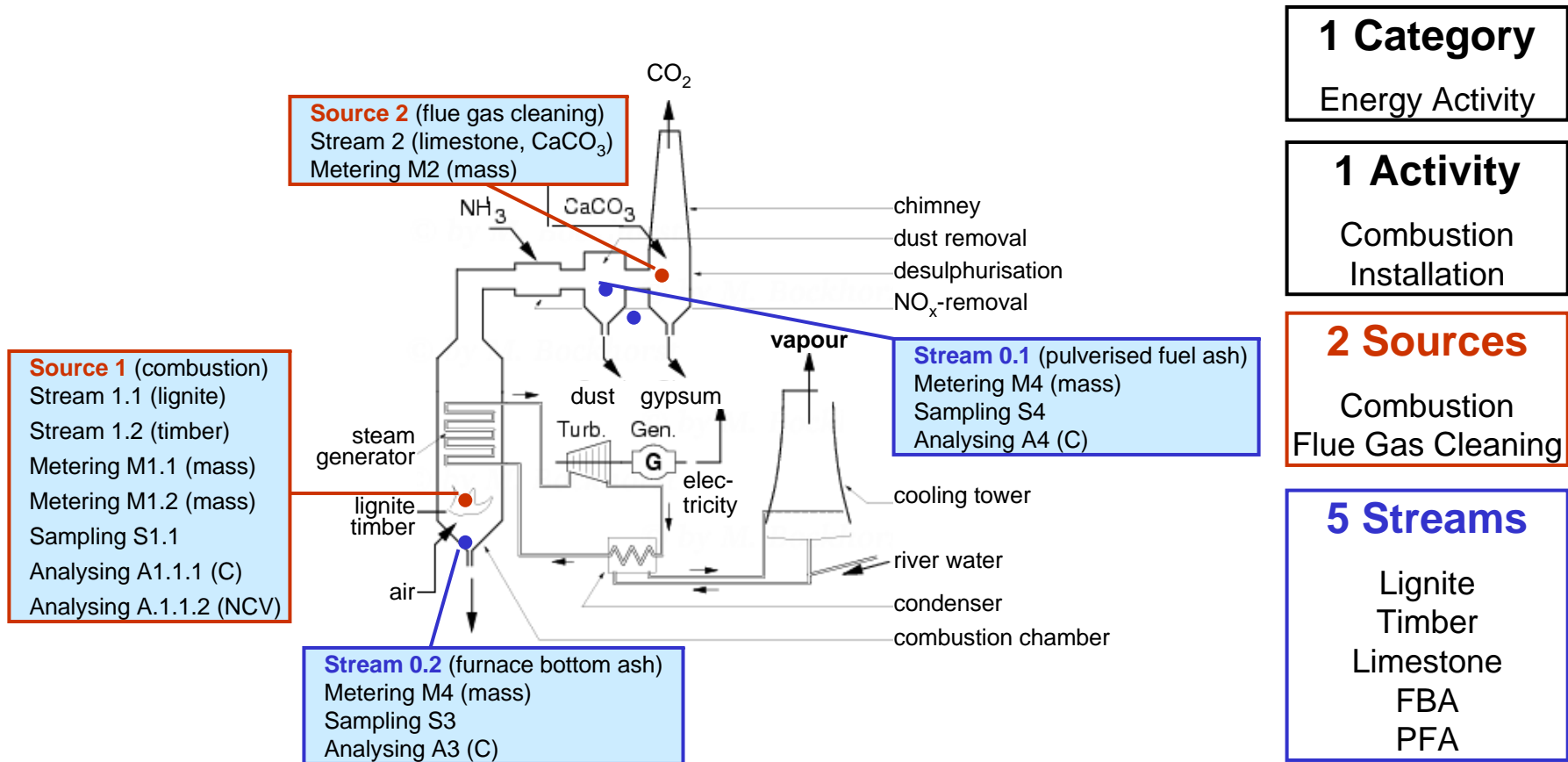
(2) Activities

(3) Sources

(4) Fuel and material streams



Case Study: Condensation Power Plant



■ Fuel and Material Streams

Activity: Combustion Installation								
Total CO ₂ -emissions of the activity including biomass streams					774,618 t CO ₂ /a			
Total CO ₂ -emissions of the activity without biomass streams					709,579 t CO ₂ /a			
Total CO ₂ -emissions of the activity's biomass streams					65,039 t CO ₂ /a			
Code	Name	Amount [t/a]	Biomass [%]	CO ₂ -emissions				
				Amount [t/a]	Origin		Determination	
					Comb.	Process	Calcul.	Measure
1.1	Lignite	824,666	0	701,867	x		x	
1.2	Timber	39,543	100	65,039	x		x	
2.1	Limestone	17,540	0	7,712		x	x	
0.1	Ash (FBA)	7,020	0	Output streams with no impact on CO ₂ -emissions but on the oxidation factor of fuel stream 1.1				
0.2	Ash (PFA)	28,074	0					




■ Sources

Activity: Combustion Installation							
Total CO ₂ -emissions of the activity including biomass streams						774,618 t CO ₂ /a	
Total CO ₂ -emissions of the activity without biomass streams						709,579 t CO ₂ /a	
Total CO ₂ -emissions of the activity's biomass streams						65,039 t CO ₂ /a	
Sources			Streams (of fuel and material)				
Code	Name	CO ₂ without biomass	Code	Name	Amount [t/a]	CO ₂ -emissions	
						[t CO ₂ /a]	Biomass
1	combustion	701,867	1.1	lignite	824,666	701,867	No
			1.2	timber	39,543	65,039	Yes
2	flue gas cleaning	7,712	2.1	limestone	17,540	7,712	No

■ Tier Approach - Classifications

Table I of Annex I of the MRG:

Columns A, B and C contain tier values of **major sources!**

	increasing magnitude 		
Object	Class 1	Class 2	Class 3
Installation	A	B	C
Stream	de minimis	minor	major
Source	de minimis	minor	major



