EU legal framework and ERA study on energy metering

Veronika Sarik, European Commission (DG MOVE)
Giacomo Potenza, EU Agency for Railways

12 June 2025, Eress Forum - Split

EUROPEAN UNION AGENCY FOR RAILWAYS

European Commission

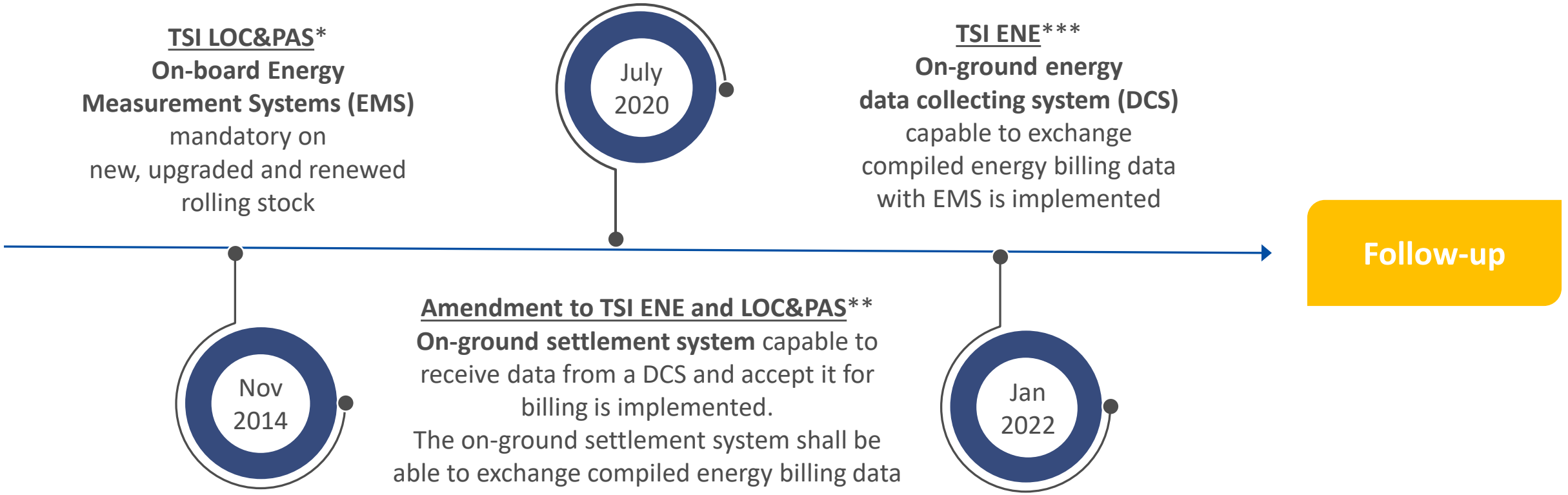
Commission follow-up of implementation of legal obligations on energy metering and billing

ERESS Forum 2025

12 June 2025

Veronika Sárik, DG MOVE

Legal obligations and deadlines



* Commission Regulation (EU) No 1302/2014 of 18 November 2014 concerning a technical specification for interoperability relating to the rolling stock – locomotives and passenger rolling stock subsystem of the rail system in the European Union

** Commission Implementing Regulation (EU) 2018/868 of 13 June 2018 amending Regulation (EU) No 1301/2014 and Regulation (EU) No 1302/2014 as regards provisions on energy measuring system and data collecting system

*** Commission Regulation (EU) No 1301/2014 of 18 November 2014 on the technical specifications for interoperability relating to the 'energy' subsystem of the rail system in the Union Text with EEA relevance

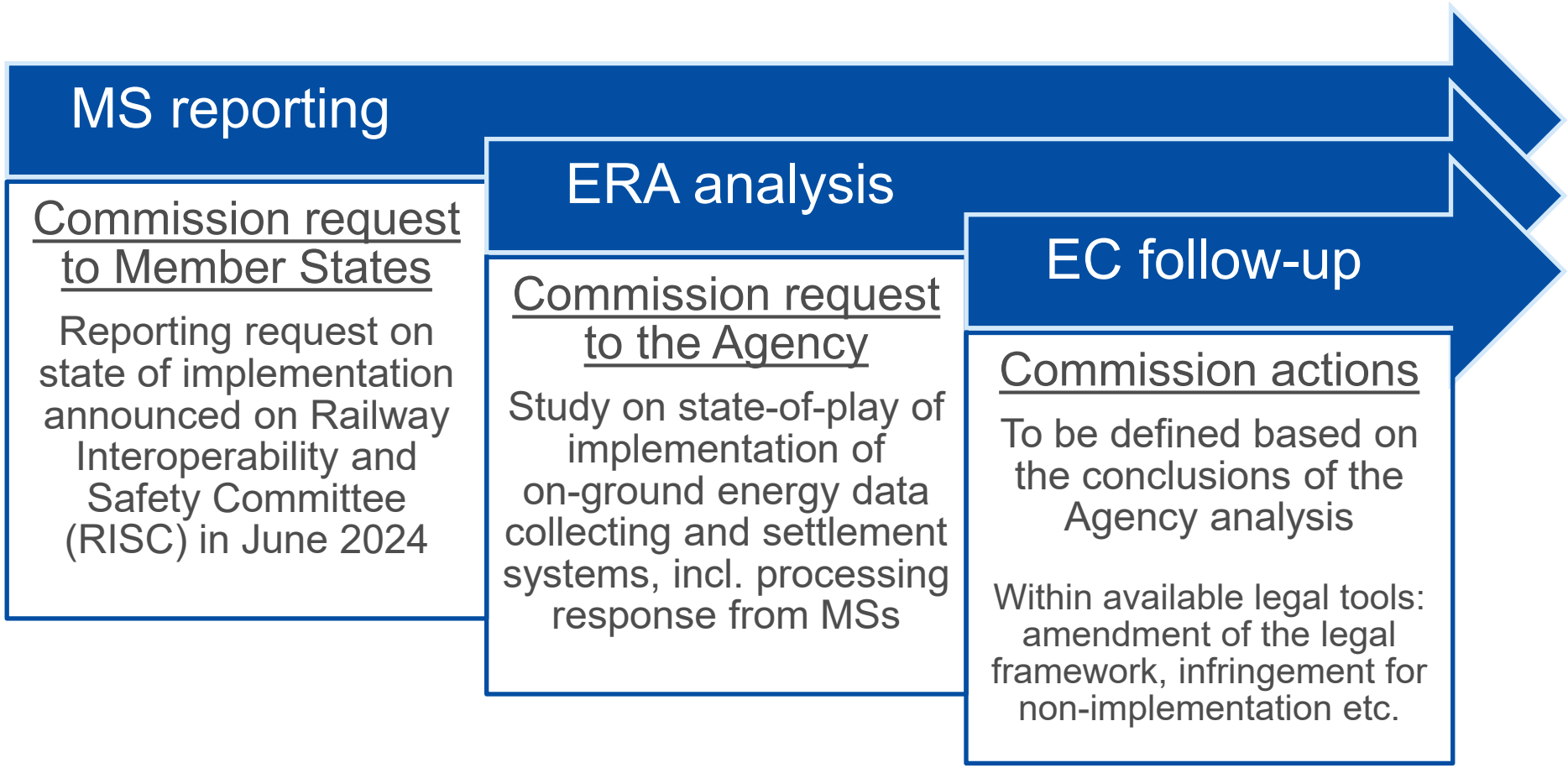
European Commission

Stakeholder consultation feedback

Feeback from railway undertakings and locomotive leasing companies:

- Concerns raised related to erroneous billing by energy suppliers
- Financial consequences directly and unjustly impacting the users, due to non-compliance of the infrastructure to TSI ENE
- Other legal consequences, e.g. in the vehicle and fixed installation authorisation process
- Request to analyse:
  - Incentives to Member States to implement TSI ENE obligations on their infrastructure networks
  - Regulatory measures for compensation schemes

Action plan: Structured follow-up



Thank you

European Commission

Study AS-03: On-ground energy data collecting and settlement systems

Giacomo Potenza, EU Agency for Railways

12 June 2025, Eress Forum - Split

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Study AS-03: On-ground energy data collecting and settlement systems

- Study purpose:
  - Report on state-of-play of implementation of on-ground energy data collecting systems, based on benchmark from IMs, as defined in TSI ENE Article 9, point 4 and on on-ground settlement systems, as required by Commission Implementing Regulation 2018/868, including:
    - Issues facing implementers of DCS trackside and EMS on-board
    - Possible national rules/IM requirements generating interoperability barriers and duplication of EMS/DCS systems
    - Issues affecting data exchange between IMs
    - Technical and authorization hurdles
    - Recommendations on identified challenges
  - The study is an ex-post evaluation of the legal obligations but also a facts finding investigation of key issues
- Collaboration as advisors with Eress, UIC and CEN/Cenelec given parallel workstreams on IRS 90930 and EN50463

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Study AS-03: work plan and ERA web survey, a key deliverable

- Planned activities:
  - Desk research
  - Large **web survey** till 18 May 2025 of RUs, IMs, NSA, MS, train manufacturers, EMS/DCS suppliers, vehicle lessors, vehicle keepers, NoBo, DeBo
  - Bilateral interviews with interested stakeholders
  - ERA Final Report by September 2025 (TBC)
  - Presentation to the public in December 2025 (TBC)

