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REPUBLIC OF TÜRKİYE
MINISTRY OF ENVIRONMENT,
URBANIZATION AND CLIMATE CHANGE

Advancing ETS Readiness in Türkiye – Technical work on ETS benchmarks

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Data quality assurance in MRV

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Agenda

- 1 **Data quality in MRV**
(Explain what data quality means in MRV and why it is the backbone of the system)
- 2 **MRR principles, tiers and uncertainty**
(Describe the MRR data-quality principles, tiers and uncertainty)
- 3 **Data flows, control systems and data gaps**
(Apply data-flow, control-system and data-gap rules in practice)
- 4 **Allocation data: MMP, BDR and ALR**
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- 5 **Data quality and Turkish competitiveness**
(See what robust data quality delivers for Turkish competitiveness)

Why data quality is the backbone of MRV

The rule 'A tonne must be a tonne' - every reported figure must be reliable

Two uses	Emissions data drive surrender; activity data drive free allocation
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Trust The market and the authority rely on data being correct and comparable

Error travels	A monitoring error becomes an allocation error, in both directions
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CBAM link From 2026, the same data quality drives the cost of Turkish exports



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The MRR data-quality principles

Completeness All source streams and emission sources are covered

Consistency The same methods are applied year to year

Accuracy Neither systematically over- nor under-stated

Transparency Data can be traced and reproduced

Comparability Figures are comparable across time and installations

Integrity The methodology and data are protected from manipulation

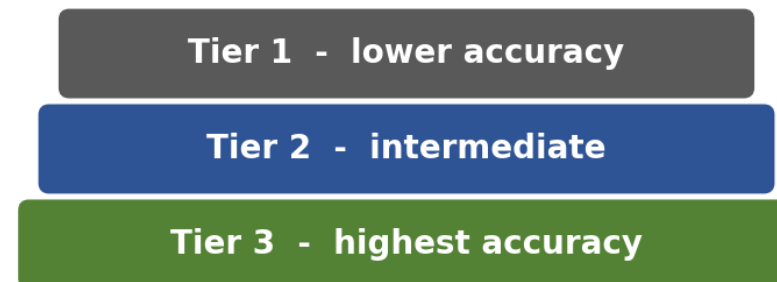
MRR data-quality principles



Tiers and uncertainty

Tier	A defined data-quality level for each parameter
Higher tier	Greater accuracy, lower uncertainty, stricter rules
Minimum tier	Set by the competent authority per installation category
Uncertainty	Each activity/parameter has an allowed uncertainty threshold
Derogation	A lower tier only where a higher one is unreasonably costly

Tiers and uncertainty



Higher tier = lower uncertainty = stricter requirements
CA sets the minimum tier; lower tier only if higher is unreasonably costly

Sampling, analysis and laboratories

When Where a parameter is determined by measurement/analysis (e.g. NCV, carbon content)

Sampling plan	A written plan sets sampling frequency and methods
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Laboratories Must be accredited to ISO/IEC 17025 or otherwise demonstrate competence

Frequency	Minimum analysis frequencies are set by the MRR
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Why Poor sampling is a common, hidden source of error

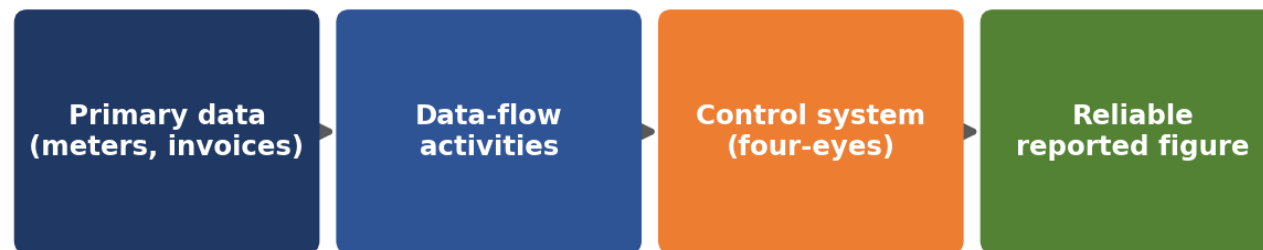


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Data-flow activities and the control system

Data-flow	The documented steps from primary data to the reported figure
Control system	Risk assessment plus control activities to catch errors
Examples	Segregation of duties, four-eyes checks, reconciliations, IT controls
Written procedures	Each activity is described in a written procedure
Goal	Errors are prevented, detected and corrected before reporting



Risk assessment and data gaps

Risk assessment Identify where errors are most likely and size the controls to match

Data gaps	When data are missing, use a conservative substitute method
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Conservative Estimates must not under-state emissions or over-state activity

Documented	The gap, its cause and the method used are recorded
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Prevention Recurring gaps signal a control weakness to fix

Uncertainty and the 'unreasonable cost' test

Uncertainty How far a measured value may deviate from the true value

Assessment	Metering uncertainty is assessed against the tier thresholds
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Metering Instruments under legal metrological control simplify the proof

Unreasonable cost	A higher tier can be waived if its cost is disproportionate
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Balance Data quality is proportionate - not accuracy at any price