■ Tier Approach: Thresholds for Classification

Column	Total annual emissions of the installation
A	emissions \leq 50,000 t/a
B	50,000 t/a < emissions \leq 500,000 t/a
C	emissions > 500,000 t/a

Class of installation	Threshold for minor streams (sources)	Threshold for „de-minimis“ streams (sources)
\leq 50,000 t CO ₂ /a (installations of class A)	2,500 t CO ₂ /a	500 t CO ₂ /a
> 50,000 t/a (installations of class B, C)	5% i.e. > 2,500 t CO ₂ /a	1% i.e. > 500 t CO ₂ /a

■ “de minimis”, Minor, Major Streams (Sources)

Installation: Condensation Power Station [709,579 t CO ₂ /a]		
Class of installation	Threshold for minor streams (sources)	Threshold for „de-minimis“ streams (sources)
> 50,000 t/a	5% i.e. > 2,500 t CO ₂ /a	1% i.e. > 500 t CO ₂ /a
709,579 t CO ₂ /a	35,479 t CO ₂ /a	7,096 t CO ₂ /a

Major sources including major streams of fuels and material are those, which, if ranked in the order of their decreasing magnitude, cumulatively contribute at least 95% of the total annual emissions of the installation.

■ de minimis, Minor, Major Streams (Sources)

Installation: Power Station 709,597 t CO ₂ /a			CO ₂ -emissions		
MAJOR ⇒	Streams		Amount [t CO ₂ /a]	% of total emissions	Σ(% of total emissions)
	No.	Name			
	1.1	Lignite	701,867	98.9	98.9
<p>Go to MINOR if sum of percentages is ≥ 95%</p> <p>Go to DE MINIMIS if sum of percentages is ≥ 99%</p>					
MINOR ⇒	2.1	Limestone	7,712	1.1	100
<p>Go to DE MINIMIS if sum of percentages is ≥ 99%</p>					
DE MINIMIS	-	-	-	-	100
<p>Sum of percentages must be in the last line 100%</p>					

- (1) Stream 1.1 is a major stream and source 1 is a major source!**
- (2) Stream 2.1 is a minor stream and source 2 is a minor source!**
- (3) No “de minimis” stream (source)!**