- **One** web survey through EUSurvey, option for anonymity
- Different questions to different organisations, drafted with advice from Eress/CEN Cenelec
- An ERA survey incorporating the Eress annual survey for the 2025 Eress Magazine

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Organization types in our AS-03 web survey

- **RU** -> Railway Undertaking
- **LESSOR / VK** -> Lessor / Vehicle keeper
- **IM / DCS or ENE provider** -> Infrastructure Manager (or DCS or rail energy provider)
- **MS** -> Member State (Ministries)
- **MANUFACTURER** -> Manufacturer of tractive rolling stock
- **EMS / DCS supplier** -> Provider of on-board energy metering or trackside DCS equipment
- **NSA** -> National Safety Authority
- **NOBO** -> Notified Body
- **DEBO** -> Designated Body

- The ERA web survey was disseminated to individual stakeholders via:
  - ERA Network of Representative Bodies (European associations like CER, EIM, UNIFE, AERRL, etc)
  - ERA Network of NSA
  - NB Rail association (grouping of NoBos)
  - ERA Reference Document Database (list of DeBos)
  - EU Member States + CH + NO reps in the Rail Interoperability and Safety Committee of the EU
  - UIC, Eress, individual contacts

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81 replies to our survey

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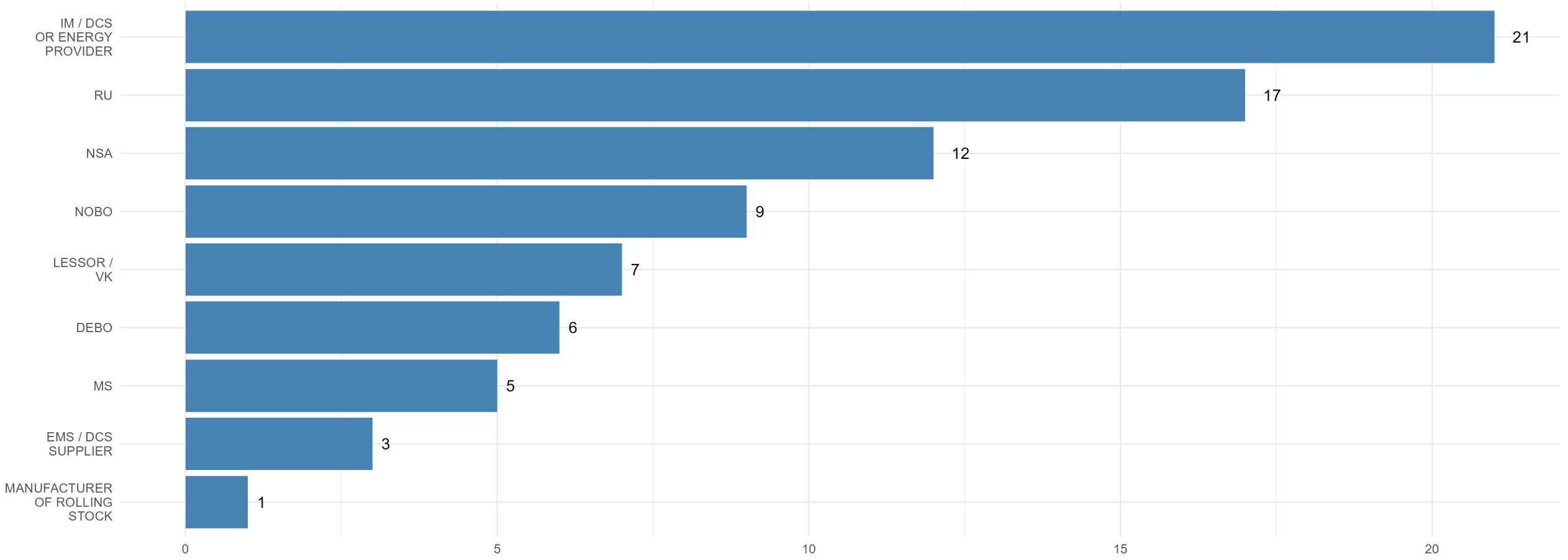

Data from ERA Survey on rail traction energy metering and settlement systems

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Countries of operations of survey respondents

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LESSOR / VK
IM / DCS or ENE PROVIDER
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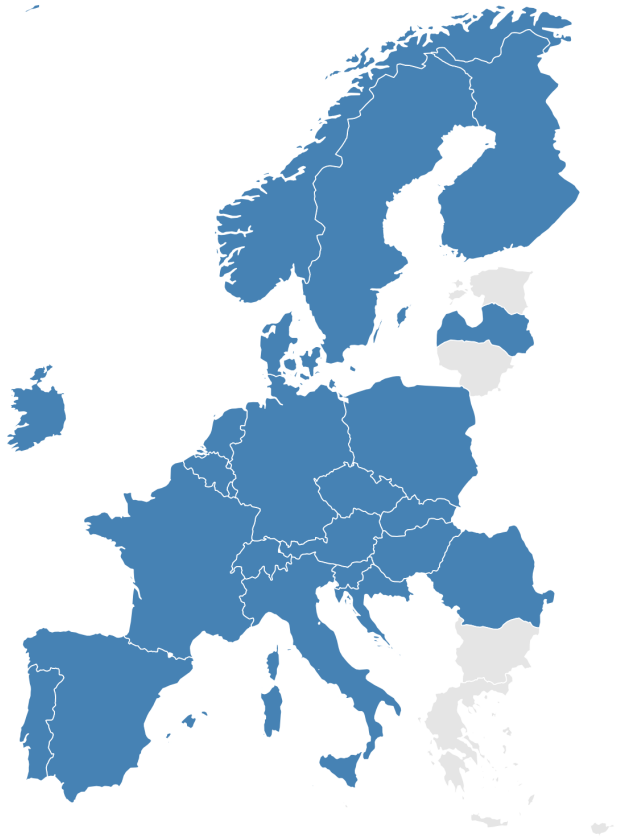
NOBO
DEBO



Data from ERA Survey on rail traction energy metering and settlement systems

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Who replied to the survey and from where (country of operations)

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IM / DCS or ENE PROVIDER
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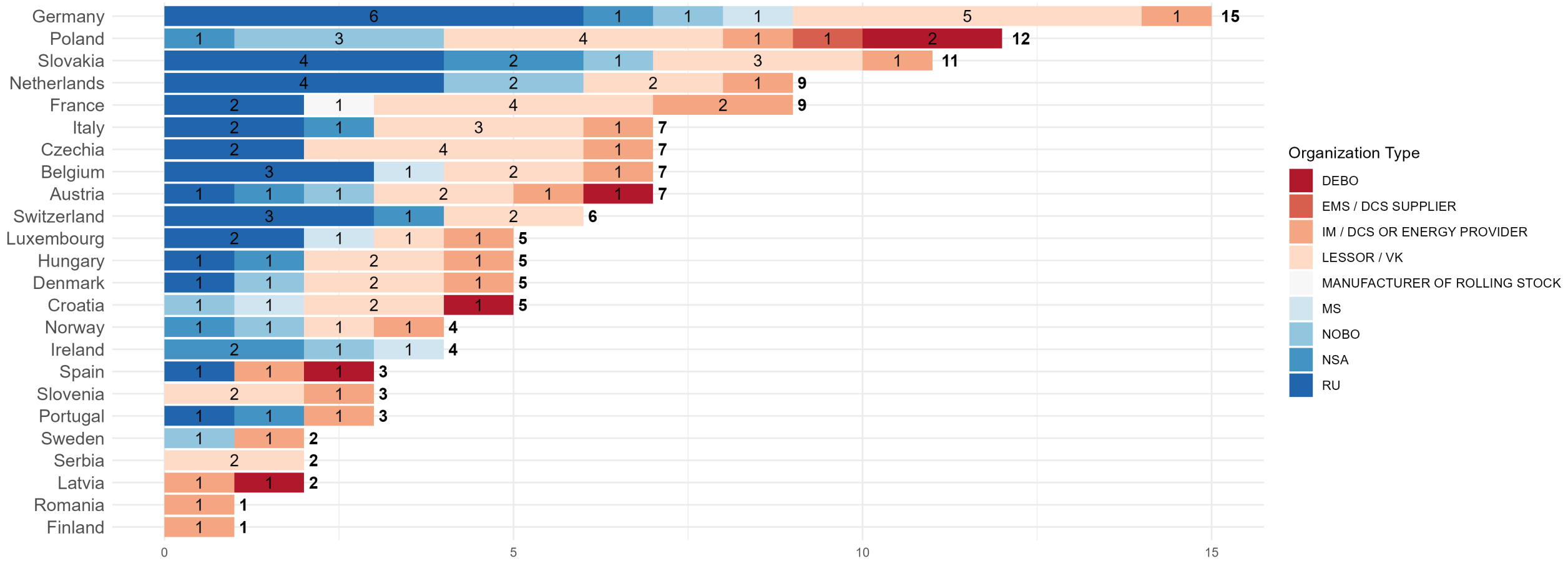
NSA
NOBO
DEBO



