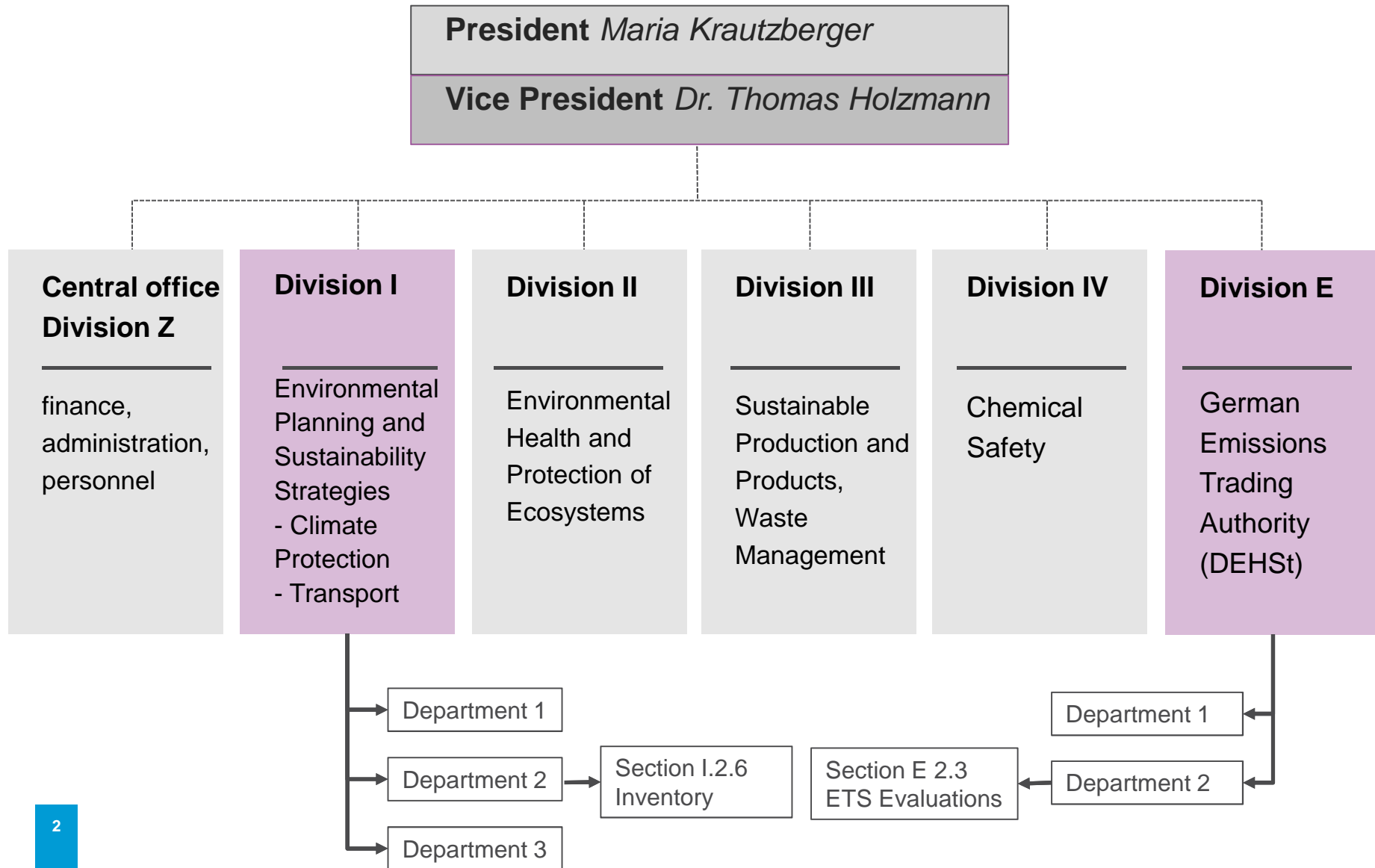


# Link between MRV in emission trading and Inventory

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Section E 2.3: Economic Aspects of Emissions Trading, Monitoring, Evaluation  
Berlin 13/12/2017

# Organizational structure of UBA



# Overview

- Inventory and ETS
  - Why? → legal framework
  - What? → Type of data and data sources
- Comparison of Inventory and ETS data
  - Concepts of data aggregation
  - Difficulties of delimitation



