

**Umwelt
Bundesamt**



DEHSt
Deutsche
Emissionshandelsstelle

PMR Regional MRV Training Workshop

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Izmir, Turkey

Monitoring GHG Emissions at the Facility Level

Country Case Studies: Germany



Status and Challenges with Monitoring Facility-Level GHG Emissions in Germany

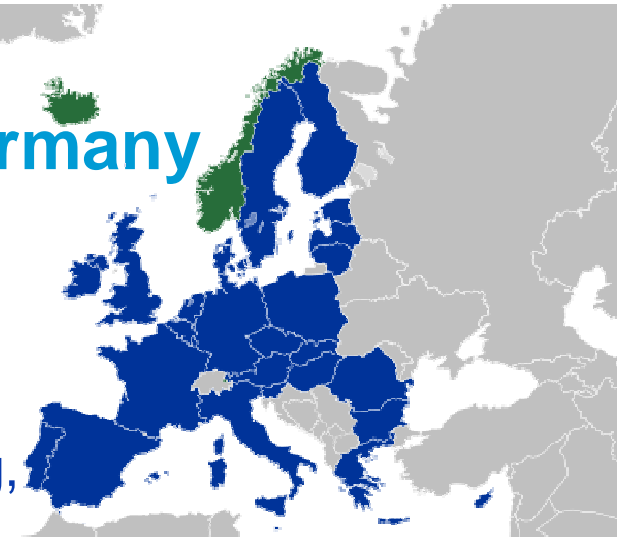
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E 2.3 Economic Aspects of Emissions Trading, Monitoring, Evaluation

Outline

- Legal Framework in the EU and Germany
- EU Monitoring and Reporting Regulation
- Principle Methods for the Determination of Emissions
- Accuracy
 - Regular Tier Definitions
 - Determination of Activity Data
 - Determination of Calculation Factors
- Categorizations of Installations and Source Streams
- Setting Priorities
- Information on EU ETS Monitoring and Reporting

Legal Framework in the EU and in Germany

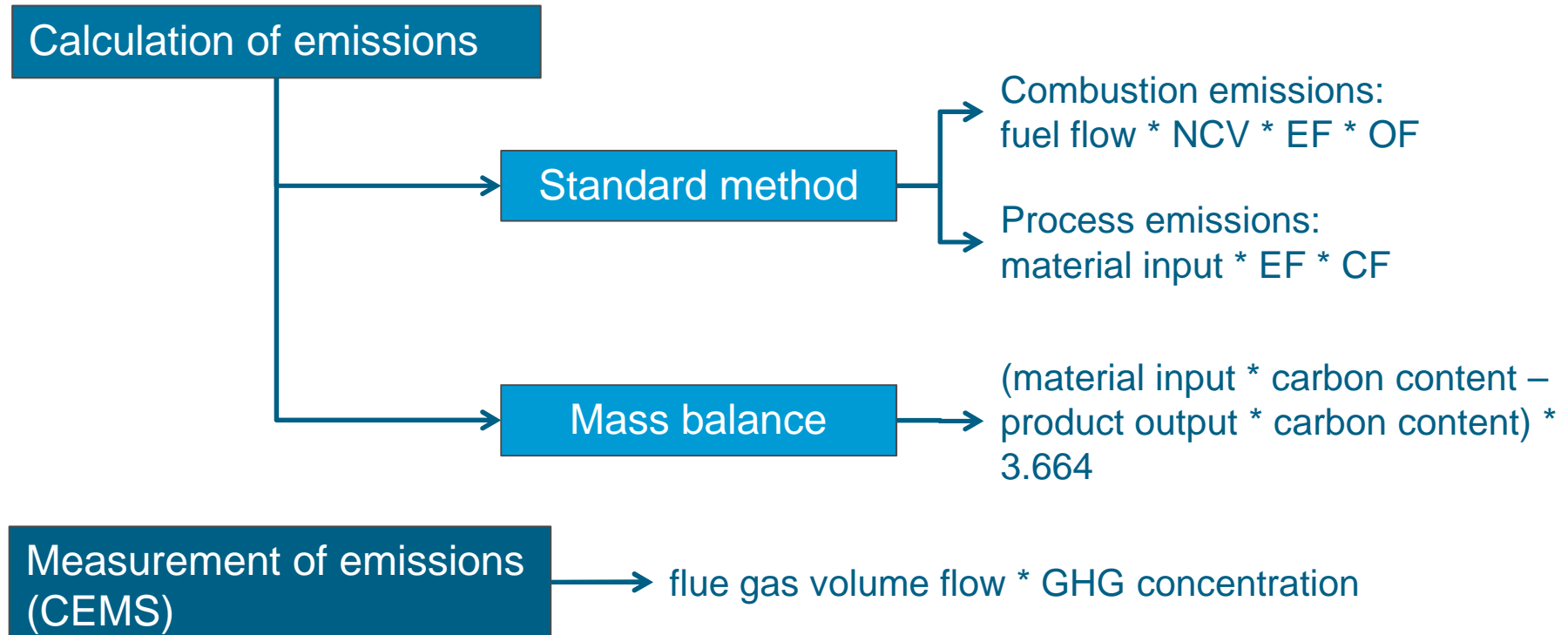


- EU ETS Directive 2003/87/EC
 - **1st and 2nd Trading Period (2005-2012):**
Monitoring & Reporting Guidelines:
Guidelines provided the framework for **monitoring, reporting** & verification of emissions until the end of 2012 (no detailed regulation on accreditation)
 - **Germany:** GHG Emissions Trading Act (“TEHG”) – Member States had implemented MRG differently into national law
- **Need for more harmonization!**
- **3rd Trading Period (2013-2020):**
- EU Monitoring and Reporting Regulation, i.e. legally binding & directly applicable in all Member States
 - **Germany:** Adjusted TEHG and national ET regulation with some specified requirements

