ENVIRONMENT AGENCY AUSTRIA umweltbundesamt

# Preparing for an ETS – MRV issues

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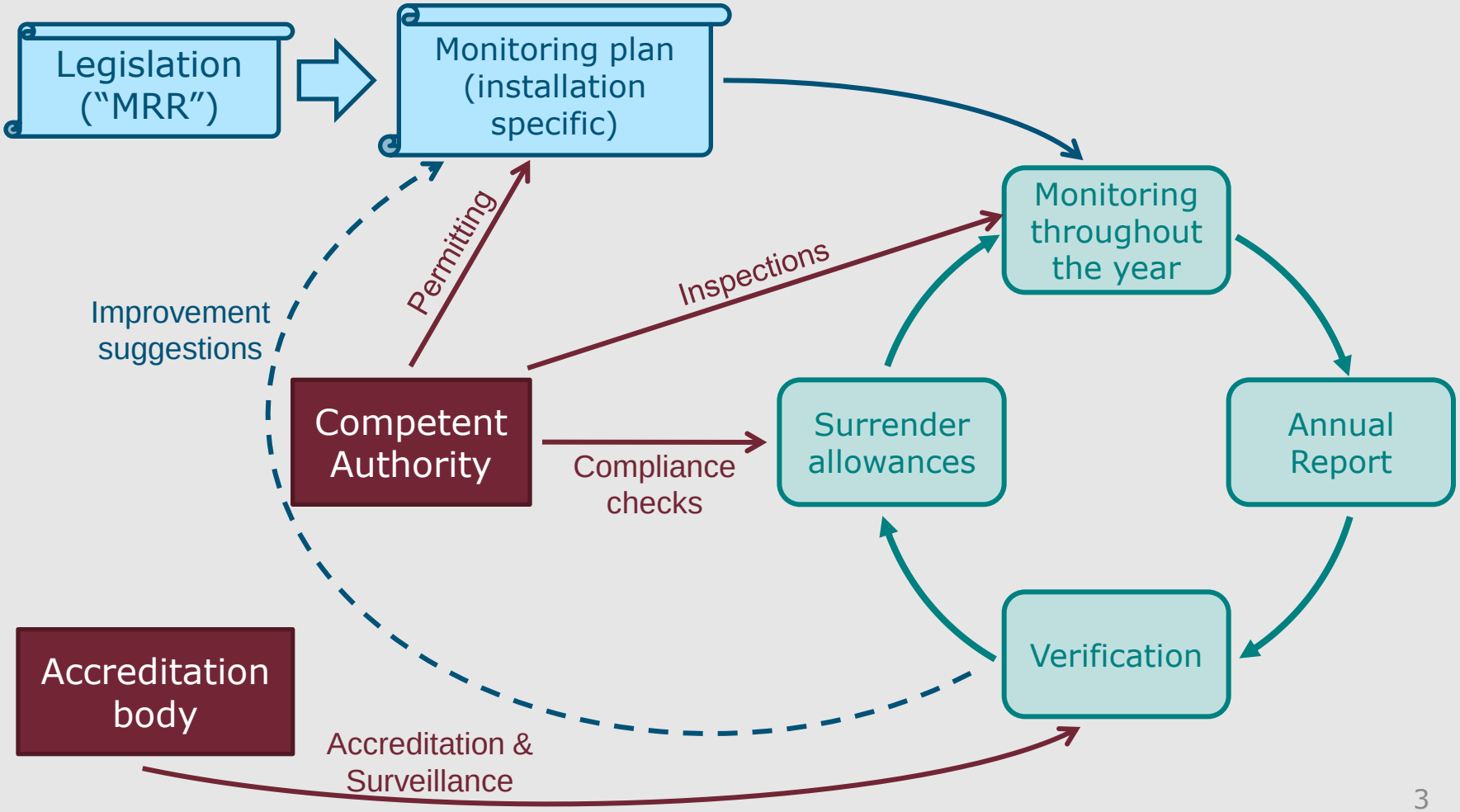
# The importance of high quality data

