EMISSIONS TRADING SYSTEM
Capacity Building

Umwelt Bundesamt | DEHSt Deutsche Emissionshandelsstelle

WORKSHOP ON VERIFICATION IN BERLIN

Lessons learnt from a verifier's perspective and best practice verification process

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

EMISSIONS TRADING SYSTEM
Capacity Building

ABOUT THE PROJECT

"Emissions Trading System: Capacity Building" is a programme of the German Ministry for the Environment [BMUB], in cooperation with the German Emissions Trading Authority [DEHSt] and leading German emissions trading experts, to share knowledge and experience to help interested countries establish an emissions trading system. Fundamental principles and “best practices” of emissions trading are offered with a focus on the EU and German experiences. Participants gain the necessary expertise to develop and implement concepts to design their own national ETS.

The programme offers training modules in selected countries and in Germany and has been specially designed for experts and policy makers. The programme comprises a number of modules that can accommodate individual interests and prior knowledge of participants.

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Introduction to the speaker

- Dr. Sven Kolmetz, sven.kolmetz@verico.eu
- 1984-1990 Study of Physics in Karlsruhe, (System theory, general relativity)
- 1990 Diploma: Solar Cells for hydrogen generation (Stuttgart)
- 1991-1996: Institute for energy economics and power plant technology, Munich
- 1997-2005: eta energy consulting
- 2006-2010: TÜV SÜD Carbon Management Service
- 2011-: Climate Bridge (development of renewable energy projects)
- 2013-: Carbon Integrity GmbH (consulting) / verico SCE (certification in the framework of the EU ETS and Energy Management Systems)

Other obligations: Chair Project Developer Forum / Member of German ISO Comittee „Management of Greenhouse Gases“ / Accreditation Panel of the UNFCCC

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Agenda

- **Accreditation**
- Competence Requirements (ISO14066)
- Impartiality
- The verification process
- Lessons Learnt from German Example
- Lessons Learnt from Spanish Example

Why involving third party verifiers?

- CAs have to ensure a proper functioning of the ETS
- The **integrity** of the ETS requires that…
  - Reliable and correct emissions data are reported
  - Operators are treated equally

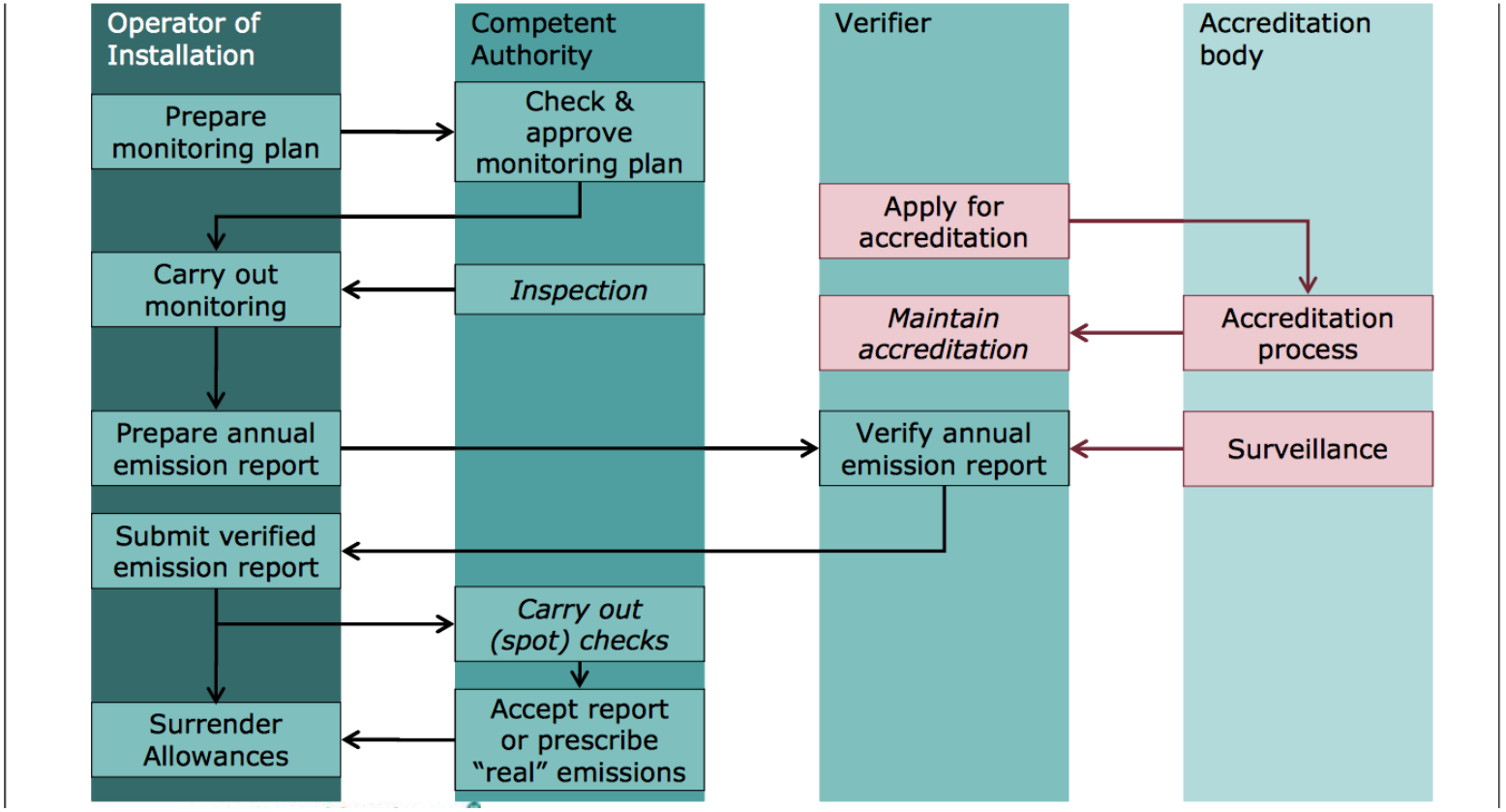
Challenges for CAs without Third Party Verification:

- Large number of installations covered / High complexity of installations (diverse sectors with very specific processes) would require a large number of personnel with very specific knowledge and skills
- Assessment of emission reports is a “seasonal business”
- On-site inspections during assessment ?➔ Cost / personnel-intensive
- **International trading (Paris, Linking) is only possible with common rules**

Role of the Competent Authority and the verifier

- The CA and the verifier each have their own distinct roles and responsibilities.
- Although the verifier is commissioned by the operator to conduct their verification, the verifier is required to act “in the public interest” to ensure that the operator is in compliance and reporting accurate data by the deadline for annual reporting.