# Legal Framework for ETS in EU and in Germany



## European level

- EU ETS Directive 2003/87/EC
- EU Monitoring and Reporting Regulation (2012)
- EU Accreditation and Verification Regulation (2012)

## German level:

- GHG Emissions Trading Act (“TEHG”) – and national ET regulation with some specified requirements

# Type of data and data sources for EU ETS

## Bottom-up approach

### Type of data

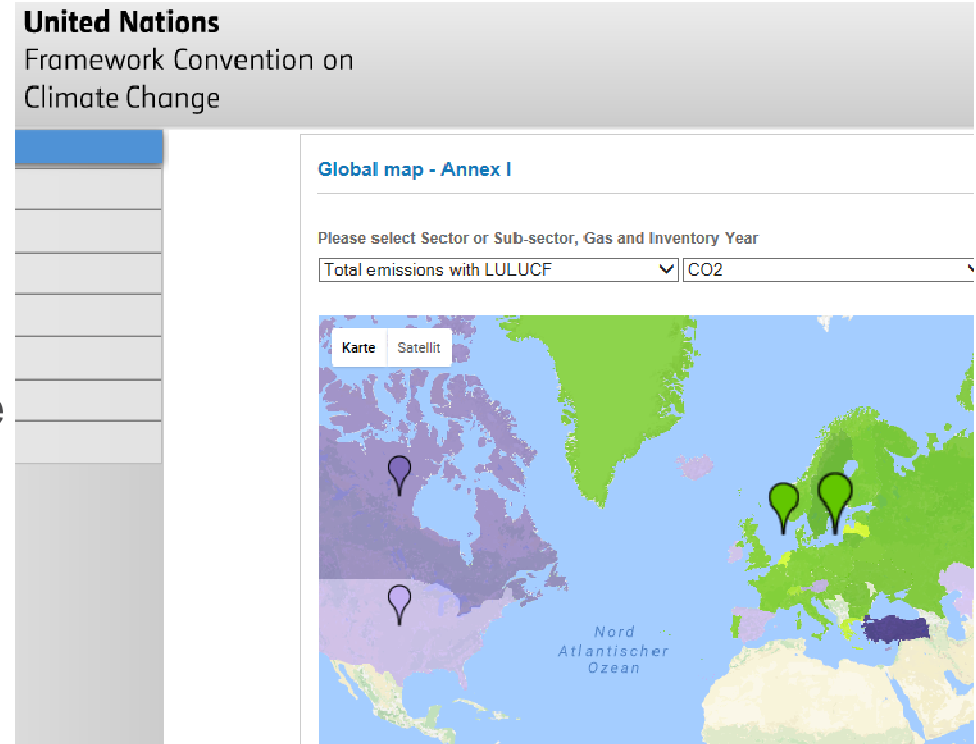
- Generally: source stream based
- Depending on the size of the installation and the size of the source stream
  - Amount: individually measured by the operator/supplier according to a required maximum uncertainty
  - Calculation factors (e.g. EF, NCV, carbon content)
    - Installations specific data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

### Data sources

- Installation specific annual emission report

# Legal framework for developing inventories

- Framework Convention of Climate Change (UNFCCC): every Annex I party
  - calculate **national GHG inventories** and
  - submit these to the UN Climate Secretary
- For compiling the inventory, comparable methods should be used: **UNFCCC Reporting Guidelines** by use of **2006 IPCC-Guidelines**
- Requirements are implemented on EU level with
  - **Monitoring Mechanism Regulation (MMR, EG 525/2013)**
  - **Implementing Regulation (EU 749/2014)**