Data from ERA Survey on rail traction energy metering and settlement systems

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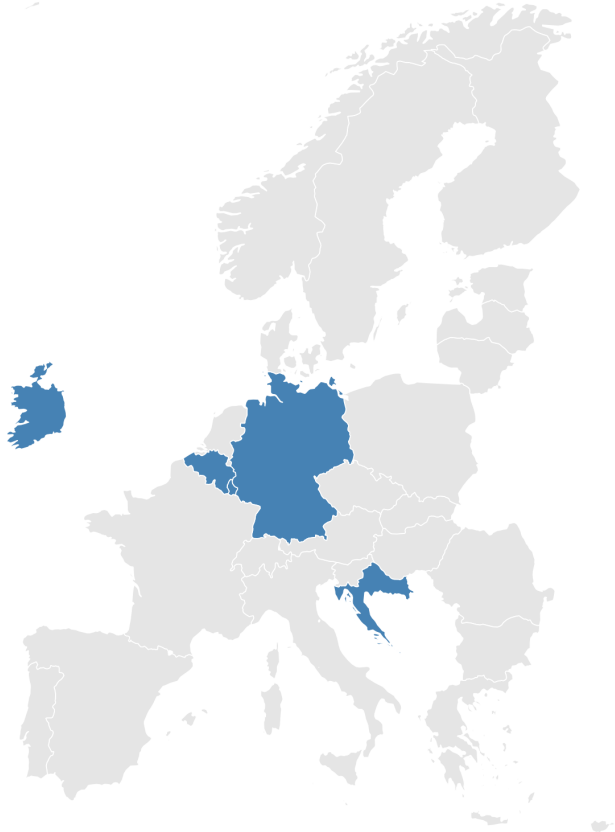
Replies from 5 Member States (Ministries)



Data from ERA Survey on rail traction energy metering and settlement systems

Preliminary results of a selection of AS-03 survey questions

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Average % of traction units with energy meters installed

Update of past Eress survey

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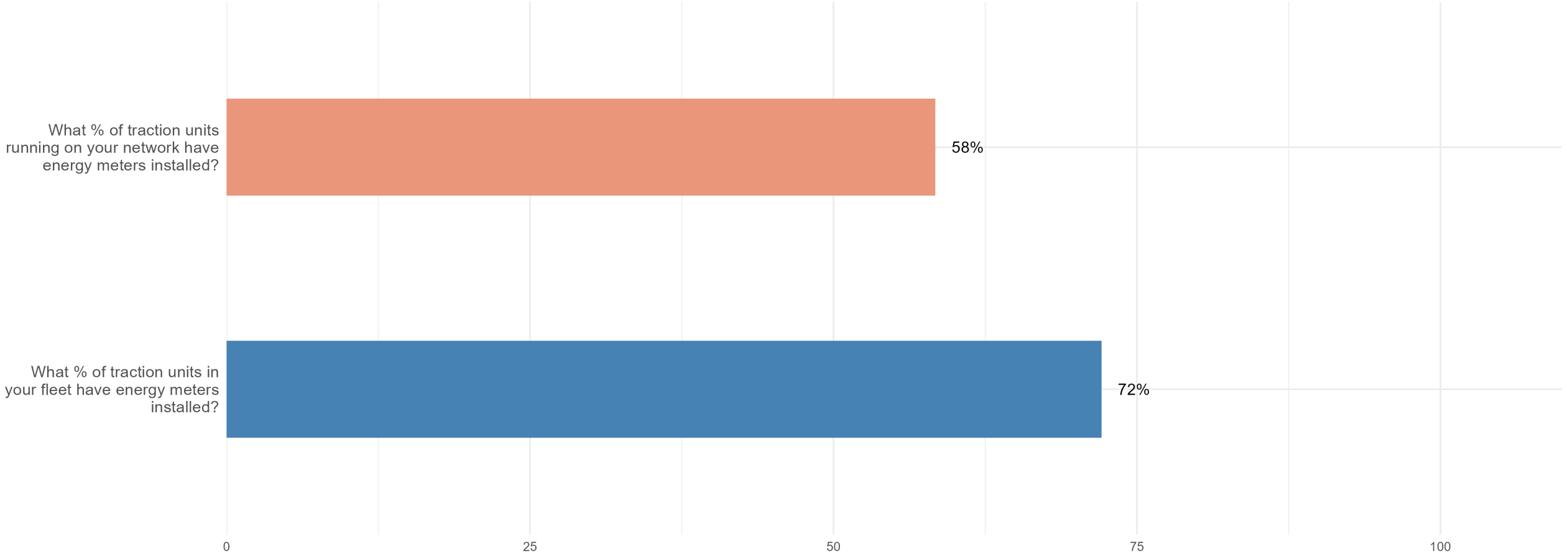

Data from ERA Survey on rail traction energy metering and settlement systems

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What % of traction units in your fleet have energy meters installed?

Update of past Eress survey

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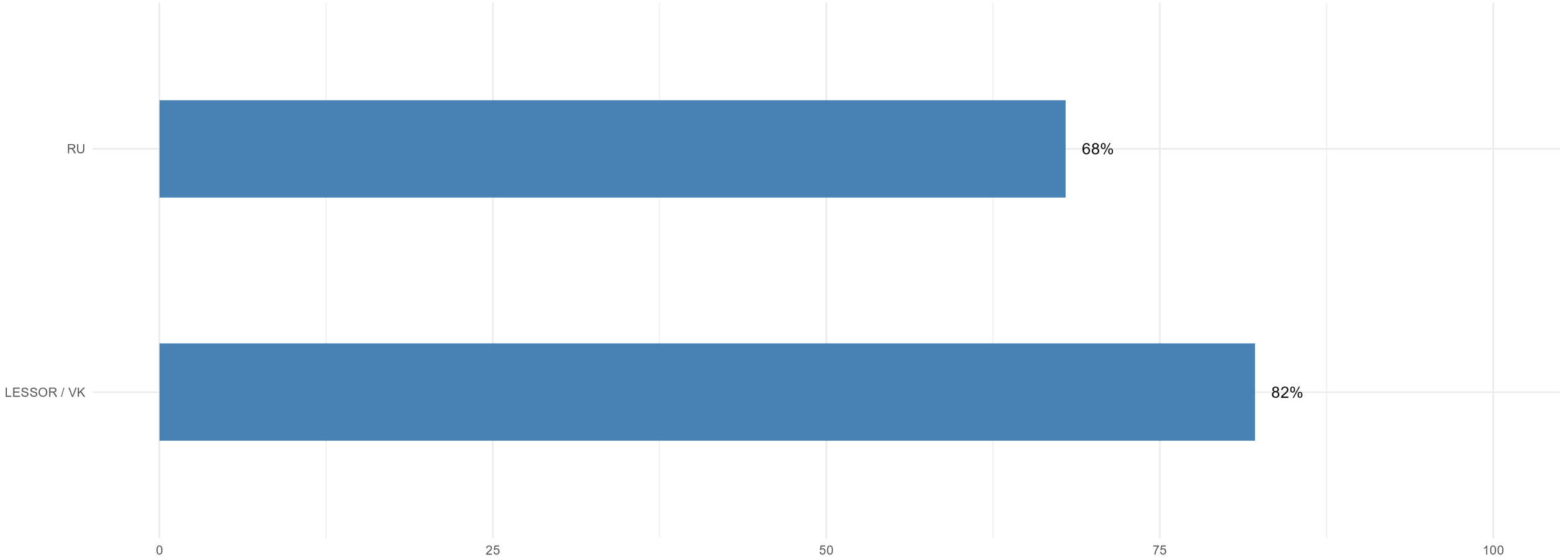

Data from ERA Survey on rail traction energy metering and settlement systems

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What standard do the EMS on-board follow?

