



ERESS Forum 2016

Madrid, May 2016

Topics

- White Paper for Transport - at the outset
- The Single European Railway Area
- Trans-european networks (transport)
- Exchange of metering data
- Rail freight networks (2013/2015)
- Shift-2-Rail
- Outlook

White Paper – a vision for rail transport 2050

Freight

Shift 50% of road freight over 300 km to other modes

Double rail freight volumes

Connect all seaports to the rail freight system

Rail Freight Corridors

Passenger

Triple length of high-speed rail network

Outpace the increase in aviation for journeys under 1000 km

Connect all core network airports to the rail network

Deploy ERTMS

Characteristics of the Railway Sector

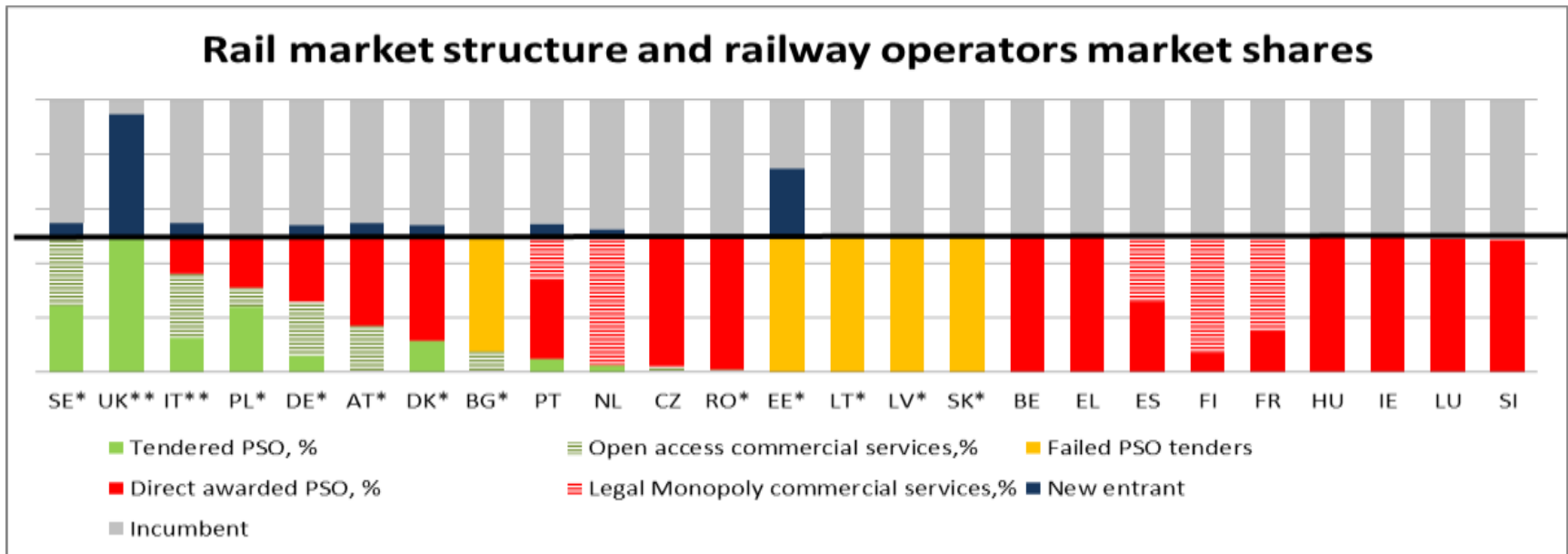
- *Passenger modal share static at 6% (despite rapid growth in high speed rail)*
- *Consumer satisfaction poor (rail services ranked 27th of 30 service industries)*
- *Public infrastructure investment → 25 billion Euro in 2009*
- *Public subsidy for PSO of 21 billion Euro in 2009*
- *Internal market still fragmented along national lines*
- *Long and costly authorisation procedures for rolling stock and undertakings*

The EU railway market:

Commercial services (1/3 of EU passenger-km)

Public service obligations (2/3 of EU passenger-km)

A variety of market structures across Europe:





Single European Railway Area (Directive 2012/34 EU)

Rail regulatory bodies apply law to electricity supply equipment and all facilities and services in facilities

Direct cost rules apply to electric supply equipment

5 Member States have not yet transposed the Directive (May 2016)

Rail market monitoring system gathers data on traction current – next report by end 2016



The key elements of the new TEN-T policy

Support implementation of Transport White Paper through new infrastructure policy including:

- **Dual layer approach based on an objective methodology: core and comprehensive network**
- **Ambitious standards for all infrastructures**
- **Common deadlines to achieve network (2030/2050)**
- **Corridors and coordinators for implementation**

New legislation: [Regulation \(EU\) No 1315/2013](#)

Core network (by 2030)

Requirements

- **Electrification**
- **Rail freight lines: 22.5 t axle load, 740 m train length, 100 km/h line speed**
- **ERTMS**
- **European track gauge**

Exemptions

- **Exemption for isolated networks**
- **Possibilities for exemptions by the Commission under certain conditions (without prejudice to Directive 2008/57/EC)**