■ Tier Approaches for Major Sources

Total emissions of the installation [t CO₂/a]				Category (accord. Table 1, Annex 1, MRG)
Excl. biomass emissions *	709,579			A: emissions* ≤ 50 kt/a []
Incl. biomass emissions	774,618			B: 50 kt/a < emissions* ≤ 500 kt/a []
Biomass emissions	65,039			C: emissions* > 500 kt/a [X]
Code of the activity: n.a. (only one activity)				Name of the activity: combustion installation
Code of the source: 1				Name of the source: combustion
Code of the stream: 1.1				Name of the stream: lignite
	Req. tier	Sel. tier	Values and units	Statement concerning any non-conformity between required and selected tier!
Activity data	3a/3b	3a	824,666 t/a	
Net calorific value	3	3	8,41 TJ/kt	
Emission factor	3	3	101,2 tCO ₂ /TJ	
Composition data	n.a.	n.a.	-	
Oxidation factor	2	2	0,99	
Conversion factor	n.a.	n.a.	-	



■ Tier Approaches for Major Sources

Total emissions of the installation [t CO₂/a]				Category
Excl. biomass emissions * 709,579				(accord. Table 1, Annex 1, MRG) A: emissions* ≤ 50 kt/a []
Incl. biomass emissions 774,618				B: 50 kt/a < emissions* ≤ 500 kt/a []
Biomass emissions 65,039				C: emissions* > 500 kt/a [X]
Code of the activity: n.a. (only one activity)				Name of the activity: combustion installation
Code of the source: 1				Name of the source: combustion
Code of the stream: 1.2				Name of the stream: timber
	Req. tier	Sel. tier	Values and units	Statement concerning any non-conformity between required and selected tier!
Activity data	n.a.	2b	39,543 t/a	Fuel stream 1.2 is a pure biomass stream with no tier requirements.
Net calorific value	n.a.	1	15.3 TJ/kt	
Emission factor	n.a.	1	107,5 tCO ₂ /TJ	For memo item calculation only!
Composition data	n.a.	n.a.	-	
Oxidation factor	n.a.	1	0,99	
Conversion factor	n.a.	n.a.	-	



■ Monitoring Methodology

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Information on

- the installation and its activities ✓
- responsibilities for M&R
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List of ✓

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Procedural and Work Descriptions



■ Procedural and Work Descriptions

PD: Quality Assurance, Quality Control for Data Management

1. Identification of greenhouse gas sources
2. Sequence and interaction of monitoring & reporting procedures
3. Responsibilities and competence
4. Methods of calculation or measurement
5. Measuring equipment
6. Reporting and records
7. Internal review
8. Corrective and preventive action



■ WD 2: Sequence, Interaction of M&R-Procedures

- **Monitoring requirements**
GHG permit and monitoring methodology
- **Determination of CO₂ emission for each source**
Metering, sampling, analysing, responsibilities and qualification
- **First line check by operator**
Complete, plausible, transparent
- **Determination of CO₂ emissions**
Measurement or calculation, tier approach
- **Preparing the annual emission report**
National requirements
- **Verification of the annual emission report**
Accredited verifier, scope competence
- **Submission of the annual emission report**
Dead line March 31st, national requirements



■ Reporting

ETS Directive no special reporting format required

MRG special reporting formats required
(shall be used as basis)

UK Form ETS7 for Annual Monitoring Report
(Form ETS2 for Monitoring Plan)

Germany Electronic reporting procedure with integrated
verification report / statement

(1) Member State specific reporting formats and procedures!

(2) No recommendation is given in Guide on Monitoring & Reporting!