Update of past Eress survey

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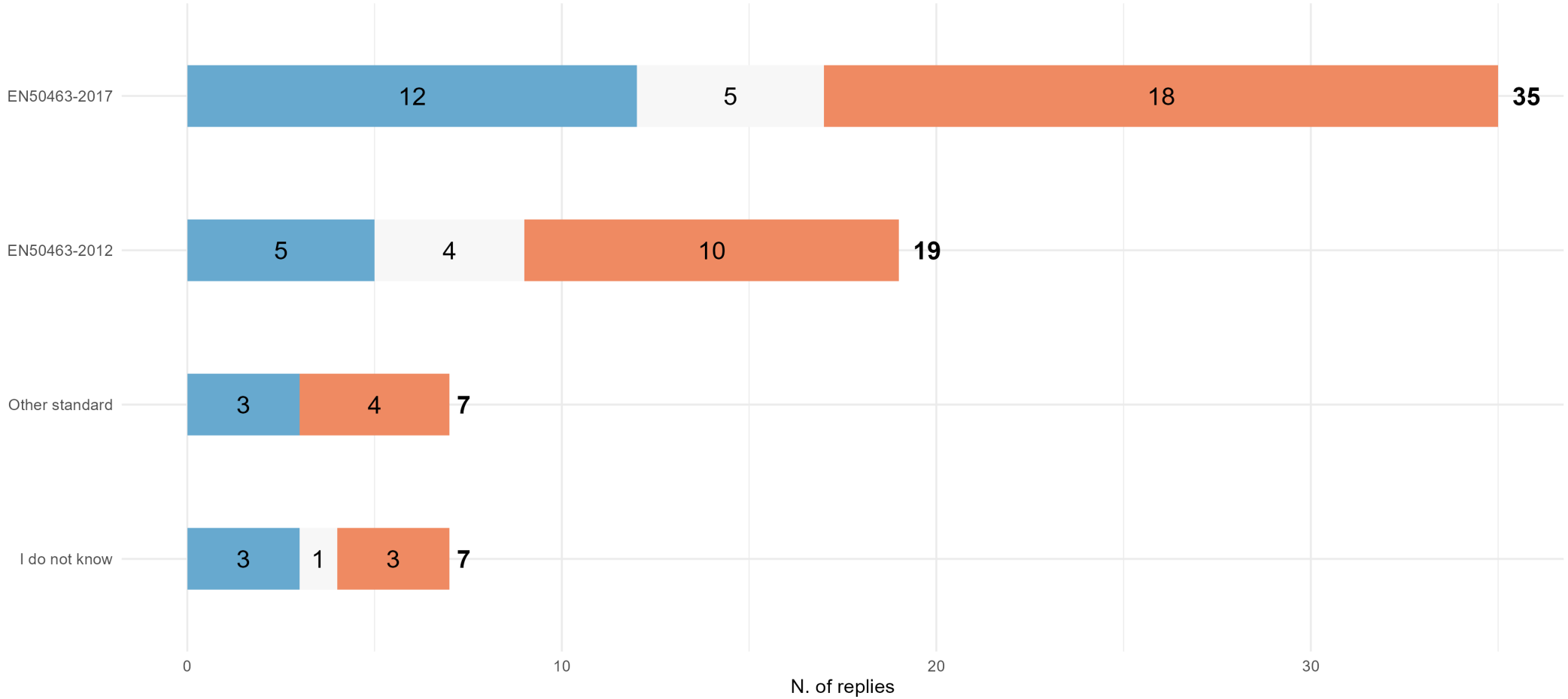

Data from ERA Survey on rail traction energy metering and settlement systems

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What standard do the DCS trackside follow?

Update of past Eress survey

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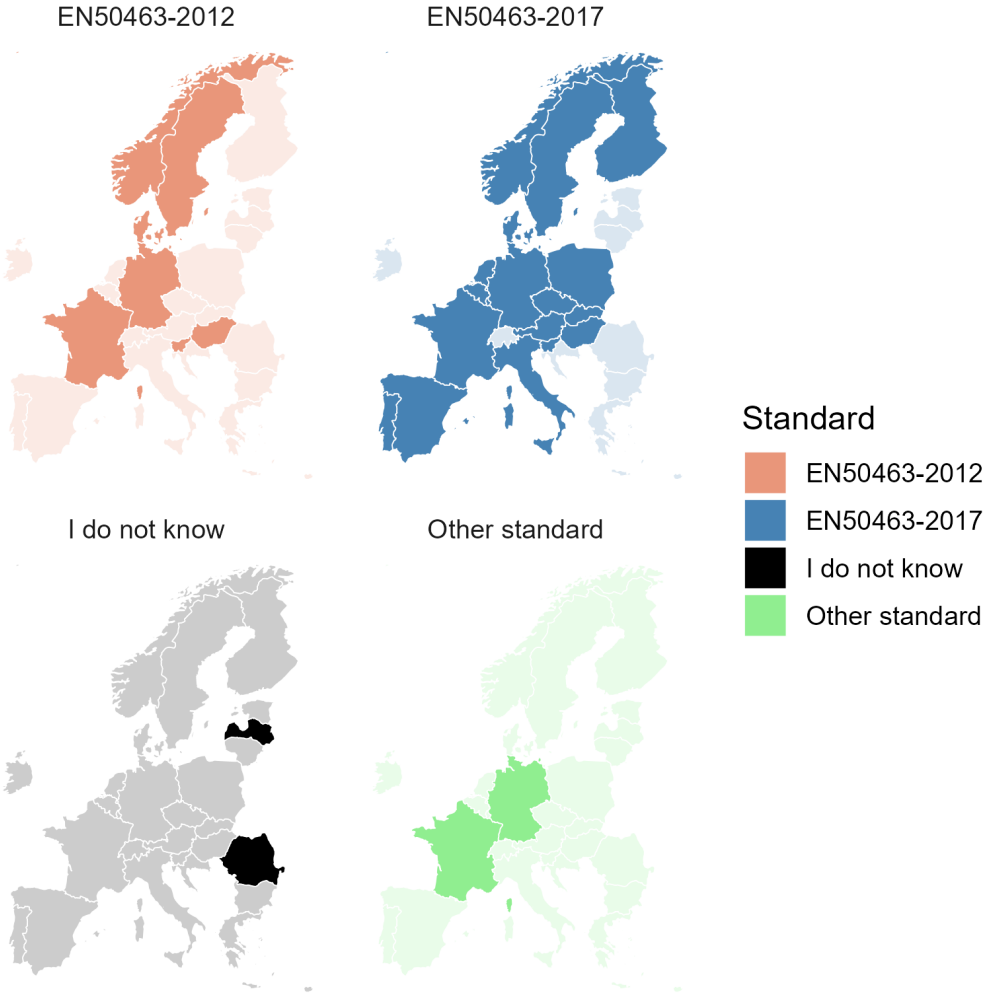

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Traction units equipped with more than one EMS

What % of your traction units are equipped with more than one EMS?

- Only 2 respondents:
- **1 reply** mentioning **6%** of traction units fleet
  - Due to **different IM requirements** and **voltages** between **two EU MS**
- **1 reply** mentioning **7%** of traction units fleet
  - Due to **manufacturing setup** (each current loop to the traction motors is measured by a separate EMS), **issue specific to one EU MS**

What % of your annual sales/installations concern traction units equipped with more than one EMS?

- Total **replies**: **3**
- **1 reply** mentioning **0%** of annual sales/installations
- **1 reply** mentioning **1%** of annual sales/installations
  - Due to the **technical requirement** of the **traction units (2 consumption points),** for **all EU countries**
- **1** reply mentioning **40%** of annual sales/installations
  - Due to normal-speed trainsets having **1 EMS per engine cab**, leading to 2 EMS per traction unit, **for one EU MS**

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What are the key challenges to install/retrofit EMS on-board to comply with latest LOC&PAS TSI?

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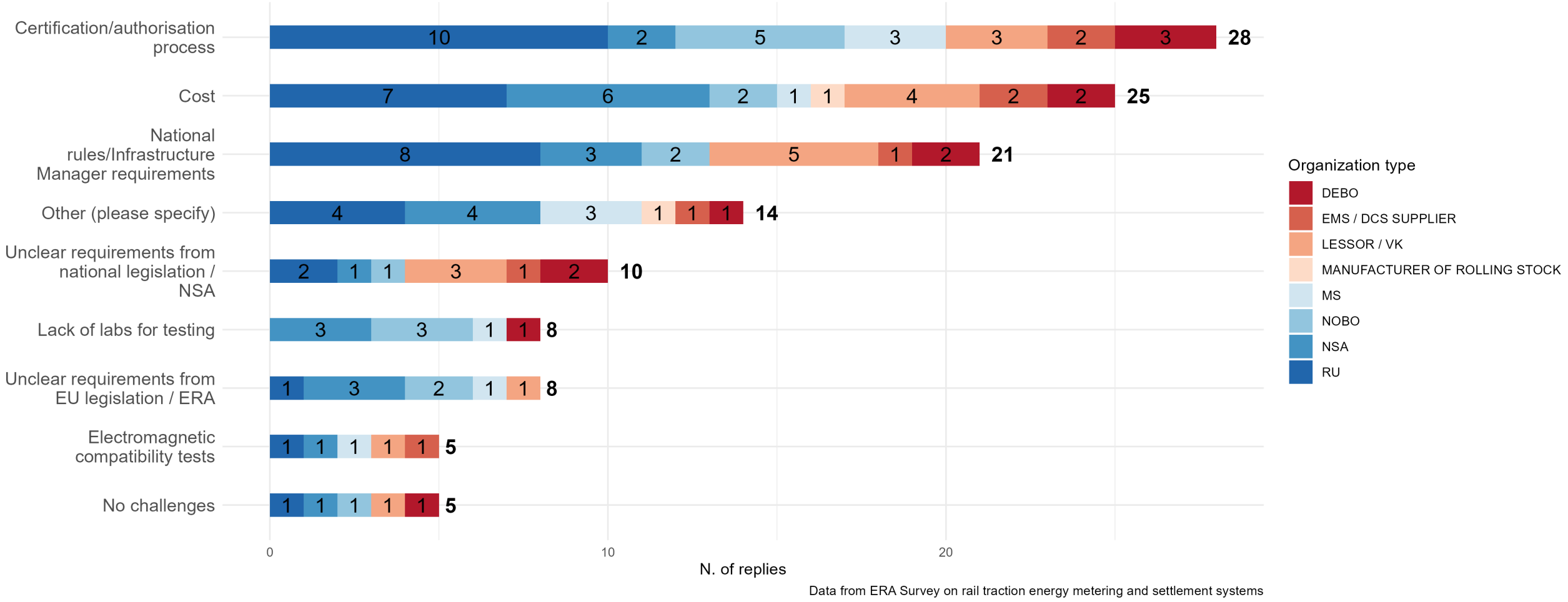

