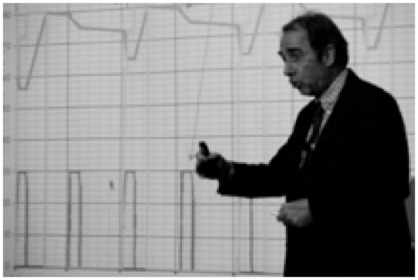
Highlights Eress Forum 2012

Regulatory status on Railway Energy and Billing



This document is a compendium of the conclusions from Eress Forum 2012, where European and national authorities, together with interest groups and railway energy business discussed the status and needs to move forward on energy measurement initiatives for the railway sector.

Why is on-board metering important for the EU?

Energy metering is necessary in a non-discriminatory rail market. According to DG Move (European Commission's Directorate for Mobility and Transport), energy savings are growing in the transport sector as a whole, but at a lower speed in the railway sector. Energy meters are needed to make energy savings visible and to allocate the profits of these savings correctly to the respective Railway Undertakings.

Energy meters are needed to make energy savings visible

To increase energy efficiency in the of railway sector, further electrification is needed and EU funding is possible on certain conditions. Figures from the UIC (International Union of Railways, French acronym for "Union Internationale des Chemins de fer") show that while in 1990 only 30% of rail was electrified; by 2009 it represented 53%. So, the development is clear. Electrification goes along with a more energy efficient rolling stock and the wide use of data metering.

The EU stated that the energy directive (2009/72/EC) has to be fully applied in the railway sector, since there are no major conflicts between the railway and energy directives. Possible gaps can only be found in the legislation at a Member State level, e.g. in the roles of the Infrastructure Managers. By applying the energy directive, Infrastructure Managers will be able to offer the supply of traction energy on a non-discriminatory basis as a service to the Railway Undertakings. At the same time, electricity suppliers will be able to enter competition for delivery of traction current.

Is the existing framework sufficient for cross-acceptance?

“You don’t have to make mandatory what you can agree among partners”

To achieve cross-acceptance, the European Treaty for market liberalisation should be sufficient.

The requirements regarding on-board EMS (Energy Measuring System) are provided in the TSI (Technical Specifications for Interoperability). The preliminary draft of the merged LOC&PAS (Locomotives and passenger rolling stock of the trans-European rail system) TSI requires that any provisions, necessary to ensure that the accuracy of the on-board EMS remain within the specified limits during the EMS service life, are included in the Maintenance Plan of Rolling Stock. So, implementing the Maintenance Plan of Rolling Stock should be enough to get cross-acceptance of reverification.

EMS verification is an integral part of the verification by a Notified Body of the conformity of the complete Rolling Stock subsystem (e.g. for new rolling stock) or could be a voluntary assessment of the EMS as a part of the subsystem as an intermediate step of verification (e.g. retrofitting). This should be sufficient to enable cross-acceptance of the EMS when installed on-board.

ERA (European Railway Agency) stated that “You don’t have to make mandatory what you can agree among partners”. Only the aspects required for interoperability need to be clearly defined within the TSI.

However, because there is still an open point with regards to

the requirements for the on-board to ground communications, the assessment arrangements for this aspect cannot be specifically defined. The EMS relates to on-board as well as trackside equipment. The limitations of the LOC&PAS TSI are that they set requirements for on-board and rolling stock only. ERA recognizes this challenge and is willing to work with the sector to find the way forward.

EMS is no stranger to Notifies Bodies either. NB Rail (Coordination Group of Notified Bodies for Railway Products and Systems) is already looking for solutions on the assessment of EMS on-board and trackside equipment.

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Communication protocol from on-board to ground

Bearing in mind the above mentioned restrictions, DG Move and ERA mentioned that the merged TSI should describe a mandatory protocol for the communication from on-board to ground. This will remain an open point in the new (merged) rolling stock TSI.

Assessing on-board equipment together with a DCS (Data Collection Service) is not possible today. A likely solution could be to shift the border between subsystem Rolling Stock and subsystem Energy.

As a result, the communication between on-board and ground would become part of the assessment of the rolling stock. A UTILTS protocol (Utility time series message; agreed format to exchange data among Infrastructure Managers), in accordance with UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business) is already defined and available in the UIC leaflet 930 (framework for the exchange of data for cross-border railway energy settlement).

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DG Move agrees that changing the border between subsystems could be considered as a potential solution.

Currently, the market is organised in such a way that one entity is responsible for both parts of the communication between on-board and ground. It is easier to connect an ECF (Energy Calculation Function or meter) to a DHS on-board using EN 61107 and to communicate between DCS and

Settlement System using UIC leaflet 930. Furthermore, the market is not waiting for a mandatory protocol to be added in all equipments. Some manufacturers confirmed that adding an extra protocol is possible.

What to do if you want to keep e.g existing transformers?

Some non-TSI trains already have measuring transformers tested according to existing energy market standards (e.g. class 0,5).

New meters will be introduced according to EN 50463-2 having e.g. a class 0,5R. The sector is concerned that it is not possible to calculate correctly the overall accuracy with the current square root formula given in the TSI and forthcoming version of EN 50463-2.

According to the EU, retrofitting on a non-TSI compliant train doesn't have to be assessed according to the TSI. It is possible to only replace the meter and to keep the transformers on older trains.

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Energy Liberalization and Impact on the Railway Industry

The liberalization of the Energy Market has brought in new challenges for the Railway Sector. The changes in regulation for both energy and railways towards liberalization and unbundling has changed the framework and the practice in energy supply, distribution and billing.

The European Commission requires the implementation of Third Party Access (TPA) for all consumers including those in the rail sector, which means that:

- Railway Undertakings (RUs) should be able to purchase energy from suppliers of their choice;
- Infrastructure Managers (IMs) should be able to facilitate the process.

Railway Undertakings (RUs) should be able to purchase energy from suppliers of their choice

DG Move also mentioned the on-going work to recast the rail directive in order to establish a single European railway area. This will include legal obligations to show separately charges for use of the energy infrastructure assets (e.g. traction power supply and contact line systems) from the charges for the energy used and its transportation via these systems to an RU. This obligation is complementary to and consistent with the implementation of TPA within the rail sector.

A presentation by a representative of the Energy sector reminded the members of the Rail industry that following the liberalization, there is a new interaction between all the players involved from the energy and railway sector, which

becomes more complex at cross-border level. In addition to having new players, there is an evolution of new and various contracts, and new regulators at national and European levels.

It is important that railway actors understand the working and the impact of the energy market in order to facilitate the process of energy supply, distribution and billing, respecting TPA, while at the same time promoting competition.

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