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Deutsche Emissionshandelsstelle

Introduction to basic MRV principles from German Inventory and EU ETS perspective Santiago, Chile – 26 August 2019

Introduction to basic MRV principles from German Inventory and EU ETS perspective

Dr. Jürgen Landgrebe

Head of

German Emissions Trading Authority (DEHSt)

at the German Environment Agency (UBA)

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Outline

- General principles / concepts of Monitoring and Reporting
- Comparison between Inventory and EU ETS
- Inventory and EU ETS: Type of data and data sources
- Why is installation specific monitoring the backbone of ETS?

General concepts of Inventories

- **Transparency:** Sufficient and clear documentation
  → others can understand how inventory was compiled
- **Completeness:** Estimates for all relevant categories of sources and sinks and gases
- **Consistency**: Differences in estimates for different years, gases and categories should reflect real emissions, not be subject to methodological differences
- **Comparability:** To allow comparison with GHG inventories of other countries
- **Accuracy**: High level of certainty; uncertainty assessment based on a variety of methods, e.g. expert estimation, mathematical models etc.
- **Continuous improvement**

General MRV principles in EU ETS

- **Completeness:** All sources covered, no data gaps
- **Consistency:** To use same monitoring methodologies and data sets over time subject to changes and derogation approved by a Competent Authority (CA)
- **Comparability:** See consistency
- **Transparency:** To enable the reproduction of the determination of emissions by verifier and CA
- **Accuracy:** High level of certainty; uncertainty assessment based on evidences by installation operator
- **Integrity:** Using appropriate monitoring methodologies, no material misstatement, avoid bias, balance accuracy against additional costs
- **Continuous improvement**

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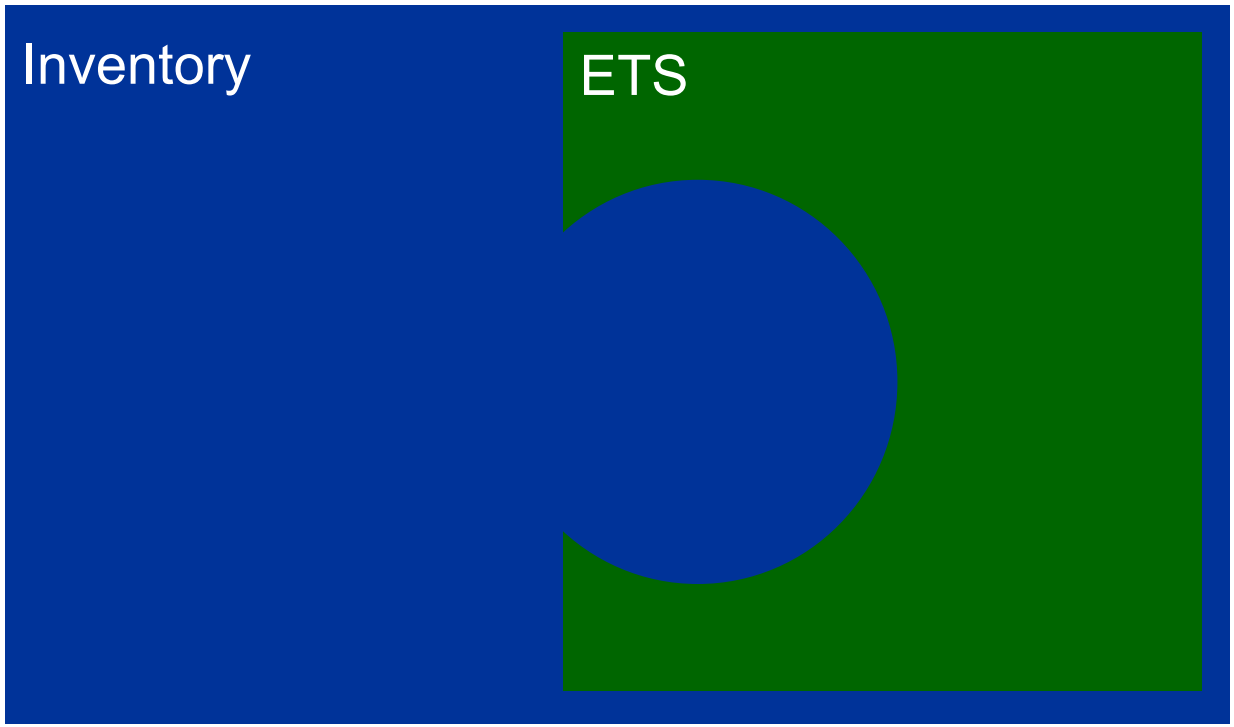
Comparison between Inventory and EU ETS