Corrections, conservativeness and QA of metering

QA of metering Meters are maintained, calibrated and checked on a schedule

Corrections	Errors found are corrected and the correction is documented
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Conservative principle Where in doubt, choose the option that does not favour the operator

Continuous improvement	Verifier recommendations feed a yearly improvement report
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Records Data are archived so figures can be reconstructed later

Practical insights - common data-quality pitfalls

Boundaries Source streams omitted or double-counted at the site boundary

Biomass Zero-rating claimed without valid sustainability proof

Heat flows Cross-boundary heat mis-measured or mis-attributed

Tiers Applied tier below the required minimum, undocumented

Controls Procedures on paper but not actually operated

Late data Reports or activity data submitted late, risking suspension



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Data quality in the allocation data (MMP, BDR, ALR)

MMP The Monitoring Methodology Plan sets the methods for allocation data

BDR	The Baseline Data Report fixes the historical activity levels
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ALR The Activity Level Report updates activity each year

Same discipline	Completeness, consistency, tiers and controls apply here too
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Verified All are independently verified before they change allocation

Weak data - weaker competitiveness

Weak data Missing, inconsistent or unverified figures

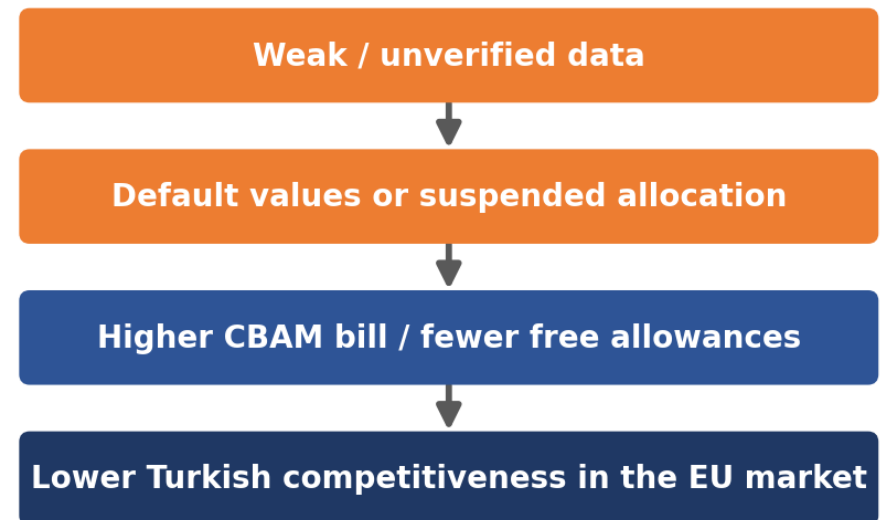
Fallback	Regulators fall back on conservative default values
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Cost Higher CBAM bill and/or less free allocation

Trade	Turkish goods carry a higher effective carbon cost
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Result Lost competitiveness in the EU market

Weak data -> weaker competitiveness





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Consequence 1 - default values raise CBAM bills

Actual vs default Importers may use verified actual emissions or default values

Defaults are high	Default values are set deliberately conservative (high)
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No good data Without verified actual data, the high default applies

Effect	More CBAM certificates to buy per tonne of Turkish goods
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Fix Robust, verified monitoring lets exporters use their real (lower) figures

Consequence 2 - allocation errors and suspension

Over-statement Over-stated activity -> allocation later clawed back / corrected

Under-statement	Under-stated activity -> fewer free allowances than deserved
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Suspension Missing or late verified ALR can suspend free allocation

Cash-flow	Both create financial and planning uncertainty
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Fix Timely, verified activity data keep allocation correct and stable

Consequence 3 - verification failures and market access

Adverse opinion A verifier's adverse/qualified opinion blocks acceptance

Non-conformities	Unresolved non-conformities delay reports and decisions
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Reputation Data failures damage credibility with buyers and authorities

Market access	EU buyers increasingly require credible carbon data
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Fix Verification-ready systems protect access to the EU market

What robust data quality delivers for Türkiye

Lower CBAM cost Real verified figures replace high default values

Fair allocation	Correct activity data secure the right free allocation
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Credibility A trusted MRV system supports trade negotiations

Revenue at home	A credible TR ETS keeps carbon revenue in Türkiye
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Investment signal Reliable data guide where decarbonisation pays

Key takeaways

Backbone Data quality decides whether reported tonnes can be trusted

Tools	Principles, tiers, uncertainty, controls and data-gap rules
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Allocation too The MMP, BDR and ALR need the same discipline

Money	Weak data -> high defaults, lost allocation, higher CBAM cost
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Competitiveness Strong data quality is a competitiveness asset for Türkiye

References / legal basis

Instrument	Scope used in this session
MRR (EU) 2018/2066	Monitoring principles, tiers, uncertainty, sampling, control system, data gaps
AVR (EU) 2018/2067	Verification and accreditation of reports
FAR (EU) 2019/331	Allocation data: MMP, BDR; Guidance GD3-GD5
Impl. Reg. (EU) 2019/1842	Activity Level Report and annual adjustment
CBAM Reg. (EU) 2023/956	Embedded emissions; Impl. Reg. 2025/2547 & 2025/2621 (defaults)
Directive 2003/87/EC	EU ETS framework (Art. 10a, 14)



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Interactive Q&A



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