- EU ETS = market instrument
  - Allowances = monetary value
  - Market players want to know their balance → need to buy or sell?
- EU ETS = environmental regulation
  - Competent authority wants to monitor, if targets are reached
  - Competent authority has to protect the integrity of the system
- Both want assurance that

  **1 ton $CO_2$ emitted = 1 ton $CO_2$ reported**
- Benefit for operators:
  - Knowing about one's emissions is often enough for reducing them

# How the EU ETS "Compliance Cycle" works



# Methods for determining emissions

- In the EU ETS, the aim is to balance data quality and costs
- Use as far as possible available data and existing equipment

- Therefore the Monitoring and Reporting Regulation (MRR) provide for a building block system:
  - Options for overall approach
  - Options for each parameter (fuel consumption, emission factors,...)
  - Different tiers (=precision levels) possible
- For bigger emissions higher data quality is required

# Main approaches (1)
# Calculation*

Emissions =
= Input × Emission factor

Fuels

Process inputs

Products and waste accounted for in the emission factor

* Note that despite its name, the “calculation” method does include some measurements. The term is used mainly to distinguish the method from *continuous* emission monitoring.

# Calculation (fuel emissions)

$$\mathbf{Em = AD \times EF (\times OF)}$$

- Em…Emissions [t $CO_2$(eq)]
- AD…Activity data (amount of fuels × net calorific value) taken from measurement (weighing, flow meters…) or from invoices
- EF...Emission factor (IPCC, national reference values or determined by chemical analysis)
- OF...Oxidation factor (standard value or taken from analysis of ash and slag)

A similar approach exists for process emissions.

# Treatment of biomass

- CO2 resulting from use or combustion of biomass is generally considered to be rated as zero (i.e. Emission Factor = 0)

- Sustainability of agriculture and forestry is a great concern
- As first measure, EU has introduced sustainability criteria for bioliquids and biofuels (regarding renewables energy target)
- These also apply to the EU ETS from 2013

# Other approaches

- Mass balance approach (similar to calculation, but more flexible)
- Continuous Emissions Measurement Systems (CEMS)
  - Needs continuous determination of off-gas flow rate (mass balance or measurement) and measurement of GHG concentration
  - Extensive quality control measures required
- Fall-back approaches
  - Allowed where normal EU ETS requirements cannot be entirely met, but a satisfactory overall data quality* can be demonstrated
  - Very rarely used

* The data quality is usually expressed as overall measurement uncertainty over the reporting year.

# Installation operator's activities

- Based on the monitoring plan as approved by the competent authority
- Data collection (bills, invoices, production protocols,...)
- Sampling of materials and fuels (where applicable)
- Laboratory analyses (if applicable)
- Maintenance and calibration of meters
- Control activities (four eyes principle...)
- Data archiving (protect from manipulation)
- Identification of improvement possibilities
- Preparation of annual reports

# Verification

- Aim is to create trust in the data by receiving an opinion of an independent and competent body
- EU ETS architecture foresees this to be done by private entities
- In order for the competent authority to control this process, the verifier needs an accreditation
- Details laid down in the AVR (Accreditation and Verification Regulation) – compatible with international standards such as ISO 14065

# Competent Authority's Role

- Approve the monitoring plan (as part of the installation's permit for operation)
- Carry out inspections (check if monitoring plan is correct, and if it is followed in practice)
- Ensure that verifiers are supervised (either by the competent authority or by the accreditation body)
- Accept emission reports (and prescribe emissions level if reports incorrect)
- Ensure that allowances are surrendered and – if applicable – that penalties are paid
- Ensure publication of data

# Concluding remarks

- The EU ETS is in force in 31 countries, where different "regulatory cultures" exist.
- Each installation is different, so each monitoring plan is different.
- Common elements build up trust:
  - Transparency of the system rules
  - (Technically) robust monitoring approaches
  - Credible control activities (competent authority, third party verification)
- As long as these principles are respected, the exact details of the compliance system may be defined within a wider range of options, so that special situations can be dealt with.

# Thank you for your attention!

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**Disclaimer:**
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