	Inventory	EU ETS
Scope and thresholds	**All sectors** (including housholds, transport etc.). **No thresholds**. Aim: report of country's emissions.	Includes installations from a **set of activities** when exceeding a certain **rated thermal input or capacity**.
Reporting obligation	**National reporting** Reporting obligation rests on each country's commitment to UNFCCC.	**Installation level** Reporting obligation for operators of installations.
Gases	**CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3** from all sectors.	**CO_2** (*several defined activities*) **N_2O** (production of nitric acid, adipic acid, glyoxylic acid and glyoxal) **PFCs** (primary aluminium)
Emission categories	Combustion and process emissions **reported separately**.	**Distinction** between combustion and process emissions is **not required** → distinction is impossible
Timing	Data is **annual**. Data of year x reported with deadline of **15 January year x + 2**.	Data is **annual**. Data of year x reported with deadline of **31 March year x + 1**.

Comparison of Inventory data and ETS data



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Type of data and data sources for Inventory

Common top-down approach

Type of data

- Depending on the contribution of a source category (IPCC sector) to the total inventory emissions
  - Activity data: International or national aggregated statistics, plant-specific data or material-handling models
  - Multiplier: default EF from IPCC Guideline, country specific EF

Data sources

- Energy balance of the national working group “energy balances”
- Statistics of the Federal Statistical Office (Destatis)
- Statistics by associations
- Studies, Research projects
- Plant information, some cases of addition with ETS-Data
- Data is verified in a centralized manner by the UNFCCC and by in-country review processes

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Type of data and data sources for EU ETS