# Type of data and data sources for inventory

## Basically, a 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

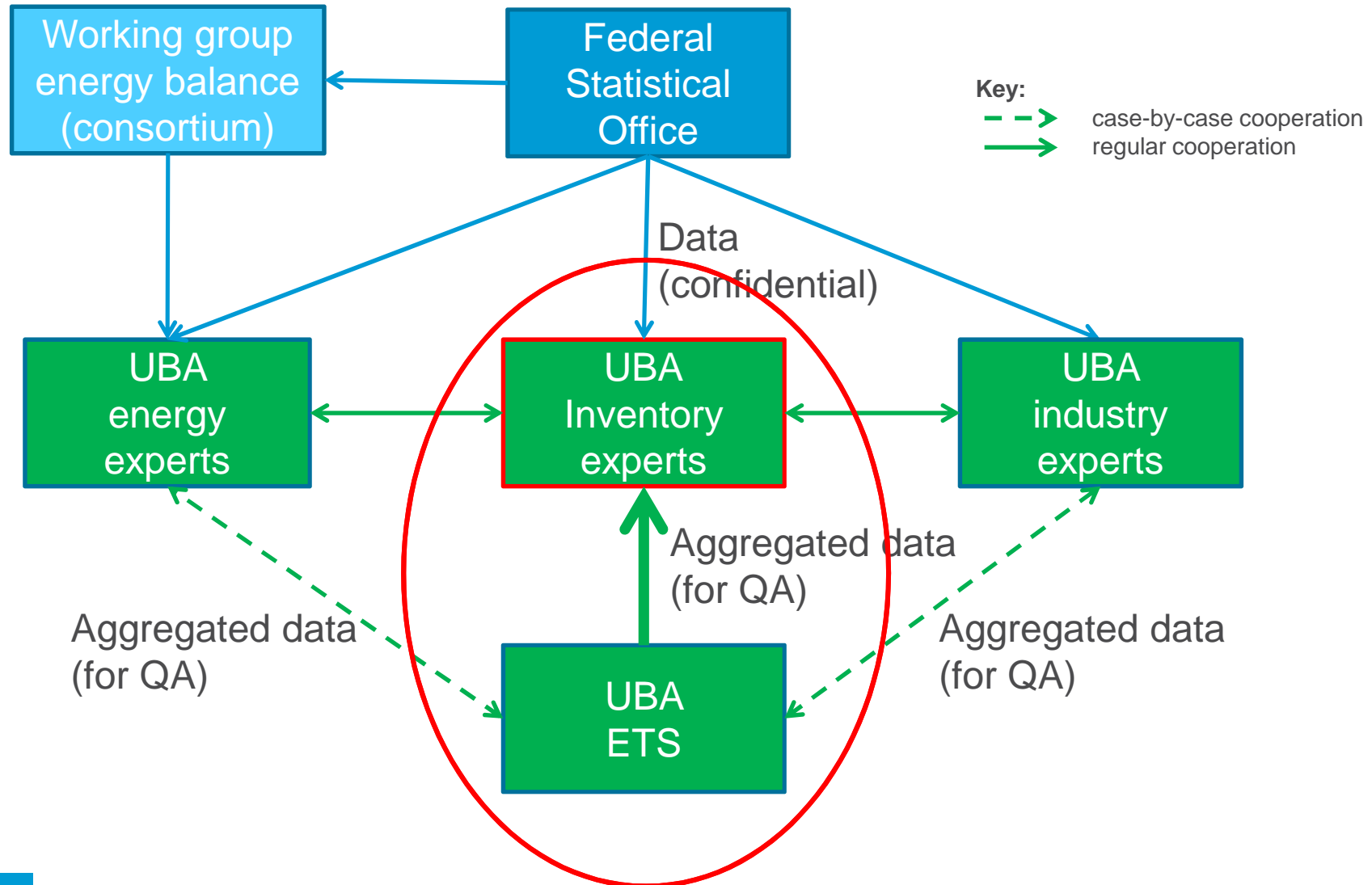


# Main requirements for compiling the inventory

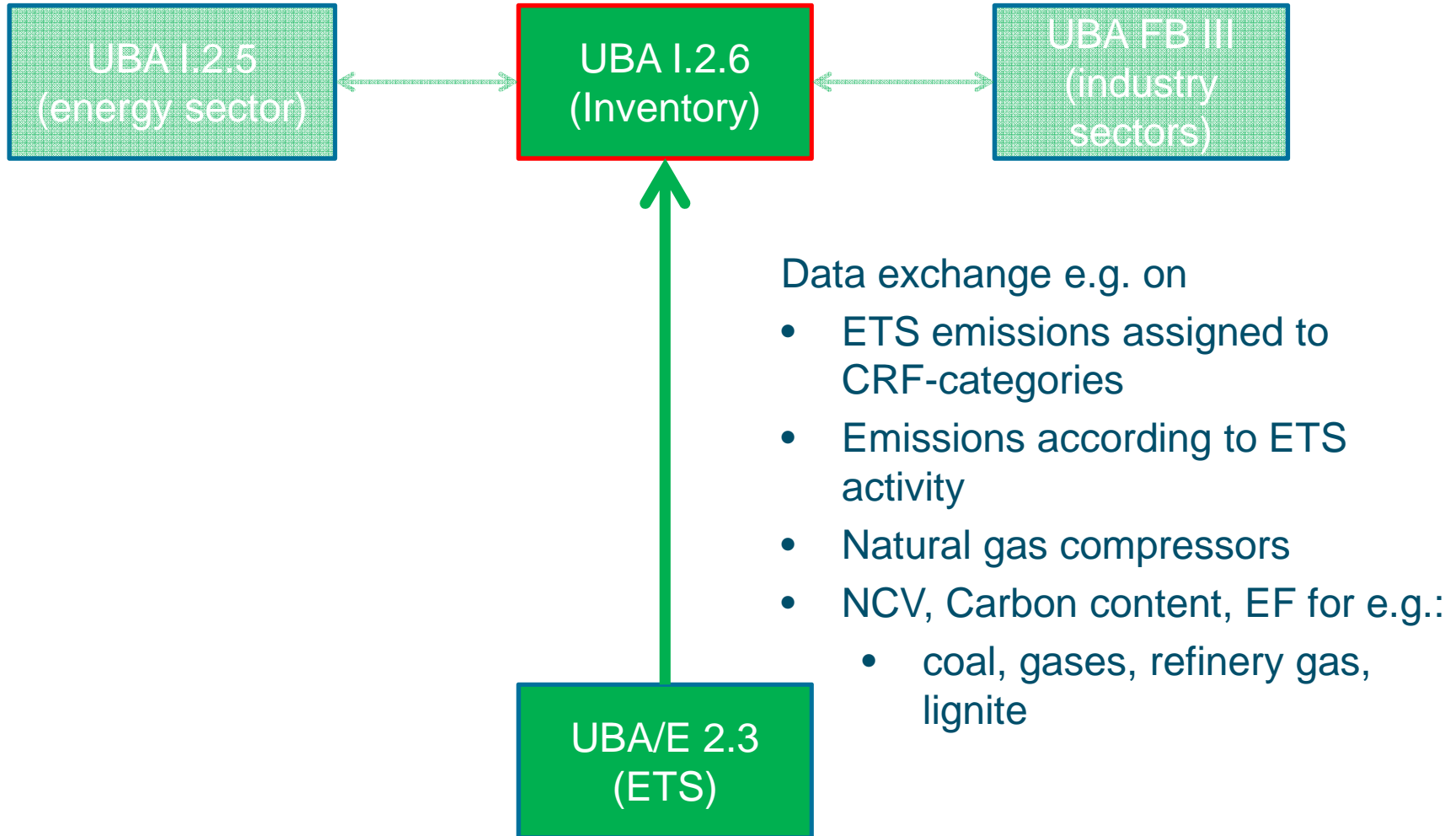
- Member States (MS) shall establish an inventory system
  - Implementing a quality assurance and quality control system
  - Establishing national focal point for the overall responsibility over the national inventory
- Annually submission of inventory reports
  - 15<sup>th</sup> January of year X for the year X-2
- Reviewing the inventory
  - with ETS data and data from energy statistic