Data from ERA Survey on rail traction energy metering and settlement systems

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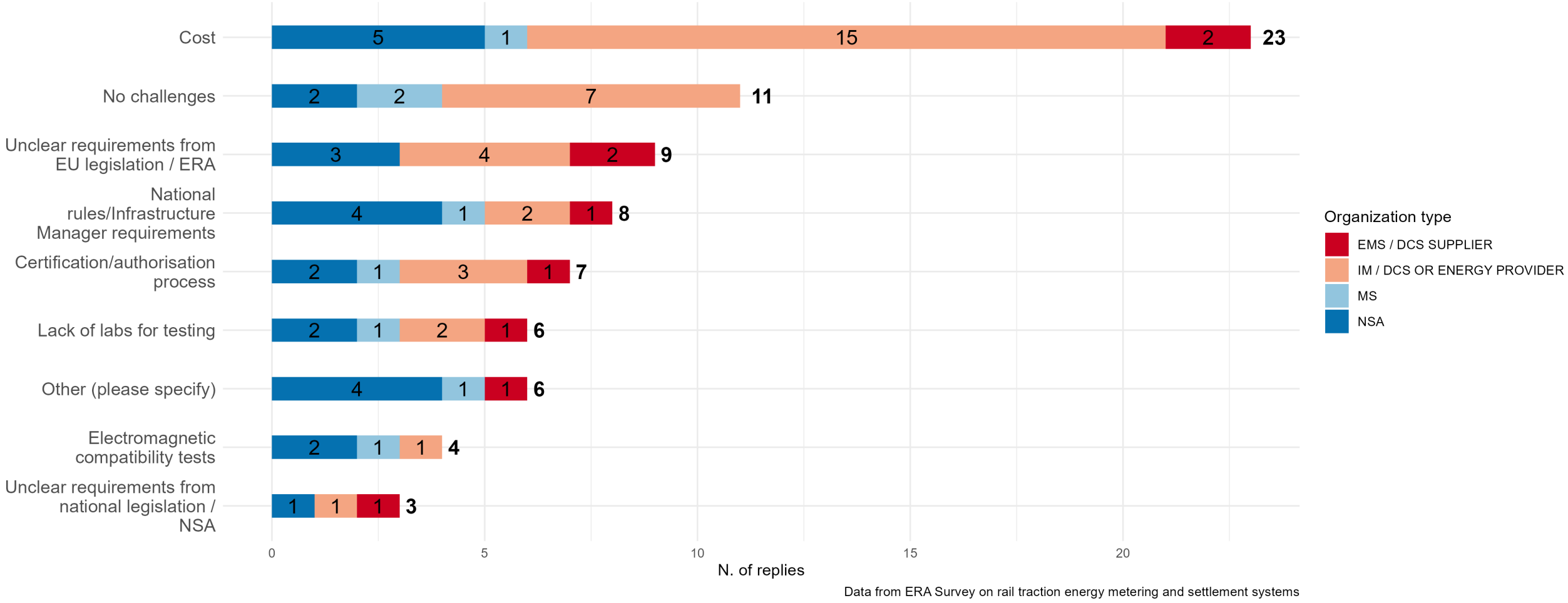
What are the key challenges to install Data Collection System (DCS) trackside complying with the latest ENE TSI?



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Do you expect to have more EMS meters in 2025?

Update of past Eress survey

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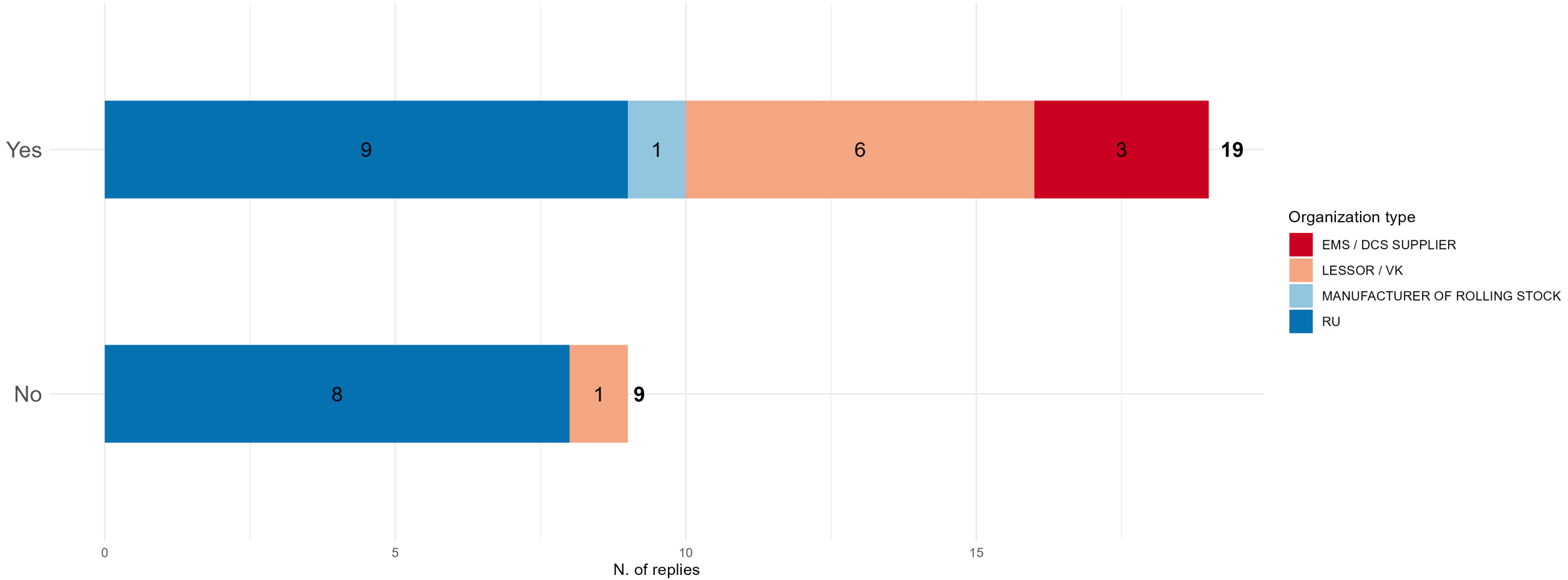

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How is the installation of EMS on-board incentivised?

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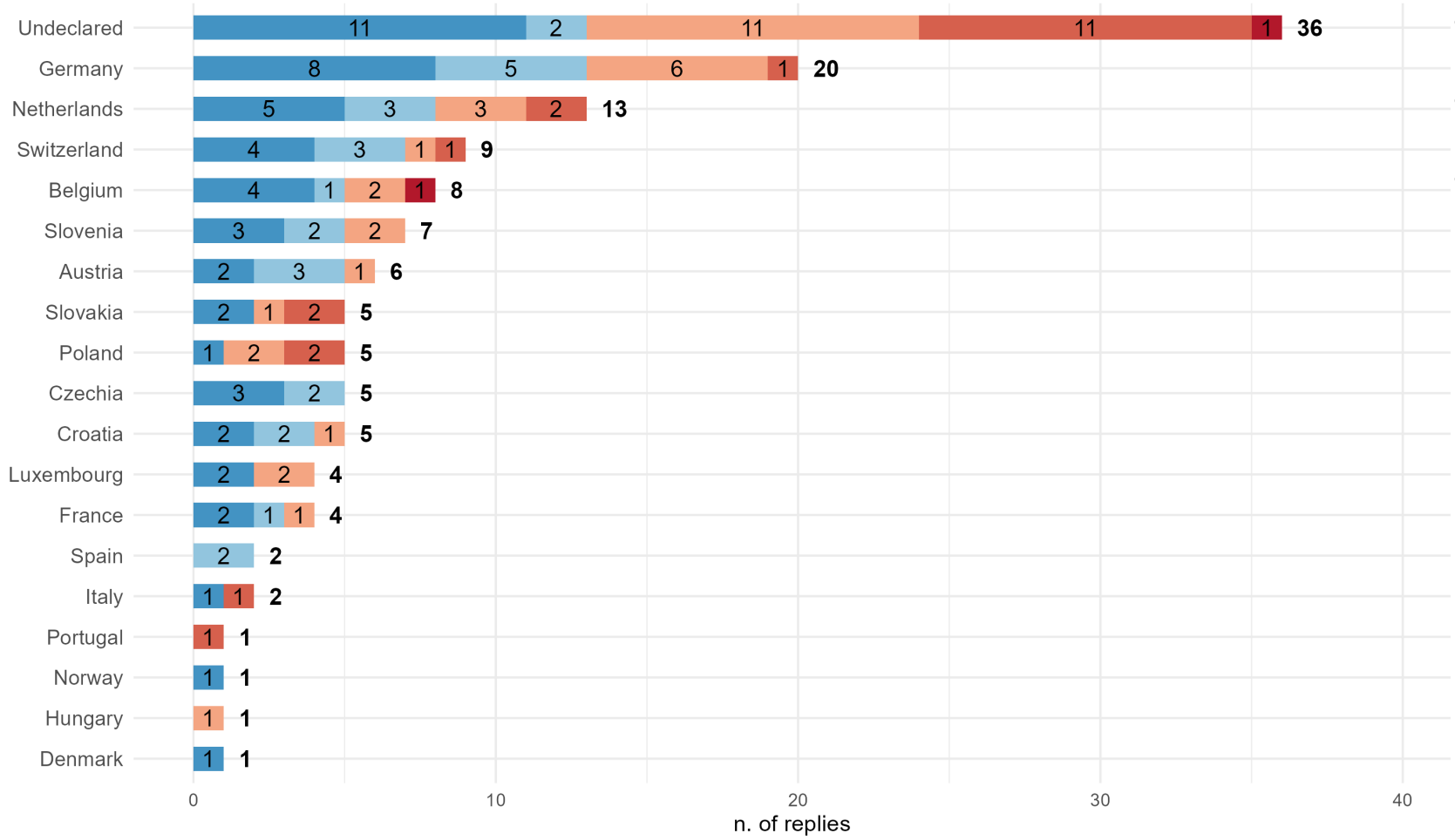