Bottom-up approach

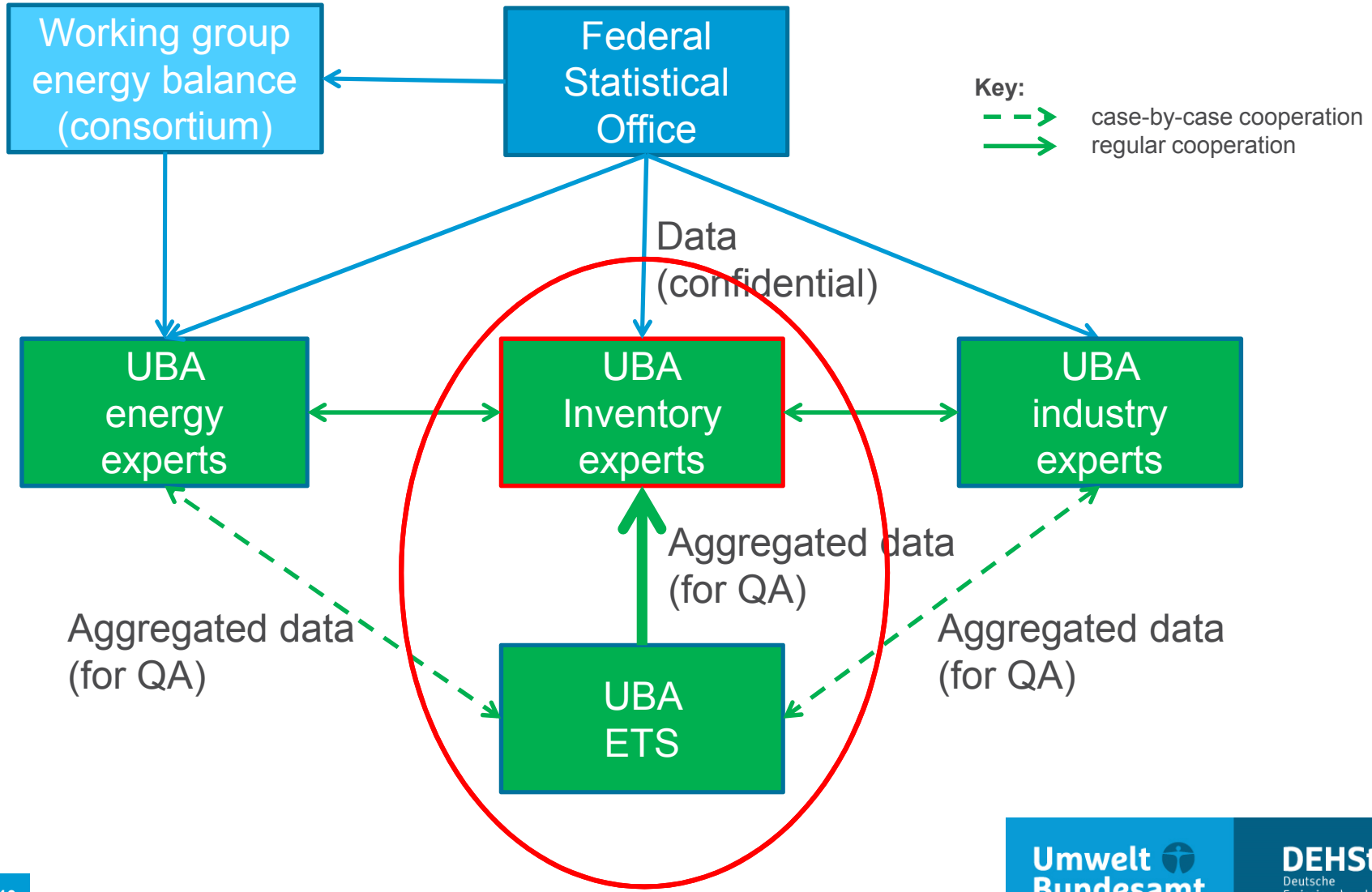
Type of data

- Generally: usually source stream based
- Depending on size of the installation and the size of the source stream
  - Amount: individually measured by the operator / supplier according to a required maximum uncertainty
  - Calculation factors (e.g. EF, NCV, carbon content)
    - Installations specific data (individually analyzed in a lab)
    - Standard factors

Data sources

- Installation specific annual emission report
- reported emissions are verified by accredited verifiers at the installation level