Role of the CA and the verifier



Source: MRR Guidance document no 1

Regulations set by the EU Accreditation Regulation I

- Requirements for verifiers
  - Continued competence process
  - Establishment of verification teams
  - Dealing with appeals and complaints
  - Competence requirements for lead-auditors, auditors, reviewers
  - Use of technical experts
  - Establishment of procedures for verification activities, record keeping and communication
  - Impartiality and independence
- The accreditation process
  - Procedural steps including the assessment
  - Surveillance, extraordinary assessment and administrative measures

Regulations set by the EU Accreditation Regulation II

- Requirements for accreditation bodies
  - Impartiality and independence
  - Organizational issues
  - Composition of assessment teams
  - Competence requirements for assessors (in Germany more details are specified by a sector committee)
  - Peer evaluation process
  - Mutual recognition of verifiers
- Information exchange
  - From verifiers to accreditation body
  - From accreditation body to competent authority (bidirectional)

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Best Practice

- Key requirements for verifiers:
  - Independence;
  - Expertise;
  - Professional care (incl. scepticism).

- Quality of verification depends on:
  - Requirements for accreditation;
  - Clarity and detail of the provisions for verification;
  - Supervision of verifiers and verification statements by competent authorities.

Competence Criteria

- General competence, including:
  - Technical competence (Auditing, “data mining”, report writing)
  - Generic competence (scepticism, patience, friendliness, impartiality…)
  - Competence evaluation (these competences must be checked objectively)
  - Monitoring of personnel (… and regularly).

- Technical sector competence

  Knowledge of technology and their emissions (power plants, …)

  and industrial sector (energy, cement, chemical, refinery…)

ISO series 14064/65/66

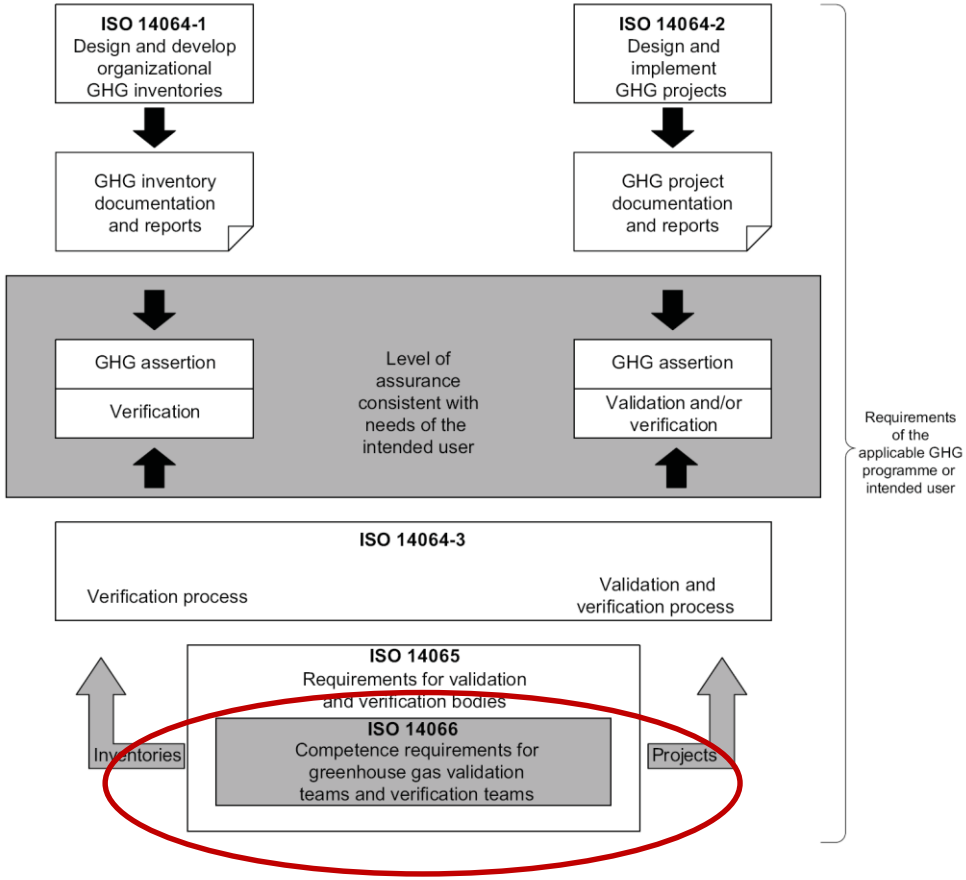

Figure 1 — Framework for using ISO 14066 with ISO 14064-1, ISO 14064-2, ISO 14064-3 and ISO 14065

ISO 14066

ISO 14066: Competence requirements for greenhouse gas validation teams and verification teams

- Specifies principles and requirements for bodies that undertake validation or verification of greenhouse gas (GHG)

ISO 14066: Methods to evaluate the competence of auditors

Evaluation method	Objectives	Examples
Records review	To verify the knowledge of auditors	Analysis of records of education, personnel certification, training, and verification experience
Positive and negative feedback	To receive information about how the performance of the auditor is perceived, including behaviour	Surveys, questionnaires, personal references, testimonials, complaints, performance evaluation and reviews

ISO 14066: Methods to evaluate the competence of auditors – cont.

Evaluation method	Objectives	Examples
Interview	To evaluate personal behaviour and to test knowledge	Face-to-face and telephone
Observation	To evaluate personal behaviour and the ability to apply knowledge and skills	Role playing, witnessed audits, on-the-job performance
Examination and testing	To evaluate personal behaviour and the application of knowledge and skills	Oral and written exams, psychometric Testing
Post verification review	To evaluate knowledge or performance	Review of the audit statement, discussion with the client / audit team

ISO 14066: sector competence (example direct emissions)

Sector competence requires knowledge and understanding of the generation, reduction, or avoidance of GHG emissions and monitoring activities associated with:

- the production of energy due to the stationary combustion of fossil fuel,
- energy generation from renewable sources (if applicable),
- mobile sources (if applicable) generally associated with the combustion of fossil and biofuels,
- fugitive and venting sources (if applicable),
- flaring sources ! (if applicable), and
- co-generation (if applicable).
- Scrubbing of flue gases

ISO 14066: competence versa skills (example)

Relationship between competence requirements in ISO 14065:2007 and skills and abilities needed.