Other incentives:

- Trains without EMS on-board pay a higher rate per kWh -> +25% cost (Switzerland)
- EMS guarantees better data and better knowledge of consumption (Denmark)
- Trains without meters pay for the unaccounted energy in the collective (Netherlands)

Incentives

- Financial incentive/grant from Government
- No incentive
- Regenerated (braking) energy is compensated only for trains with EMS on-board
- Trains with EMS on-board pay a lower rate per kWh
- Trains without EMS on-board are applied a higher estimated consumption

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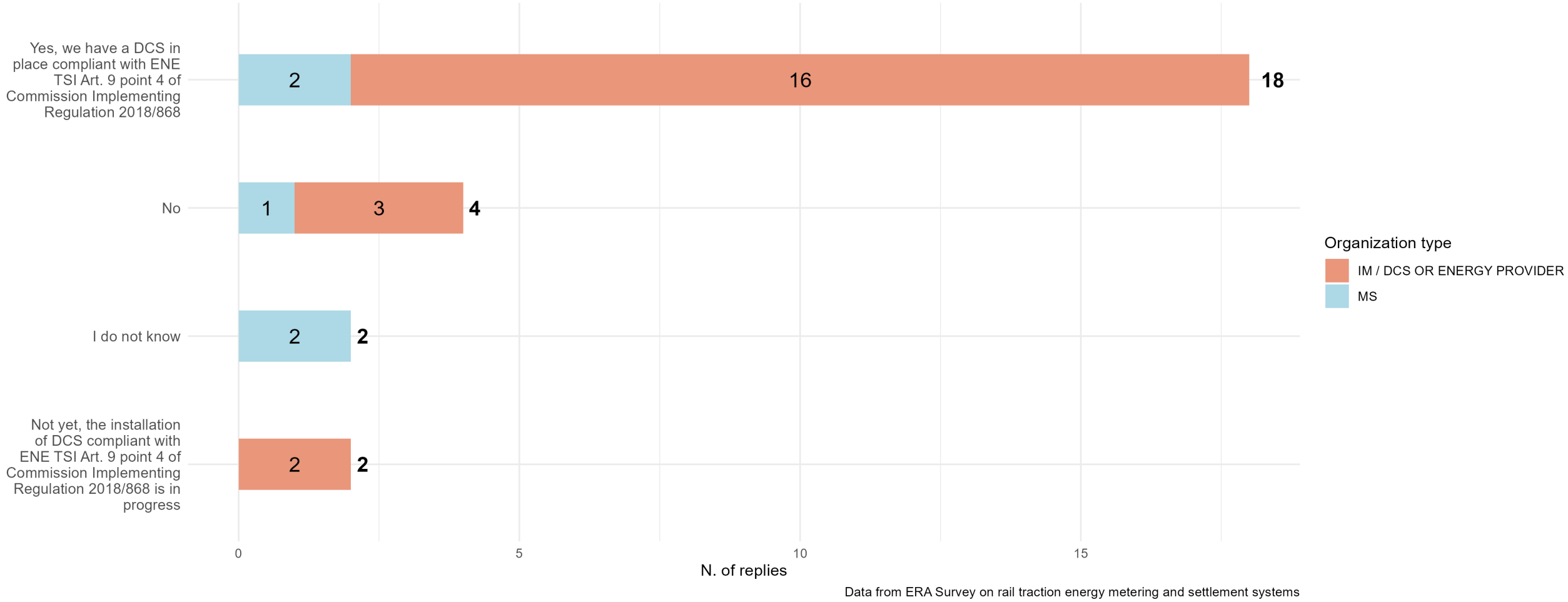
Do you have a DCS trackside in your country to correctly gather energy metering data from trains for billing purposes?

Update of past Eress survey



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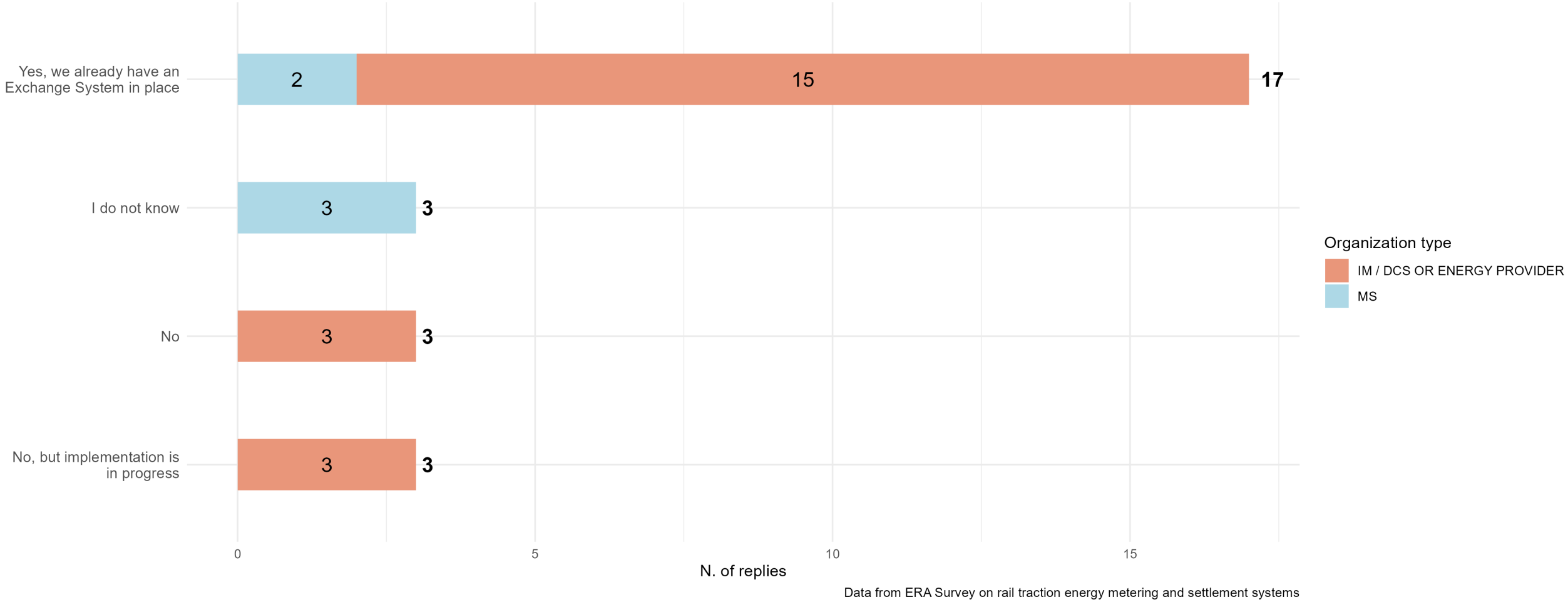
Do you have an Exchange System in your country to correctly distribute energy metering data from trains to other countries for billing purposes?