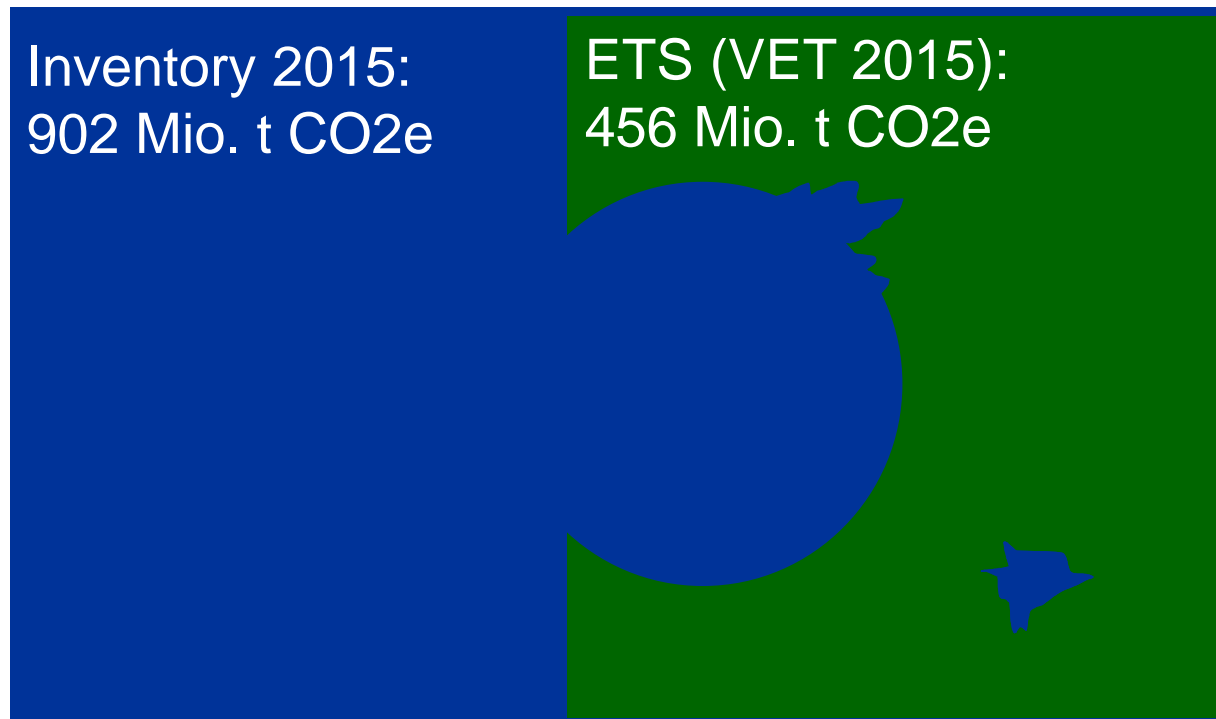
# Cooperation of involved parties



# Cooperation between inventory and ETS



# Comparison of inventory data and ETS data



Sources:

inventory report 2017, [https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2017-05-02\\_climate-change\\_14-2017\\_nir-2017\\_unfccc\\_eng.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2017-05-02_climate-change_14-2017_nir-2017_unfccc_eng.pdf)

VET report 2015, [https://www.dehst.de/SharedDocs/downloads/EN/publications/2015\\_VET-Report.pdf](https://www.dehst.de/SharedDocs/downloads/EN/publications/2015_VET-Report.pdf)

# Differences between Inventory & EU ETS

- Data sources used for data compiling:  
inventory data mainly from federal statistics or from industry associations **vs.** verified data per installation in the ETS
- Tier systematic:  
contribution of a source category to the total inventory emissions defines tier (method) **vs.** tier as hierarchy of different data quality levels in ETS
- Scope:  
all installations of a sector are included in the inventory **vs.** threshold for installations in a sector included in the ETS (e.g. cement, ceramics)
- Attribution of emissions:  
emitter **vs.** transferrer (transfer of CO<sub>2</sub> from ammonia installation)
- Data lifetime:  
recalculations of inventory caused by new data (two years backwards for the entire time series) **vs.** recalculations by authority caused by judgment

# 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 activities to CRF is not possible

Inventory: CRF-categories (IPCC-sector)	ETS: Activity on installation level
<ul style="list-style-type: none"><li>■ 1.A.1. Energy<ul style="list-style-type: none"><li>■ 1.A.1.a Public electricity and heat supply</li><li>■ 1.A.1.b refineries</li><li>■ 1.A.1.c production of solid fuels</li><li>■ 1.B.2.c flares</li><li>■ ...</li><li>■ 1.A.2.g energy use in industry - others</li><li>■ ...</li></ul></li><li>■ 2. Industry processes<ul style="list-style-type: none"><li>■ 2.A.1 Process emissions in cement industry</li></ul></li></ul>	<ul style="list-style-type: none"><li>■ Activity 20: Combustion of fuels<ul style="list-style-type: none"><li>■ Energy conversion</li><li>■ Engine and turbines</li></ul></li><li>■ Activity 21 - 44: Industry<ul style="list-style-type: none"><li>■ <b>Refineries</b></li><li>■ Coke</li><li>■ Pig iron and steal</li><li>■ Non-ferrous metals</li><li>■ Mineral industry</li><li>■ Paper and pulp</li><li>■ Chemical industry</li><li>■ ...</li></ul></li></ul>

**Thank you for your attention!**

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