ISO14065	Skill and ability
Data and information auditing expertise	means…
to design a sampling plan based on an appropriate, agreed level of assurance	For a given set of circumstances, decide on: • the form, the extent and quality of evidence required to support the GHG assertion, • the most efficient testing procedures to obtain the evidence, • the need for an IT specialist or the need to use computer-assisted audit techniques. • Communicate the plan to relevant stakeholders. • Alert to changes in circumstances not considered in the sampling plan and adjust appropriately.

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ISO 14066 – Personal Behaviour

- ethical, i.e. fair, truthful, sincere, honest and discreet;
- open-minded, i.e. willingness to consider alternative ideas or points of view;
- diplomatic, i.e. tact in dealing with people;
- observant, i.e. active observation of physical surroundings and activities;
- perceptive, i.e. aware of and able to understand situations;
- adaptable, i.e. adjusting readily to different situations;
- tenacious, i.e. persistence, focus on achieving objectives;
- decisive, i.e. reaching timely conclusions based on logical reasoning and analysis;
- self-reliant, i.e. acting and functioning independently while interacting effectively with others;
- acting with fortitude, i.e. willing to act responsibly and ethically even though these actions may not always be popular and may sometimes result in disagreement or confrontation;
- well organized, i.e. exhibiting effective time management, prioritization, planning and efficiency;
- open to improvement, i.e. learning from situations, striving for better audit results;
- culturally sensitive, i.e. observing and respecting cultural traditions of the auditee;
- a team player, i.e. working well with other audit team members.

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- Accreditation
- Competence Requirements (ISO14066)
- **Impartiality**
- The verification process
- Lessons Learnt from German Example
- Lessons Learnt from Spanish Example

Impartiality

- Personal accreditation versa Organisational Accreditation

- **Risks for Impartiality:**
  - Source of revenue
  - Self-interest
  - Self-review
  - Familiarity (trust)
  - Intimidation

- **Safeguards to Impartiality:**
  - Reputation
  - Accreditation
  - Internal Review
  - Independent Impartiality Committee
  - Procedures
  - Liability

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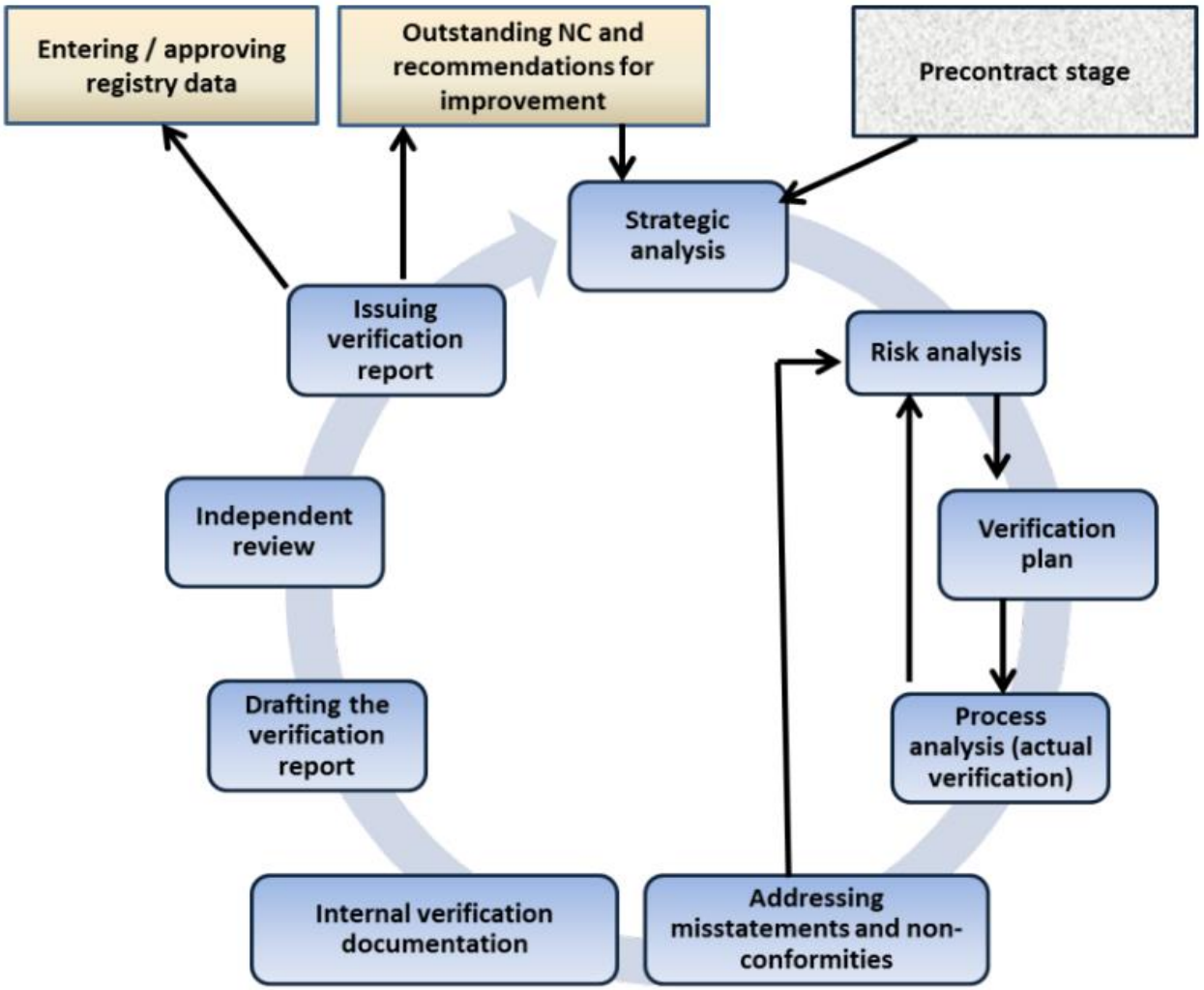
5.4 – The Verification Process – Basis is the Emission Report