Update of past Eress survey



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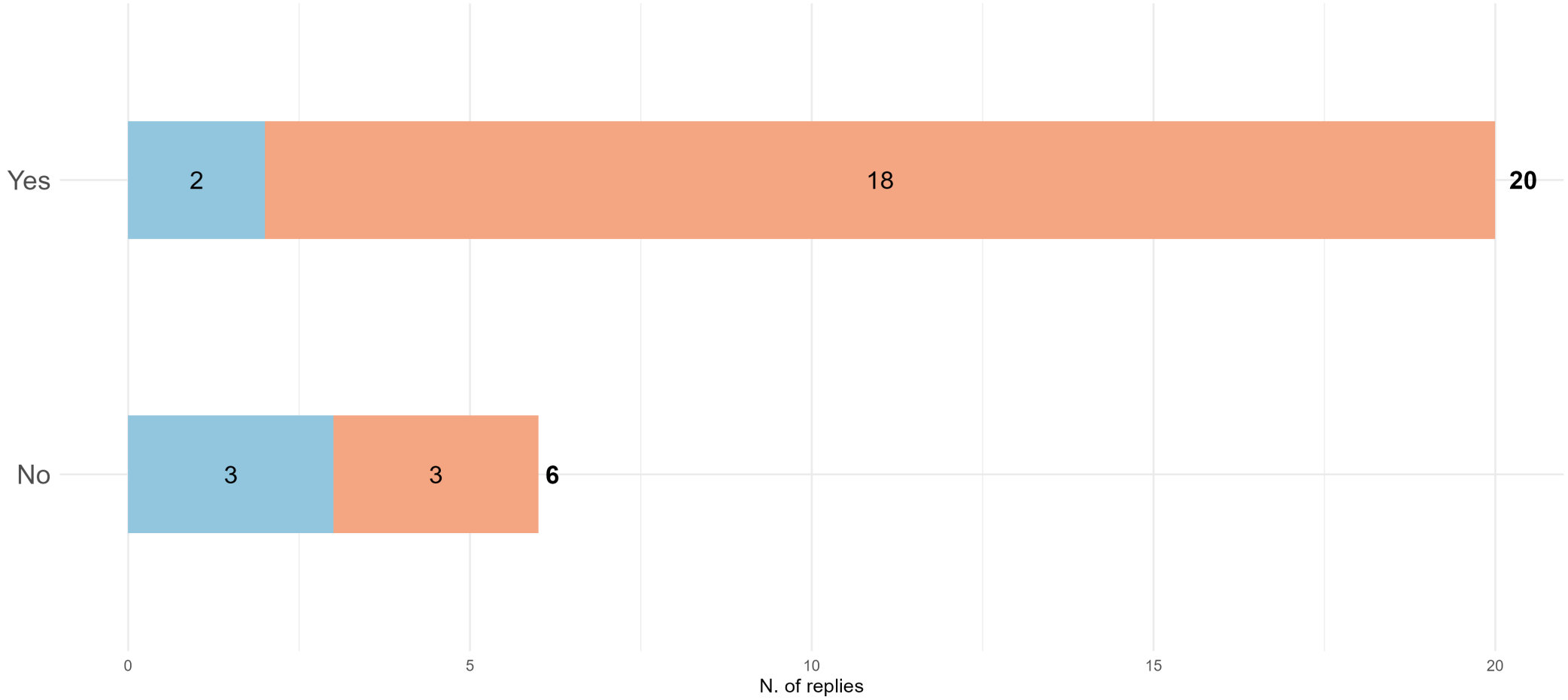
Do you apply the UIC standard IRS 90930 for this Exchange System with other countries?



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Do you have an Energy Settlement System in your country to correctly handle energy metering data from trains for billing purposes?

Update of past Eress survey

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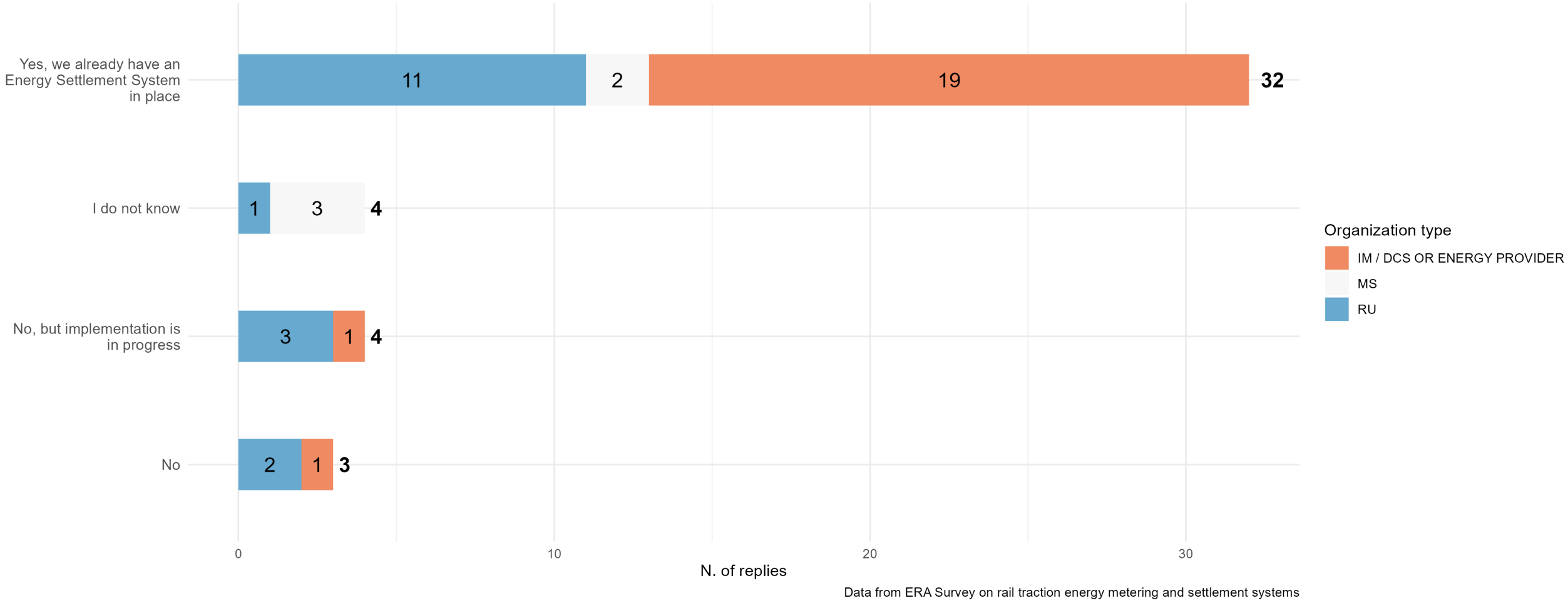

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Do you have a non-discriminatory solution in your country to correctly invoice train companies that use meters?

Update of past Eress survey

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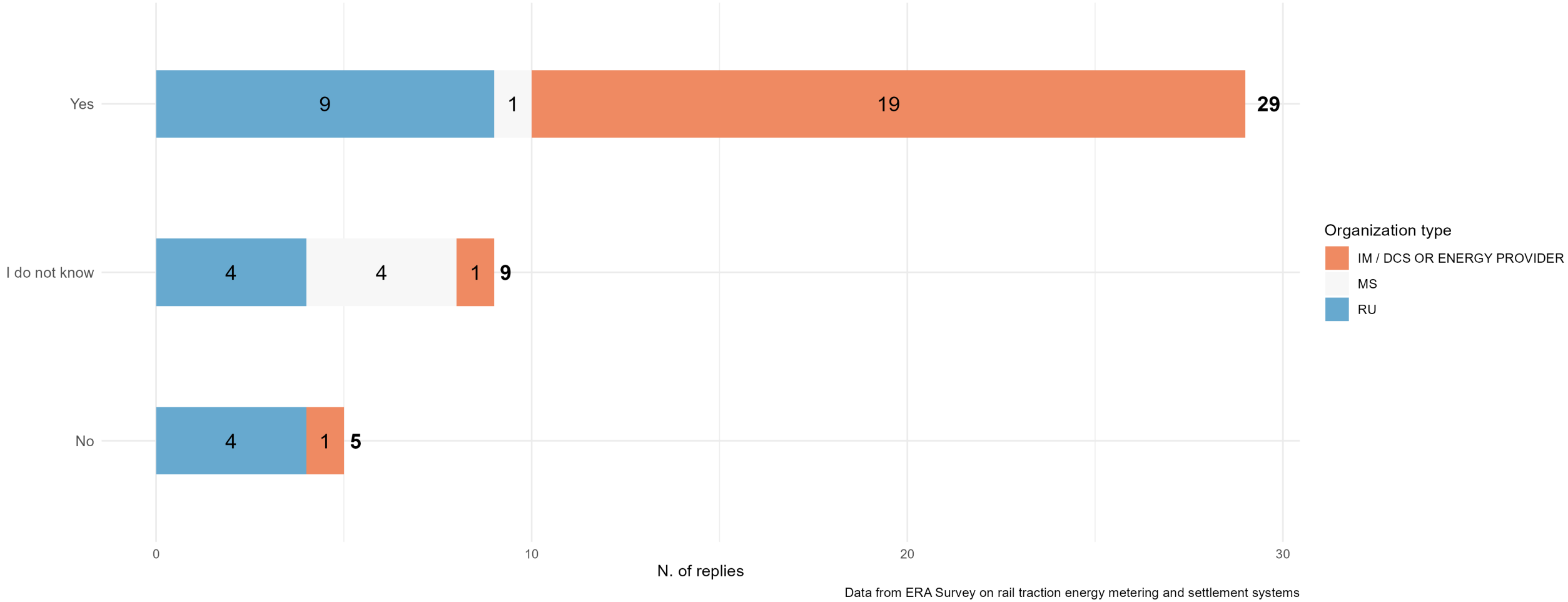

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Which challenges are you facing regarding energy?