■ References

- **DEFRA / SEPA (May 2004)**
Competent Authority Guide to the Commission Decision establishing Guidelines for Monitoring and Reporting in accordance with the EU ETS
- **DEFRA / SEPA (June 2004)**
Example for the Completion of Monitoring and Reporting Plan Template
 - coal fired power station
 - oil fired power station
 - iron and Steel
 - glass
 - gas fired power station
 - small scale combustion
 - cement
 - pulp and paper
- **DEHST (January 2005)**
Monitoringkonzept (in German)
- **DEFRA / SEPA (August 2005)**
EU ETS – Annual Emission Report
Guidance to Operators for the Completion of Form ETS 7

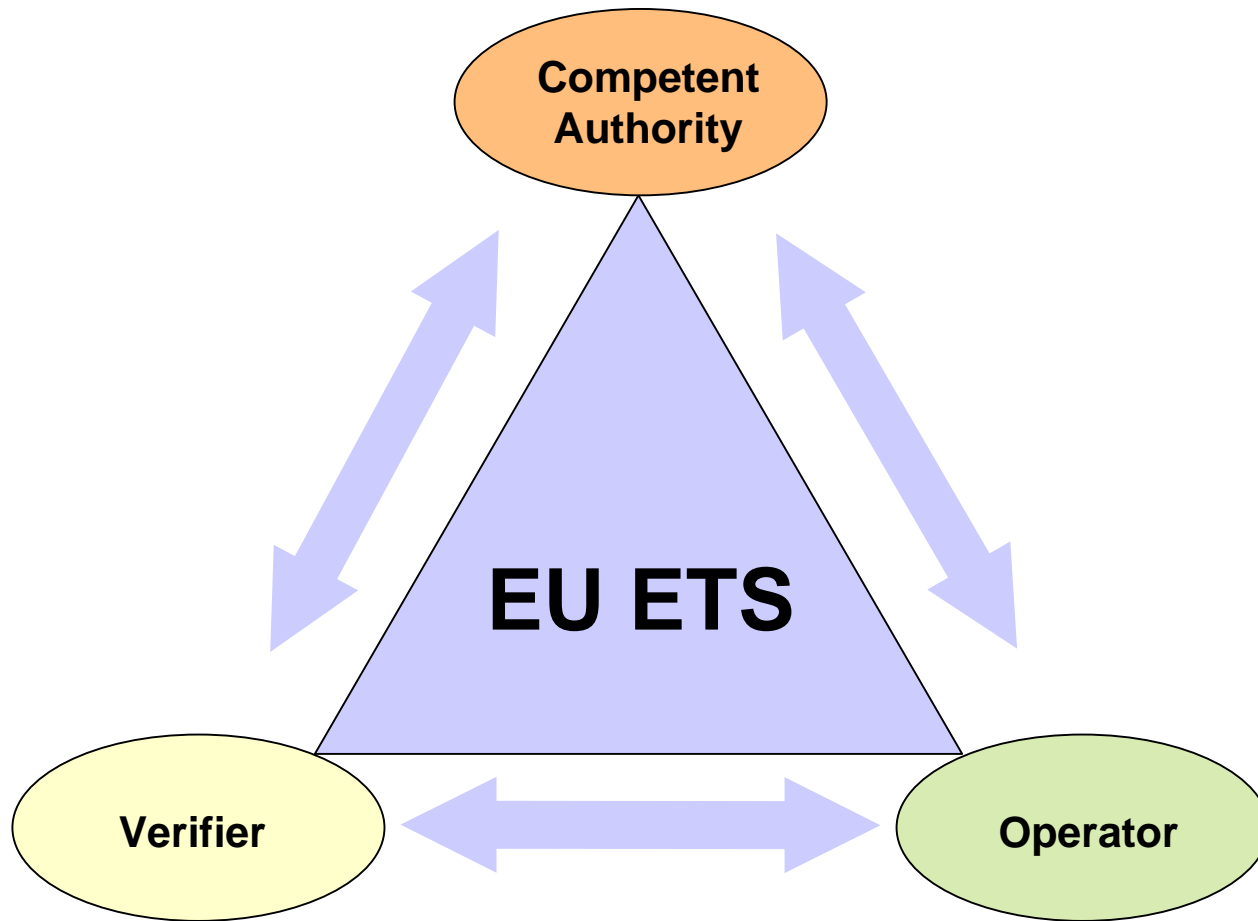


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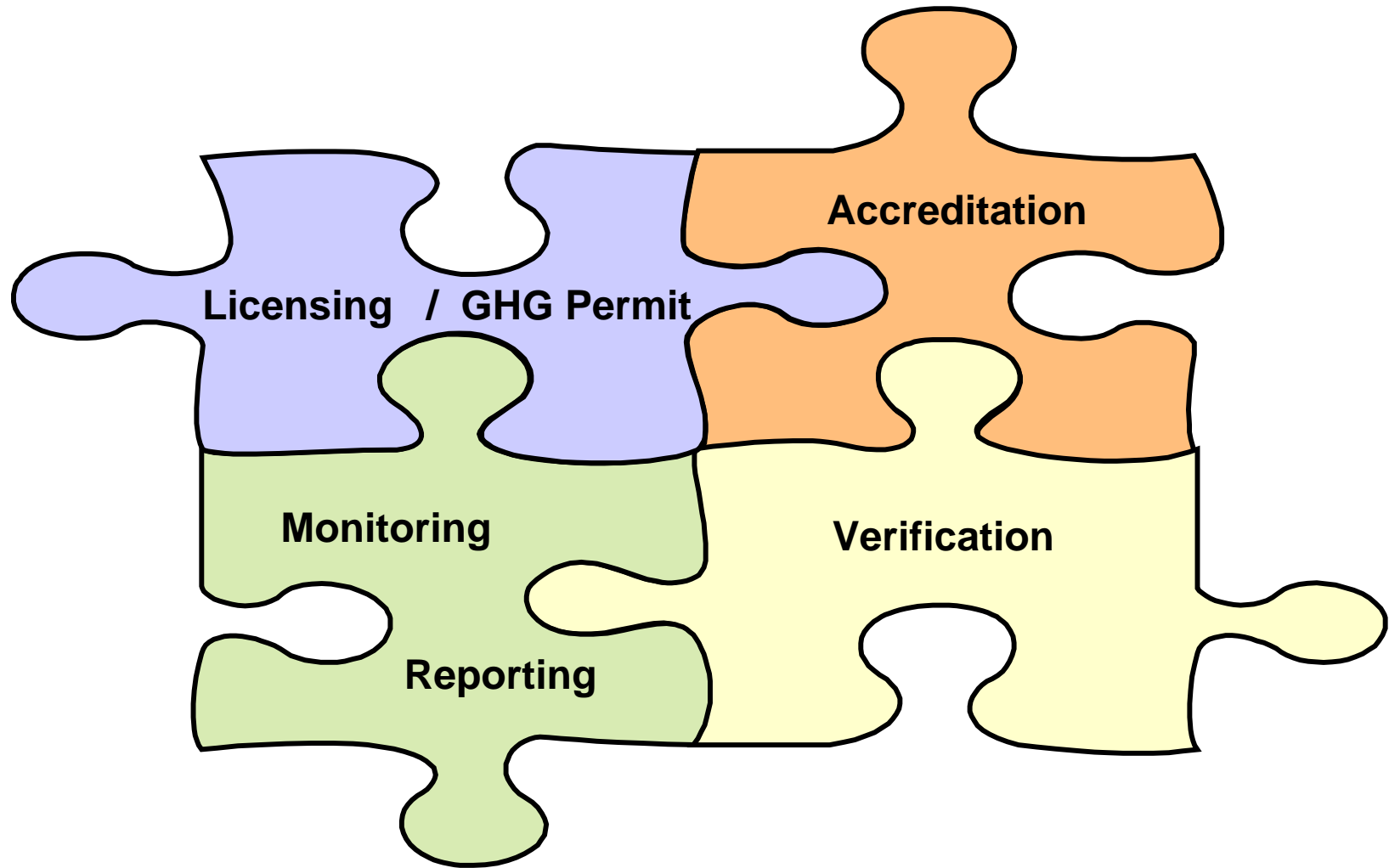
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■ Key Actors



■ Key Processes



■ Selected TÜV Expertise in Emissions Trading

2002 – 2003

Development of draft Monitoring and reporting Guidelines (MRG)

2004 – 2006

Support to the Commission's Work related to the implementation, evaluation and further development of the MRG

2005 – 2007

Support to the Commission's Work related to the review of the MRG



■ **Any Questions? Please contact:**

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