- General information about the plant (operator, responsible person, description of the plant sections)
- For each source stream, the following data should be defined:
  - Activity data;
  - Net calorific value (for fuels only);
  - Emission factors; oxidation factors;
  - Actual annual CO2 emissions;
- Information regarding the reporting period;
- Reference to monitoring methodology and plan;

5.4 – The Verification Process – Approach



5.4 – The Verification Process – Pre-contractual obligations

- Evaluate the risks (risks with regard to the verifier's operations)
- Determine the scope of the verification
- Compliance with competences / scopes (accreditation)
- Capability to meet competence requirements (set by complexity) and timelines
- Determine time allocations

- Ensure that proper quality can be delivered - already within your bid

5.4 – The Verification Process – Verification Plan

- The validator or verifier shall develop a documented validation or verification plan that addresses, as a minimum, the following:
  - Level of assurance
  - Validation or verification objectives
  - Validation or verification criteria
  - Validation or verification scope
  - Materiality
  - Validation or verification activities and schedules
- The plan shall be revised as necessary

5.4 – The Verification Process – Verification Plan

- Requirements according to communique
  - a verification programme describing the nature and scope of the verification activities as well as the time and manner in which these activities are to be carried out;
  - a test plan setting out the scope and methods of testing the control activities as well as the procedures for control activities;
  - a data sampling plan setting out the scope and methods of data sampling related to data points underlying the aggregated emissions
- Similar reference to revisions

5.4 – The Verification Process – in Practice

- Development of a comprehensive test plan or a set of documents
- Synopsis of requirements, data/information, risks, verification activities and results
- Involvement of the operator by reasonable exchange of data

!!! Maintain records on data sampling incl. justification !!!

!!! Maintain a list of documents that has been assessed !!!

5.4 – The Verification Process – Test Plan (1)

Area of concern	Risk	Assessment method	Additional Information requested
<From the documentary review state here any possible source of errors. E.g manual transfer of raw data to the information system.>	<State the risk level and explain the reasons. E.g any errors will affect the total figure of reported emissions>	<State how this area of concern will be checked to minimise the risk.>	<State here if any additional documents are requested and if need to be sent previous to the visit or will be reviewed on site.>
e.g. remaining issues from previous verification			

5.4 – The Verification Process – Test Plan (2)

Topic	Description	Risk	Method	Conclusion / proof	Remaining risk
Organizational boundaries:		☐ high ☐ average ☐ low ☐ none	☐ Inspection ☐ Interview ☐ Check of docs ☐ Others …	Non-Conformities must be numbered and bold	
Fuel No 1 Activity Data QA/QC	**Monitoring**	☐ high ☐ average ☐ low ☐ none	☐ Inspection Check installation of devices Check QC records ☐ Interview Check responsibilities ☐ Check of docs ☐ Others		

5.4 – The Verification Process – Verification Activities

- verifier shall at least carry out substantive testing consisting of analytical procedures, data verification and checking the monitoring methodology and check the following:
  - the data flow activities and the systems used in the data flow, including information technology systems;
  - whether the control activities are appropriately documented, implemented, maintained and effective to mitigate the inherent risks;
  - whether the procedures listed in the monitoring plan are effective to mitigate the inherent risks and control risks and whether the procedures are implemented, sufficiently documented and properly maintained.

5.4 – The Verification Process – Verification Activities

- Analytical procedures
- Data verification
- Verification of the correct application of the monitoring methodology
- Verification of methods applied for missing data
- Uncertainty assessment
- Sampling
- Site visits / audits

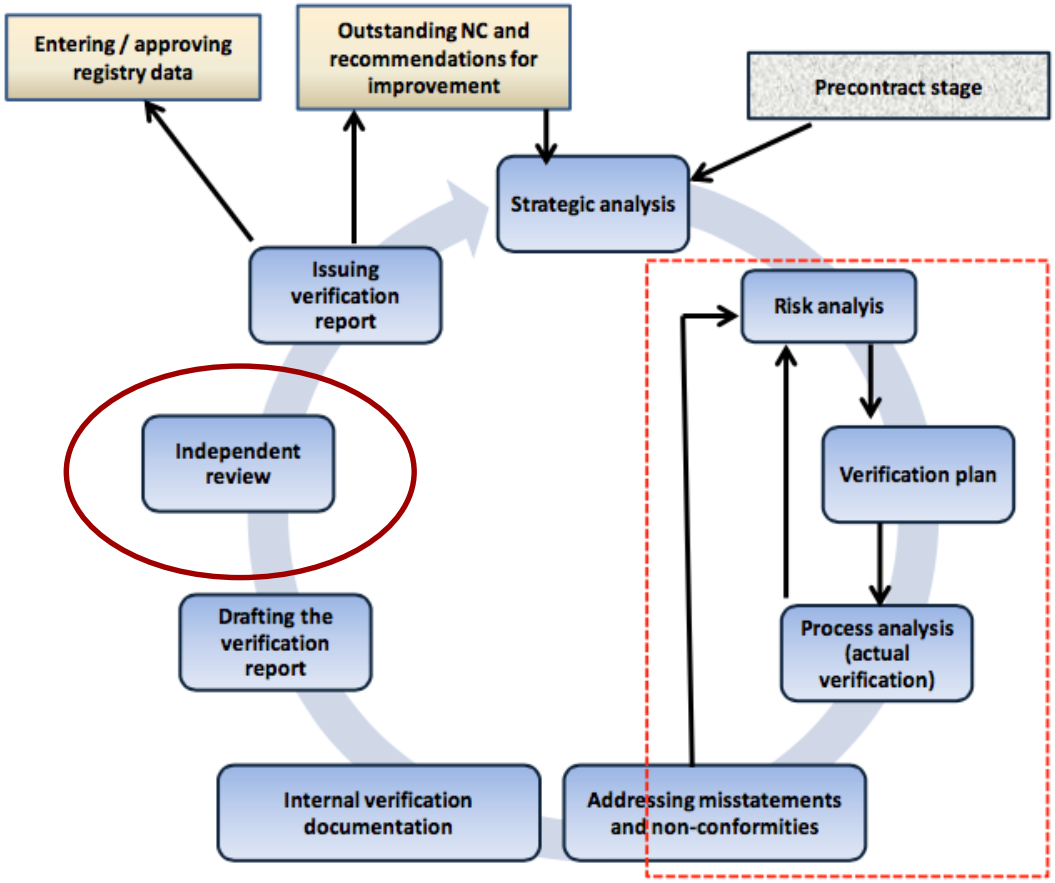
5.4 – The Verification Process – Documentation

