



ERESS Forum 2026 (Frankfurt)

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ERA AS-03 Report on Rail Energy Metering: AERRL Perspectives and Next Steps, *Sebastian Rodriguez, Member of AERRL Subgroup Energy Settlement*

AERRL's Prior Analysis: Confirmed by the ERA Study

AERRL raised the key issues before AS-03 was commissioned

What AERRL had already identified

- Fragmentation of national approaches to energy settlement
- Limited interoperability of Energy Measurement Systems (EMS)
- Absence of a fully harmonised EU framework for energy data
- Barriers to effective cross-border rolling stock operations

What AS-03 confirms

- ✓ The same structural deficiencies exist across Member States
- ✓ Significant implementation gaps persist in the current framework
- ✓ Main challenges lie in incomplete & inconsistent implementation not in the absence of legislation
- ✓ AERRL's input has contributed to shaping the regulatory discussion

AERRL's analysis has been recognised and has contributed to shaping the current regulatory discussion

ERA AS-03: A Fragmented and Incomplete System

Key findings from the study

13

**Member States non-compliant
with TSI ENE requirements**

7

**Member States allow genuine
energy supplier choice**

2+

**EMS systems often deployed
on a single cross-border loco**

Fragmented data & standards

- National EMS requirements and infrastructure-specific constraints continue to apply
- Data exchange models vary widely -> no consistent cross-border standard
- Interface between railway and energy legislation remains undefined at EU level

Consequences for rolling stock lessors

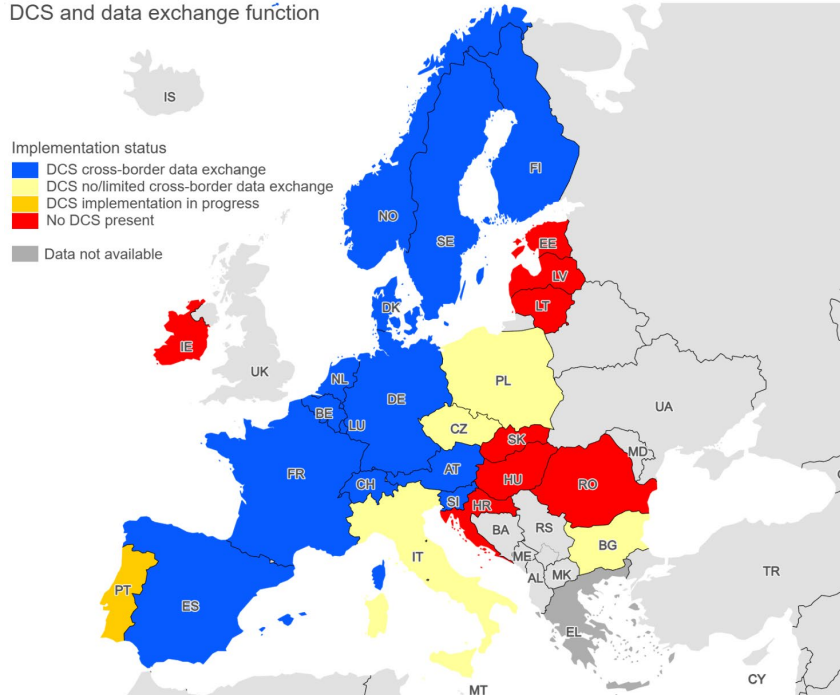
- Increased costs and technical complexity in cross-border operations
- Limited interoperability of assets across national networks
- Reduced investment predictability -> the system does not function as a true European market

ERA AS-03: A Fragmented and Incomplete System

Key findings from the study

Implementation status of TSI ENE provisions by Member State

DCS and data exchange function



Data source: ERA Survey and bilateral stakeholder interviews

Administrative boundaries: © EuroGeographics © OpenStreetMap
Cartography: Eurostat – IMAGE, 10/2025

13 Member States non-compliant with TSI ENE requirements








1. **Bulgaria** → DCS exists but no cross-border data exchange (except a specific case with Austria)
2. **Croatia** → No DCS in place. Expected DCS by 2027.
3. **Estonia** → No DCS, billing based on substations.
4. **Greece** → No information available, indicating lack of compliance.
5. **Hungary** → No DCS, no data exchange.
6. **Ireland** → No DCS, network partially outside the TSI scope.
7. **Italy** → DCS exists but no cross-border data exchange.
8. **Latvia** → No DCS, billing via substations.
9. **Lithuania** → No DCS, billing via substations.
10. **Poland** → Obsolete DCS, no international data exchange. New DCS under implementation and testing.
11. **Portugal** → DCS under development (Eress DCS), fleet poorly equipped.
12. **Romania** → No DCS, billing based on estimates.
13. **Slovakia** → No DCS, billing only based on estimates.

