



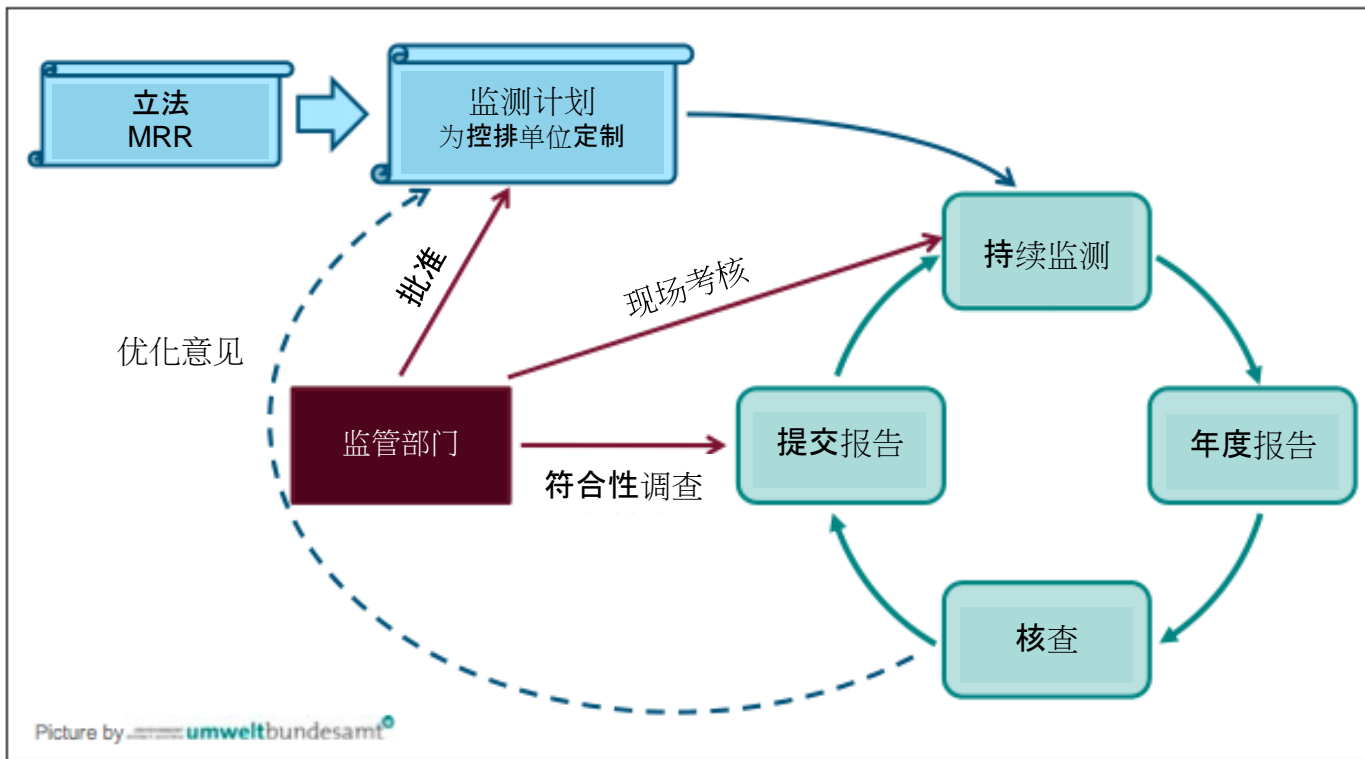
## MRV in the EU ETS 欧盟排放交易体系的 监测系统（MRV）

- **每个碳市场需要一个公平、公正、透明的检测制度**  
A fair, just and transparent MRV system is a requirement for all carbon markets
- **被监测、被核查的排放量常常作为分配排方权的基础**  
Monitored and verified emissions are often the basis for allocation of emission allowances
- **并且该排放量决定控排企业应交排方权的总量**  
And they decide how many allowances need to be surrendered
- **因此监测规则需要确保公平性、可比性与透明度，  
同时也不能过度复杂以免提高企业的履约成本**  
Therefore the rules need to be strong enough to guarantee fairness, comparability and transparency, but simple enough to avoid unnecessary costs for emitters

- EU ETS启动后8年，**欧盟才有统一的监测规定**  
Harmonized regulations after 8 years of operating the EU ETS
- **2套规定：监测与报告规则（MRR）以及认证与核查规则（AVR）**  
2 sets of rules: one for monitoring and reporting (MRR)  
and one for (accreditation and) verification (AVR)
- **根据实践经验，监测规则逐渐被简化和完善**  
The rules were simplified and completed based on practical experience
- **欧盟将提供更多说明资料，用户手册，报告模板；完善电子报告标准XETL**  
Additional guidelines and templates were provided; revisions to XETL

- 完整性 / completeness
  - 纳入所有的排放源 / include all emission sources
  - 包括启动、停机、紧急情况所产生的排放量 / including emissions from start-up, shut-down and emergency situations
- 连贯性与可比性 / consistency and comparability
- 透明度 / transparency
  - 对数据储存与数据管理的要求 / data storage and processing requirements
- 准确性 / accuracy
- 完善性 / integrity
  - （核查单位之）合理保证 / reasonable assurance (from verifier)
  - 排除重大错报 no material misstatements
  - 在成本合理的条件下，达到最高准确性  
highest achievable accuracy without leading to unreasonable costs
- 连续优化 / continuous improvement

# EU ETS之顺从流程 / The EU ETS compliance cycle



- 计算方法 Calculation based approach
  - 标准方法学（燃烧排放量，工序排放量）  
Standard methodology (combustion and process emissions)  
$$Em_{combustion} = FQ \cdot NCV \cdot EF \cdot OF; Em_{process} = AD \cdot EF \cdot CF$$
  - 物料平衡 Mass balance
- 测量方法 Measurement based approach
  - 温室气体的浓度（小时平均） Concentration of GHG (hourly averages)
  - 温室气体的流量（小时平均） Flow of GHG (hourly averages)
- 准确性的层次（例如燃料总量） Accuracy tiers (e.g. fuel quantities)
  - <25,000t/a                    +/- 7.5%
  - <50,000t/a,                    +/- 5%
  - <500,000t/a, +/- 2.5%
  - >500,000t/a                    +/- 1.5%

- 企业的排放源包括哪些，在哪里？  
What/where are my emission sources?
- 不同排放源需要何种监测方法？  
What are the metering requirements for all of them?
- 能否达到应有的精确度？  
Can I meet the necessary accuracy?
- 怎样储存，备份，处理监测数据？  
How do I store, backup and process metering data?
- 是否能够将温室气体排放报告纳入现有的工厂控制系统？  
Can I integrate the GHG reporting into my existing PLC/plant control system?
- 哪个部门负责履行监测义务？  
Which department is responsible for MRV compliance?
- 怎样能够降低相关成本和风险？  
How can I minimize associated costs and risks?