- Requirements on internal documentation
  - results of the verification activities (e.g. protocol)
  - strategic analysis, risk analysis and verification plan
  - sufficient information to support the verification opinion including justifications for judgments made
  - drafted in such a manner that the independent reviewer and the accreditation body can assess the performance of the verification team (reproducibility of conclusions)
  - results of the independent review
  - the external report

5.4 – The Verification Process – Documentation

- Requirements on external documentation
  - Reference to the operator, the operator's report, the reporting period, the applied monitoring plan(s),
  - objectives and scope of verification
  - Information on verified emissions (or reductions)
  - results of a risk assessment including the assessment of control measures
  - the verification opinion statement
  - any identified misstatements and non-conformities
  - recommendations for improvements
  - Information on the verification team, site visits and technical reviewer, and authorized signature(s)

Verification Risks



5.4 – The Verification Process – Independent Review

- ISO14064-3
  Best practice also indicates that validation and verification risk can be significantly reduced through the appointment of an objective peer reviewer, who assesses the work of the team leader and the validation or verification team from the initial contact with the client to the completion of the validation or verification process.
- Really helps to achieve fast improvement of quality
- Should be based on checklists → transparency

5.4 – The Verification Process – Verification Statement

- Minimum contents described within ISO 14064-3
- Should include a qualification
- Report every departure from requirements (non-compliances, findings)
- Recommendations for improvement

5.4 – The Verification Process – Synergies

A well-established process may create synergies with other regulation:

- Paris Agreement: cooperative mechanisms 6.2
- Paris Agreement: sustainable development mechanism 6.4
- National reporting to UNFCCC (NDC)

- Other pollutants (like SO_2, NO_x, etc.): difficult

Other air pollutants need to be measured directly, while CO_2 can be calculated based on the fuel consumption (stoichiometric correlation). Accuracy and level assurance is much higher and comparable with international standards while direct measurement of CO_2 is less precise and not international comparable (besides chemical industry, where CEMS is accepted).

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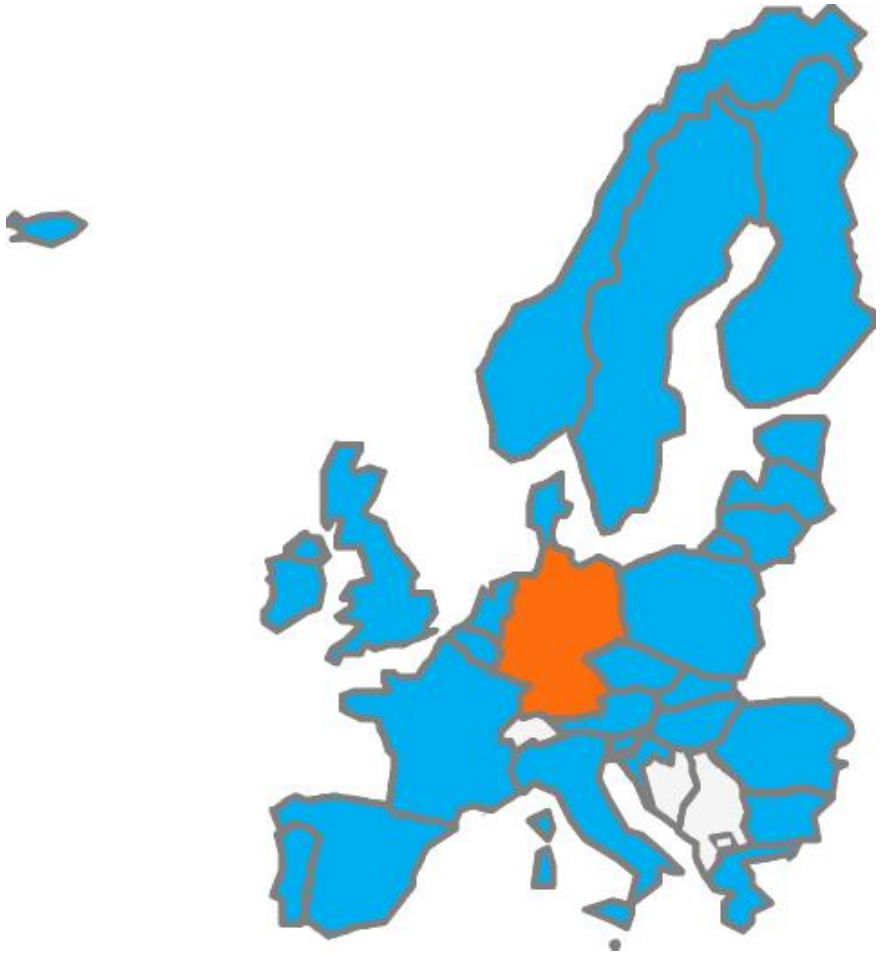
Germany



Experiences from Accreditation Process

- Large amount of findings in initial office assessments and witnessing activities
- All non-conformities could be phased out, i.e. each applicant entity gained accreditation
- Witness activities cannot cover whole process but only on-site activity
- Quality of documentation of the verification process is essential for an easy assessment process
- Internal monitoring and examination necessary to ensure quality
- Appropriate training and qualification process for new auditors is a must