ERA's Recommendations: AERRL's Assessment at a Glance

✓ Strong support

• Partial Support

❖ Requires Review

Rec.	ERA Recommendation	AERRL Position
Rec. 1	Enforce existing TSI ENE requirements / full DCS deployment	 Strong support
Rec. 2	Mandatory train composition messages & standardised data exchange	 Strong support
Rec. 3	Improve dissemination, knowledge sharing & capacity building	 Strong support
Rec. 5	Extend ENE TSI to Regulate Data Exchange and Energy Settlement Processes	 Strong support
Rec. 7	Strengthen regulatory status / harmonise EMS (interoperability constituents)	 Strong support
Rec. 6	Explore costs & benefits of a more integrated European DCS approach	 Partial Support
Rec. 8	Clarify applicability of the Measurement Instruments Directive (MID)	 Partial Support
Rec. 9	Clarify interface between railway and energy market legislation	 Partial Support
Rec. 4	Mandatory assessment of DCS as a condition for infrastructure authorisation	 Requires Review

Priority Recommendations: AERRL Strongly Supports

Where ERA's direction aligns fully with AERRL's longstanding positions

✓ AERRL Supports

Rec. 1

Full deployment & enforcement of compliant DCS

The core issue is not missing rules but **incomplete implementation**. All Member States must deploy DCS capable of exchanging billing data. This is a prerequisite for a structured European energy settlement system and for third-party access to energy supply.

Rec. 2

Mandatory train composition messages & automated data flows

The **absence of systematic data sharing leads to manual processes and reporting burdens**. Standardised and automated exchange between railway undertakings, IMs and DCS would reduce administrative burden and improve settlement accuracy.

Rec. 5

Extend ENE TSI to Regulate Data Exchange and Energy Settlement Processes

Harmonising data exchange and settlement under the ENE TSI would eliminate today's fragmented national practices, ensuring **consistent cross-border billing and smoother interoperability** for all railway actors.

Rec. 7

EMS as interoperability constituents / harmonisation & cross-acceptance

Classifying EMS as interoperability constituents is **key to reducing fragmentation**, eliminating duplicative certification and enabling cross-acceptance across national networks. For lessors, this directly improves asset interoperability and investment predictability.

Rec.4: DCS as a Condition for Infrastructure Authorisation

AERRL agrees in principle -> but a key concern must be addressed

ERA Proposal: The presence of a compliant DCS should be made a condition for the authorisation of infrastructure placed in service. This is intended to accelerate the deployment of DCS across the European network.

AERRL Position: Support, in principle, for strengthening DCS deployment but there is a key concern.

❖ Key Concern: Risk of Regulatory Asymmetry

Rec. 4 -> significant compliance obligation on Infrastructure Managers (IMs)

Would equivalent requirements apply to rolling stock owners?

Rolling stock not equipped with compliant EMS would face similar constraints.

AERRL calls for a consistent and proportionate approach: if DCS compliance is to become a condition for infrastructure authorisation, it is essential to assess whether a symmetric obligation should apply to rolling stock — to ensure a level playing field across all actors in the system.

Recommendations Requiring Careful Implementation

AERRL supports the direction but implementation details matter

- Partial Support

Rec. 6 - Towards a More Integrated / Joint European DCS

AERRL supports exploring the costs and benefits of a more integrated European DCS approach, which could deliver efficiency gains and reduce duplication. However, full centralisation raises concerns: single point of failure, cybersecurity risks, and reduced flexibility. **AERRL's priority is interoperability and effective implementation not over-complex structural change.**

Rec. 8 - Clarifying MID Applicability

Legal clarity on the Measurement Instruments Directive (MID) is necessary and AERRL supports this. However, EMS and MID instruments follow different technical and operational logics. Any alignment must avoid creating additional complexity or duplicating certification requirements. **The goal is clarity, not additional burden.**

Rec. 9 - Interaction Between Railway and Energy Legislation

Clarifying the boundary between railway and energy market legislation is essential. Current ambiguity creates uncertainty over responsibilities, infrastructure ownership and cost allocation especially where energy supply and railway infrastructure are managed by separate entities.

Priority should be given to interoperability and effective implementation over potentially over-complex structural changes

From Rules to Reality - Closing the Implementation Gap

The core issue

The fundamental problem is not the absence of regulation. **It is the lack of consistent implementation and harmonisation across Member States.**

AERRL's priorities

1. Enforcement of existing requirements
2. Automated and standardised data flows
3. Full harmonisation and cross-acceptance of EMS
4. Legal clarity at EU level

AERRL's commitment

AERRL remains committed to supporting pragmatic and workable solutions, promoting interoperability across borders, and ensuring a market-oriented, proportionate European framework for rail energy settlement.

Without decisive action, interoperability will remain limited and the ambition of a Single European Railway Area will continue to be constrained.



Q&A

Questions & Discussion

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