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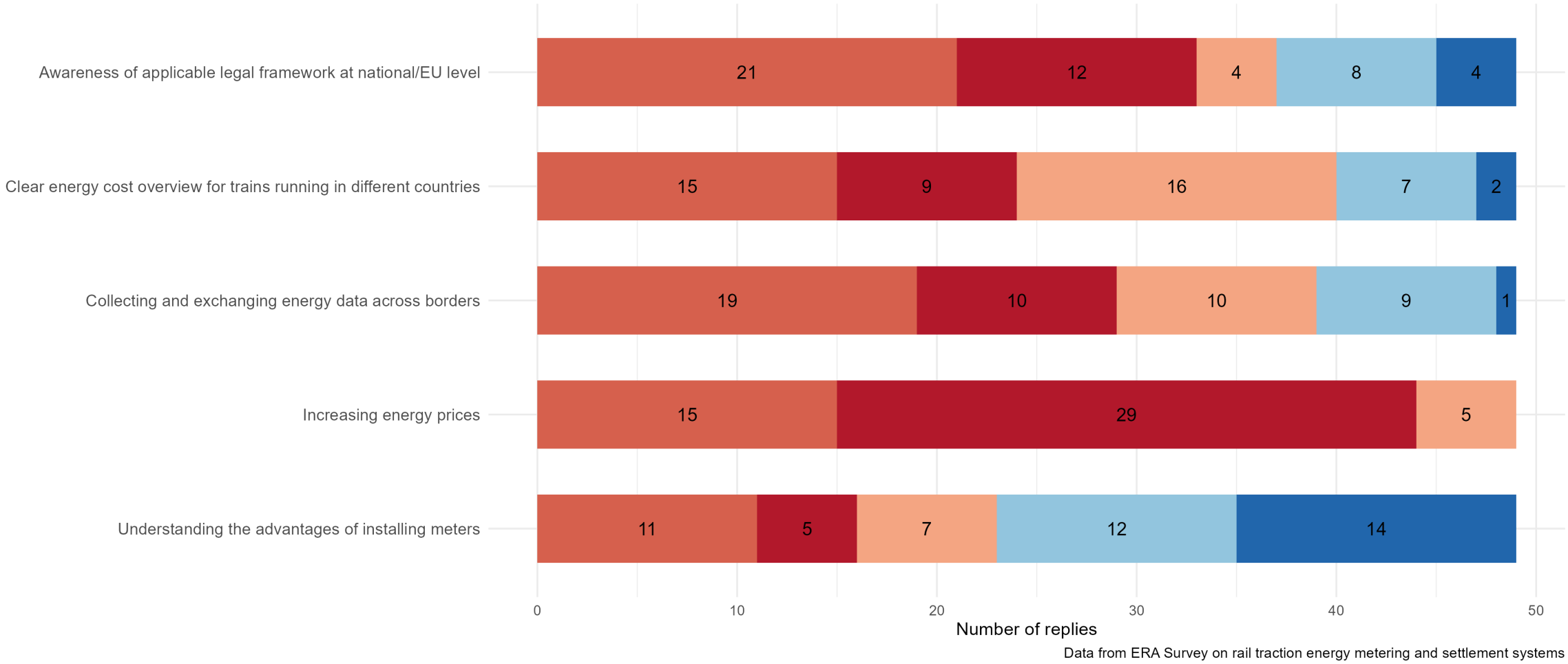

Data from ERA Survey on rail traction energy metering and settlement systems

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Do you think that the cooperation between IMs and RUs in the EU is effective regarding traction energy metering?

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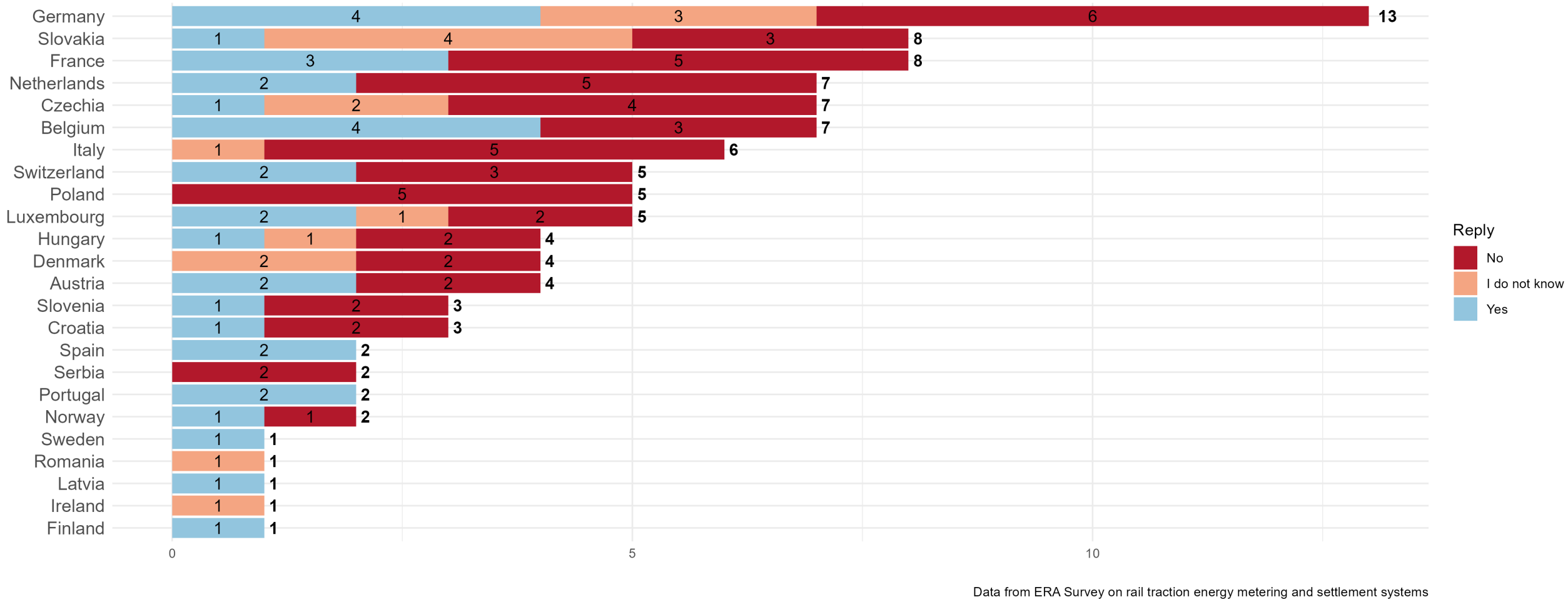

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What type of barriers for effective IM-RU cooperation do you perceive?

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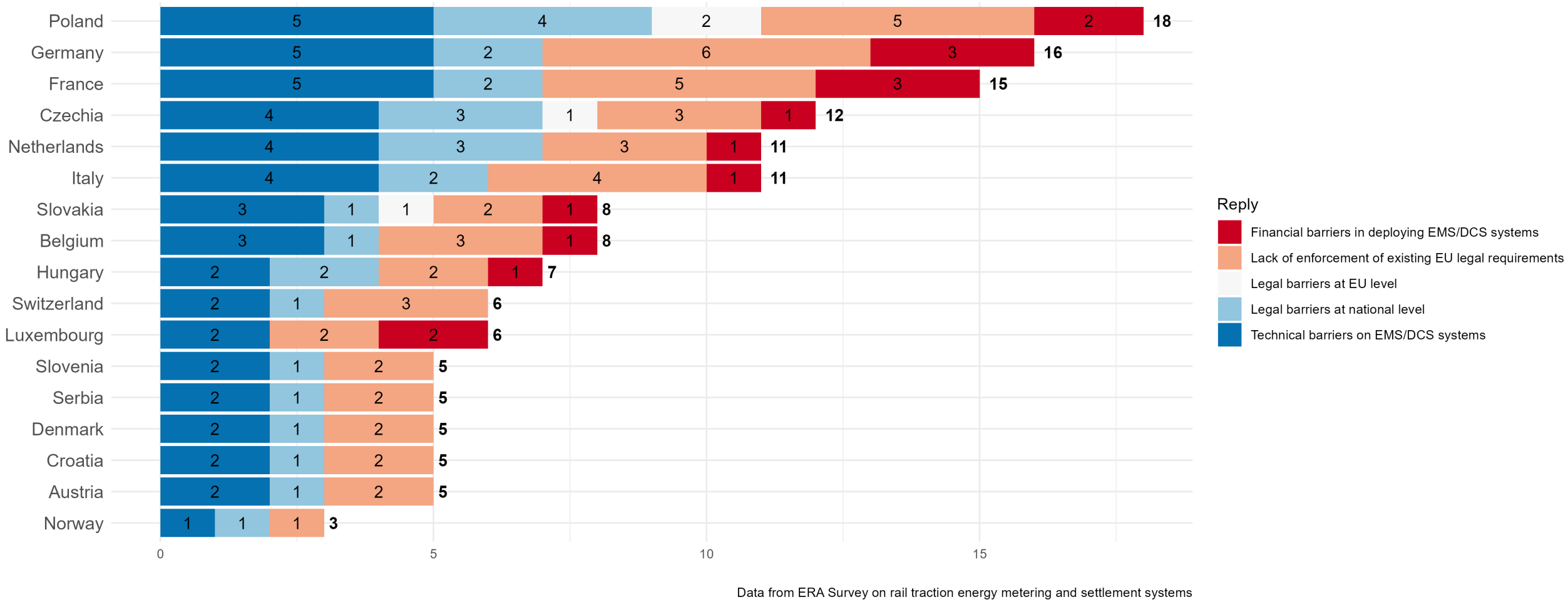

Data from ERA Survey on rail traction energy metering and settlement systems

THANK YOU

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