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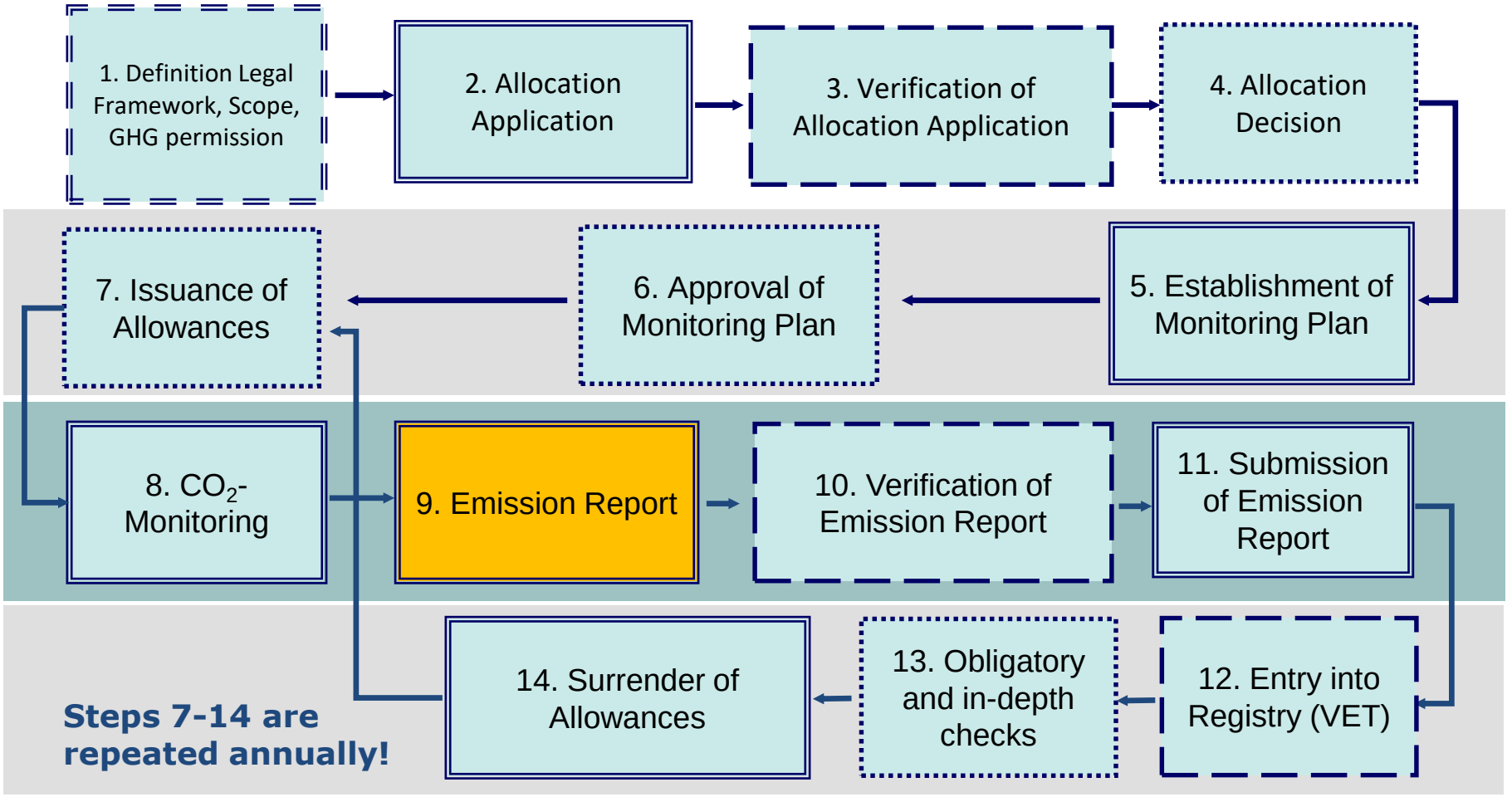
Experiences from Accreditation Process

- Witnessing by accreditation body will target at each lead auditor during the accreditation period
- Competent authority still expresses concerns on the quality of some percent of the verification reports
- Progress is made along a continuous improvement process

The EU ETS Cycle



Source: FutureCamp 2014

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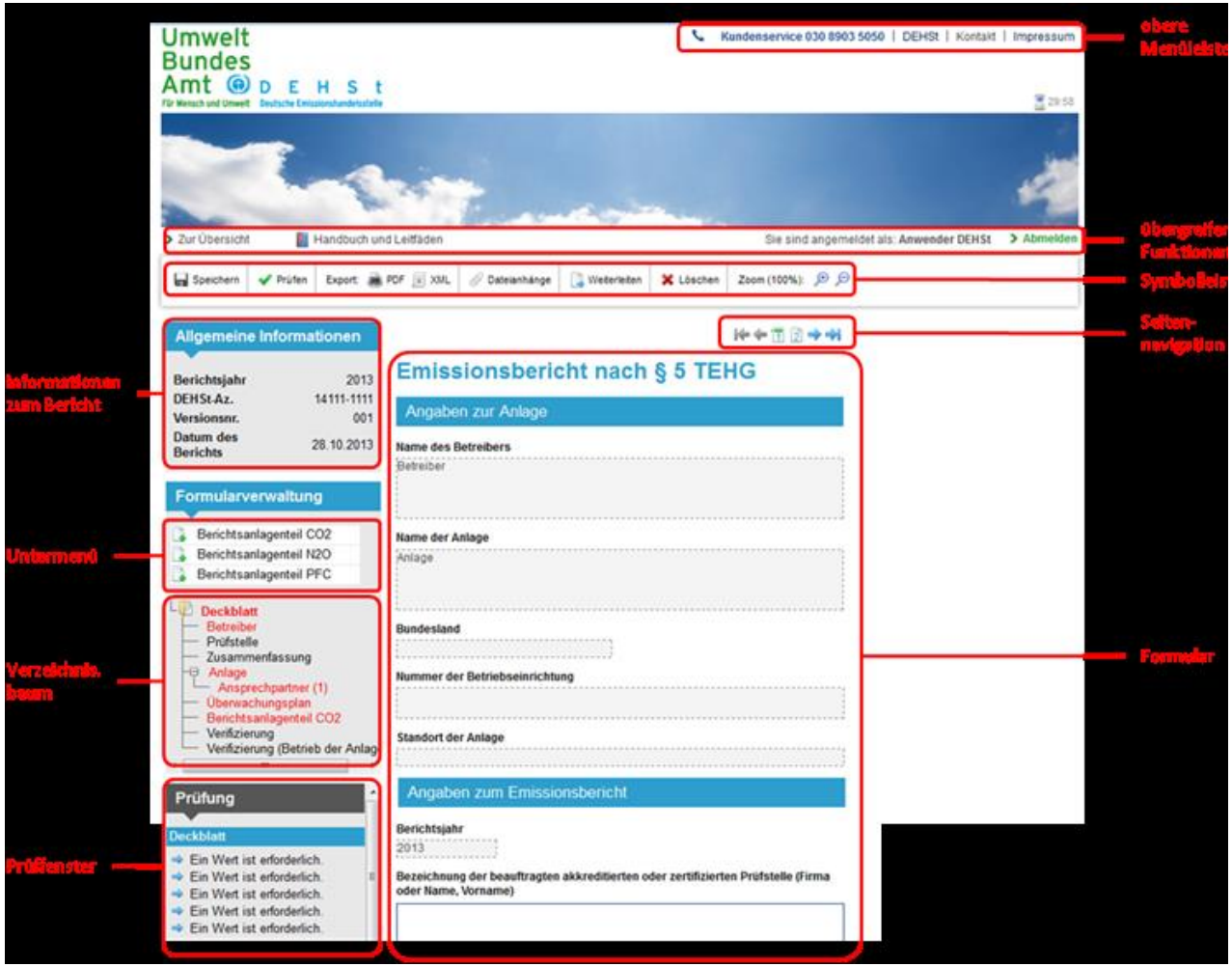
Form Management System – a German Peculiarity