Cooperation of involved parties in Germany



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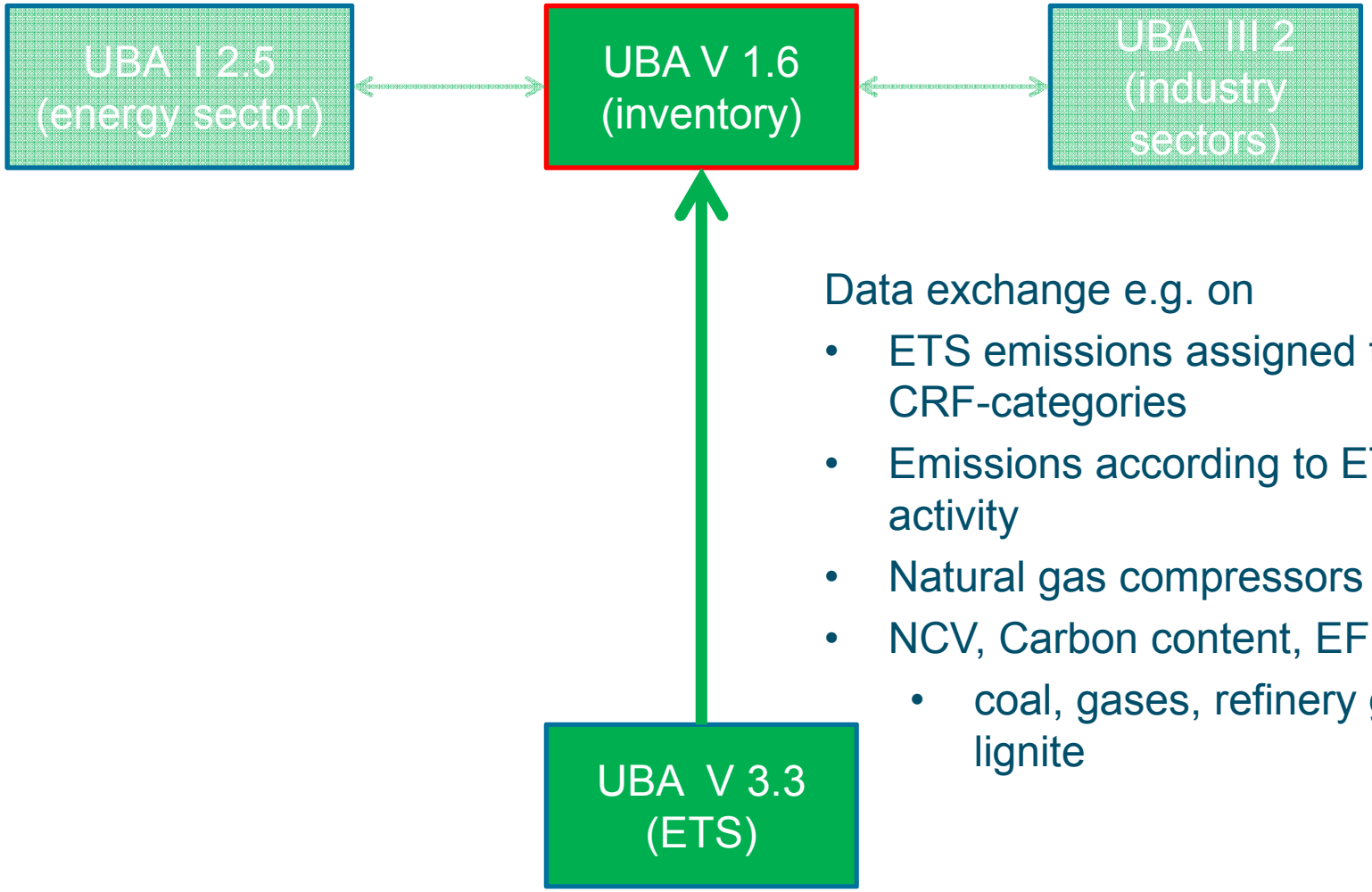
Cooperation of involved parties in Germany



Data exchange e.g. on

- ETS emissions assigned to CRF-categories
- Emissions according to ETS activity
- Natural gas compressors
- NCV, Carbon content, EF for e.g.:
  - coal, gases, refinery gas, lignite

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Concepts of data aggregation

Inventory: CRF-categories (IPCC-sector)

- 1.A.1. Energy
  - 1.A.1.a Public electricity and heat supply
  - 1.A.1.b refineries
  - 1.A.1.c production of solid fuels
  - 1.B.2.c flares
  - …
  - 1.A.2.g energy use in industry - others
  - …
- 2. Industry processes
  - 2.A.1 Process emissions in cement industry
  - …

ETS: Activity on installation level

- Activity 20: Combustion of fuels
  - Energy conversion
  - Engine and turbines
- Activity 21 - 44: Industry
  - Refineries
  - Coke
  - Pig iron and steal
  - Non-ferrous metals
  - Mineral industry
  - Paper and pulp
  - Chemical industry
  - …

1:1 matching of ETS activites to CRF is not possible

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  - Mineral industry
  - Paper and pulp
  - Chemical industry
  - …

Why is installation specific monitoring the backbone of ETS?

- EU ETS gives flexibility to the operators …
  … allows emissions to be cut where cheapest!
- Flexibility ends when actual emissions must be reported
- **Monitoring principle**:
  „One tonne CO_2 emitted must be one tonne CO_2 reported!“
- All operators shall surrender allowances on the basis of complete annual Monitoring & Reporting & Verification

Lessons learned in Germany & key elements for a robust MRV

- Legal framework, mandatory data collection, MRV regulation directly binding for operators
- Accreditation: Who verifies the verifier?
- Powerful competent authority with professional scepticism, strict enforcement incl. financial penalties (sanctions)
  → to avoid market distortions and to guarantee a level-playing-field!
- Use of IT – electronic formats – wherever possible

Mucias gracias!

Dr. Jürgen Landgrebe

E-Mail: emissionstrading@dehst.de

Internet: www.dehst.de

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