EU Monitoring and Reporting Regulation

- Determination methods and uncertainty requirements (tiers)
- Minimum tiers required
- Definition on unreasonable costs
- Content of monitoring plan and annual emissions report
- Required “Procedures” (supplement the Monitoring Plan)
- Uncertainty assessment, Risk assessment
- Competence (accreditation) of laboratories
- Sampling plans for (chemical) analyses
- QA/QC procedures, in particular
 - Defining data flows and setting up an effective control system
 - Calibration and maintenance of measuring instruments
 - QA for information technology
- Segregation of duties
- Internal review of data
- Treatment of data gaps...

Principle Methods for the Determination of Emissions



→ Operator has also the choice to combine methods except N₂O

“Fall-back approaches” (No-tier methodologies)

Regular Tier Definitions

- Activity data:
 - Tier 1: Uncertainty $\pm 7.5\%$
 - Tier 2: Uncertainty $\pm 5.0\%$
 - Tier 3: Uncertainty $\pm 2.5\%$
 - Tier 4: Uncertainty $\pm 1.5\%$
- Emission factors, NCV, CC:
 - Tier 1: IPCC standard factors
 - Tier 2: Standard factors from national inventories, nationally agreed factors for fuel streams
 - Tier 3: Based on chemical analysis
- Sector specific deviations possible

Determination of Activity Data

Uncertainty assessment:

- Focus on **quality of measurement instruments**
- Determination of activity data with measurement instruments **under the operator's control** or **based on invoices (supplier documentation)**
- In any case the operator is responsible for showing **evidence** that the tier requirements of the MRR are met
- Individual uncertainty assessment necessary if quality criteria for installed instruments are too low (see national guidance)

Simplifications possible:

- Simplified evidence in case of measurement instruments **subject to national legal metrological control**
- Simplified evidence in case of **calibrated** measurement instruments which are installed and operated in accordance with **operational specification** of the manufacturer; **instrument's practical operational conditions** must be locally taken into account

Determination of Calculation Factors

Requirements according to required tier:

- Standard values (e.g. national list of standard values, Annex VI MRR, IPPC values ...)
- Individual Values based on analysis:
 - **Standards:** sampling and analysis according to **standardized procedures**
 - **Sampling:** **sampling plan** and **agreement with laboratory**
 - **Analysis:** **minimum frequency of analysis** (Annex VII), lower frequency based on historic data or unreasonable costs
 - **Laboratory:** Using **accredited laboratories**; non-accredited-laboratories can be used under certain conditions

Categorizations of Installations and Source Streams

Category B and C installations (> 50,000 t CO₂/year):

- must generally meet highest tiers

Category A installations (≤ 50,000 t CO₂/year):

- must meet minimum tier requirements

Installations with low emissions (< 25,000 t CO₂/year):

- additional monitoring simplifications

In general, lower tiers are allowed for

- Minor (jointly < 5 kt CO₂ or 10%, max. 100 kt CO₂/year) and de-minimis source streams (jointly < 1 kt CO₂ or 2%, max. 20 kt CO₂)
- Small Emission source (< 5 kt CO₂ or 10 % installation's emissions per year, whichever is higher in terms of absolute emissions)
- source streams with biomass fraction ≥ 97%
- commercial standard fuels

Temporary or individual deviations are allowed for

- technical or economic reasons
(subject to approval)

Setting Priorities

Installation category	Number of installations in Germany*	Total annual emissions*	
Category C (>500 kt CO ₂ -eq/a)	176	404.7 Mio. t CO ₂ -eq	84 %
Category B (>50 kt CO ₂ -eq/a)	455	58.7 Mio. t CO ₂ -eq	12%
Category A (≤ 50 kt CO ₂ -eq/a) [installation with low emissions, i.e. 25 ...]	1292 [917]	17.5 Mio. t CO ₂ -eq [7.6 Mio. t CO ₂ -eq]	4% [1,6%]

* Updated on 15 May 2014, total: 1.923 installations, VET 2013

Information on EU ETS Monitoring and Reporting

EU:

- <http://ec.europa.eu/clima/policies/ets/monitoring/>
- Regulations:
 - [Monitoring and Reporting Regulation \(MRR\): Regulation \(EU\) 601/2012](#)
 - [Accreditation and Verification Regulation \(AVR\): Regulation \(EU\) 600/2012](#)
- Guidance documents and FAQs
- Templates (Excel based):
 - Monitoring Plans
 - Annual Emissions Reports
 - Improvement Reports
- Guidance and Templates for AVR

Germany:

- www.dehst.de
- MR Guidance available in English soon

Thank you for your attention!

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