This server-based application sets the requirements for the content and structure of the reports as to how it is required in the monitoring guidelines. The electronic communication between plant operators, state authorities, verifiers and the German Emissions Trading Authority (DEHSt) is done via the Virtual Post Office (VPS). To import data into the FMS, a so-called XML interface can be used.

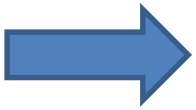


Typical Non-Conformance in Actual Monitoring Plans

- Missing emission sources;
- Lower tier approach than required;
- Insufficient sampling and analysis frequency and quality;
- Missing installation boundaries concerning ETS and non-ETS installations or parts of installations (in case of multi-unit plants);
- None or only insufficient revision of MP in case of increased capacity or significant change of an installation;
- Deviations between monitoring practices and descriptions in MP;
- No description of procedures to substitute missing or inconsistent data;
- Insufficient description of data management and control procedures.

Typical Errors in Actual Emission Reports

- Missing and incorrect data:
  - Missing emission sources or source streams;
  - Incorrect installation boundaries;
  - Incorrect or implausible emission factors and net calorific values;
  - Information concerning (pure) biomass;
  - Wrong units or mistyping of numbers.
- Inconsistent information:
  - Concerning emission report compared to monitoring plan;
  - Concerning emission report and additional documents.



Reporting errors can only be detected in comprehensive checks!

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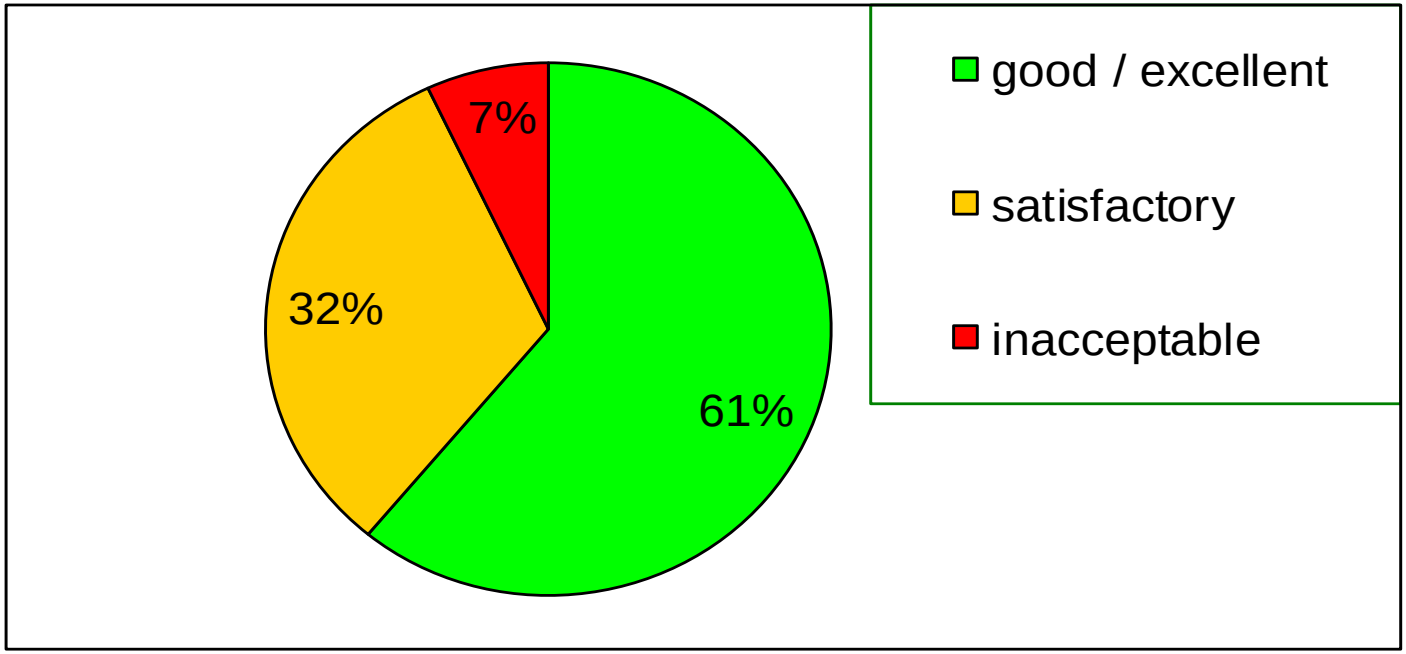
Quality of Verifications (German Example)



Source: BMUB, 25th July 2011

Potential Reasons for Insufficient Verifications

- Insufficient knowledge of the MRR requirements.
- Insufficient procedures for the verification process.
- Missing independent checks of the competence and organisation of verifiers (problem solved in third monitoring period by accreditation bodies).
- Lack of responsibility / Missing independence (interest to acquire follow-up contracts by companies)
- Cost pressure may lead to:
  - Price dumping;
  - Carelessness;
  - Lack of time for site visits.

How to Achieve Improvements?

- Accreditation is only the first step to high quality verification and cannot guarantee good verification results by itself.
  → Co-operation between competent authorities (CAs) and accreditation bodies (ABs) is necessary.
- Random checks of emission reports and the related verification statements by Competent Authority's are crucial.
- Dissuasive sanctions for serious misstatements in the verification report.
- Mandatory regular training programs for verifiers.
- Idea: Commissioning of the verifiers by CAs?
  (Close commercial relation between operators and verifiers is a problem regarding independence and impartiality.)

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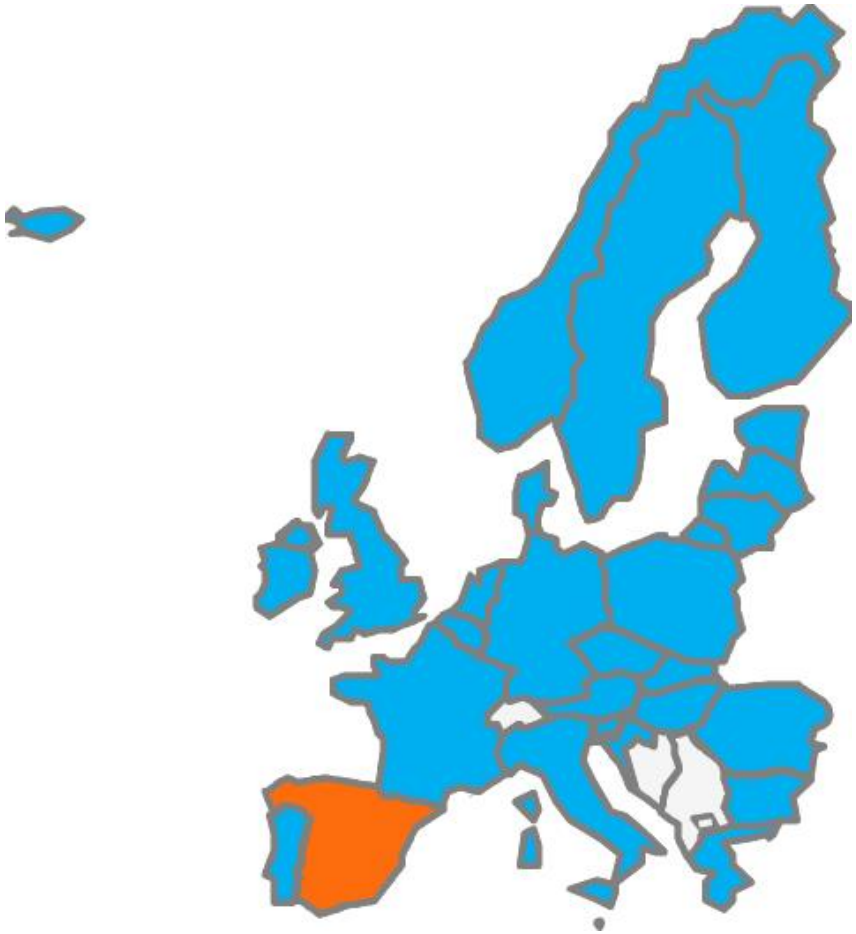
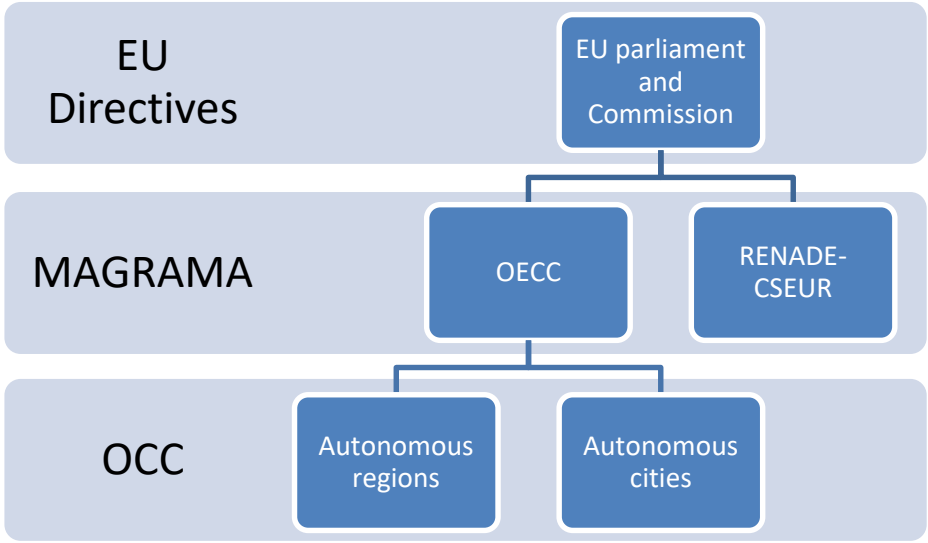
Spain



EU-ETS Framework in Spain

- Competent Authority: Responsibilities
- OECC: Spanish Representative, Communications with NAB (Art 70 and 72 600/2012), Legislation, grouping of installations authorization, Sanctions for groups, Decision of emissions allocation.
- OCC: Emissions Authorization-Monitoring Plan, Collect and review applications for allocation, New entrants authorization, sanctions for single operators.



Verifier's Perspective – Accreditation

- 600/2012: Accreditation in a MS valid for all the EU
- Barriers for implementation due to National culture and existing framework for accreditation. Economical consequences fro ENAC and Regional Catalonian Body.
- No publicity of this rule: Operators not aware of it, not relying in verifiers accredited in other countries.
- Official websites of OECC and Regional OCC include only information of previous periods: only verifiers accredited in Spain.
- Meeting with OECC to clarify new rules and obtain formal agreement of new approach. Request OECC to update information in website, only achieved by end 2014.

Verifier's Perspective – Verification

- Lessons learnt in Spain regarding:
  - Uncertainty calculations
  - Calibration issues
  - Data collection for activity data, NCV, emissions factors and conversion factors
- Sectoral guidelines for:
  - Combustion
  - Cement
  - Pulp and paper
  - Ceramic
  - Glass
  - Lime

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Thank you for your Attention!

Questions & Answers

EU-ETS Framework in Spain

- MAGRAMA (Environmental, Agriculture and Food Ministry)
- OECC (Spanish Office for Climate Change)
- ENAC (National Accreditation Body) + Regional Catalan Accreditation Body (2005-2012)
- Law 1/2005 modified by Law 13/2013 (Aviation inclusion and Implementation EU directives 600/2012-verification and accreditation and 601/2012-Monitoring and report)
- National measures for EU-ETS implementation: National Allocation Plan-allocating allowances (2005-2012), list of operators included in EU-ETS (installations, companies)
- 17 Autonomous Regions + 2 Autonomous cities in North Africa. Each one got a local Climate Change Office (OCC)
- 1,100 installations covering 45% total emissions

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