The implementation tools

Coordinators and Core Network Corridors

- **Support the implementation of the core network**
- **Synchronise investments in order to optimise network benefits**
- **Multimodal, involving at least 3 Member States**
- **Flexible governance structures**
- **Involvement of stakeholders**
- **9 Core Network Corridors defined until 2020**
- **Core Network Corridors are aligned with Rail Freight Corridors**
- **Coordinators for ERTMS and Motorways of the Sea**

European rail network for competitive freight transport

- **General Objectives:**

- » Reinforce cooperation at all levels along selected rail freight corridors, especially among Infrastructure Managers
- » Develop rail freight corridors in terms of capacity and standard
- » Provide rail freight services of good quality

- **Purpose:**

- » Increase rail freight's competitiveness and market share

CEF – The EU's connection Europe Financing Programme 2014 -2020

major ongoing electrification projects I



Major ongoing electrification projects II



Commission vs Deutsche Bahn – early termination of successful commitment scheme

**margin squeeze (Art. 102 TFEU)– as a result
of vertical integration between grid provider
and electricity supplier –**

**price of current and market access of
suppliers**

**within 18 months of the scheme, several
suppliers entered the market**

Exchange of metered data

As of 1/1/15 : TSI LOC&PASS: Mandatory fitment of motorised units with meters running on equipped lines

Planning for the next years:

- Open point on data exchange interface between RS and track side (TSI ENE and Loc&Pass) for 2 years*
- industry to agree standard on data interface between rolling stock and track side (2 years)*
- 2 years for implementing the on-ground system*
- Operational 2017/18*

Their share of traction current supplied to non-DB operators rose to $> 50\%$!

Calender:

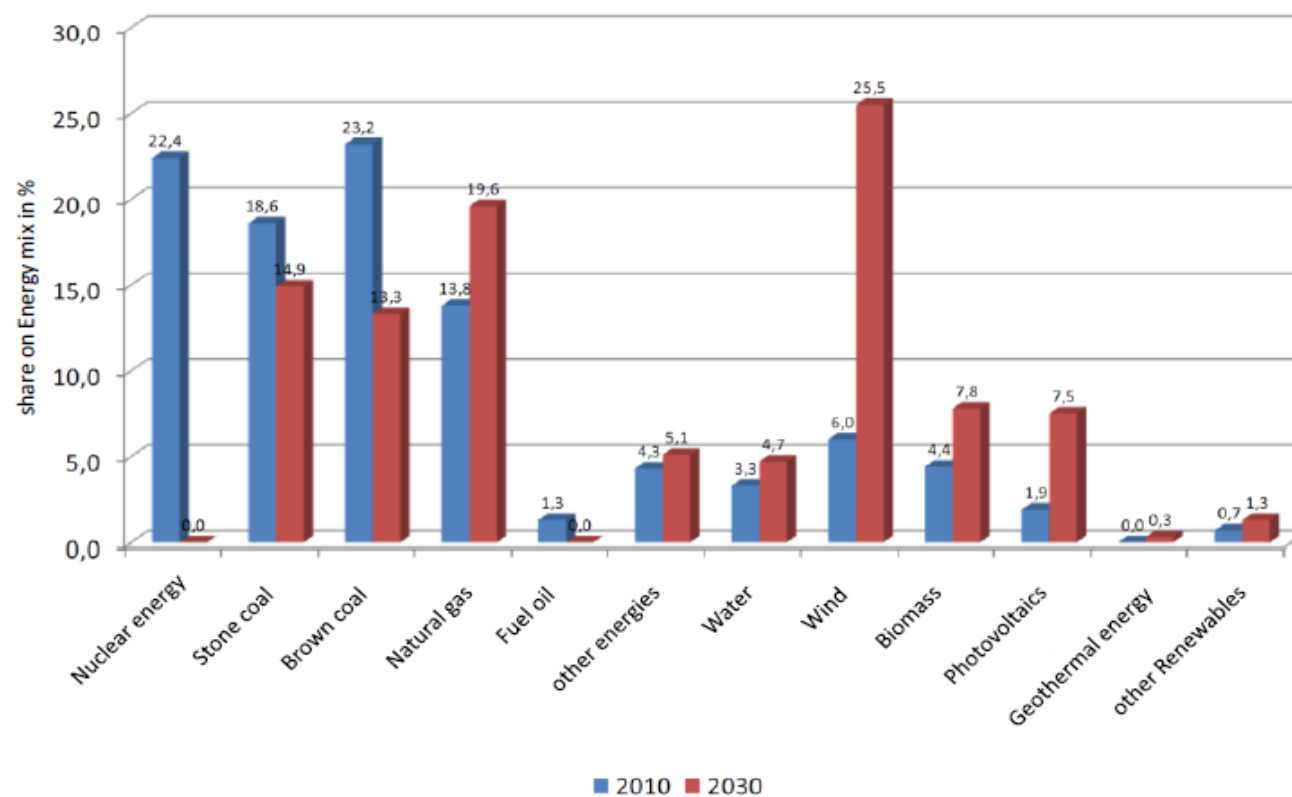
March 2011: unannounced inspections

June 2012: initiating formal proceedings

Dec 2013 DB accepts legally binding commitments

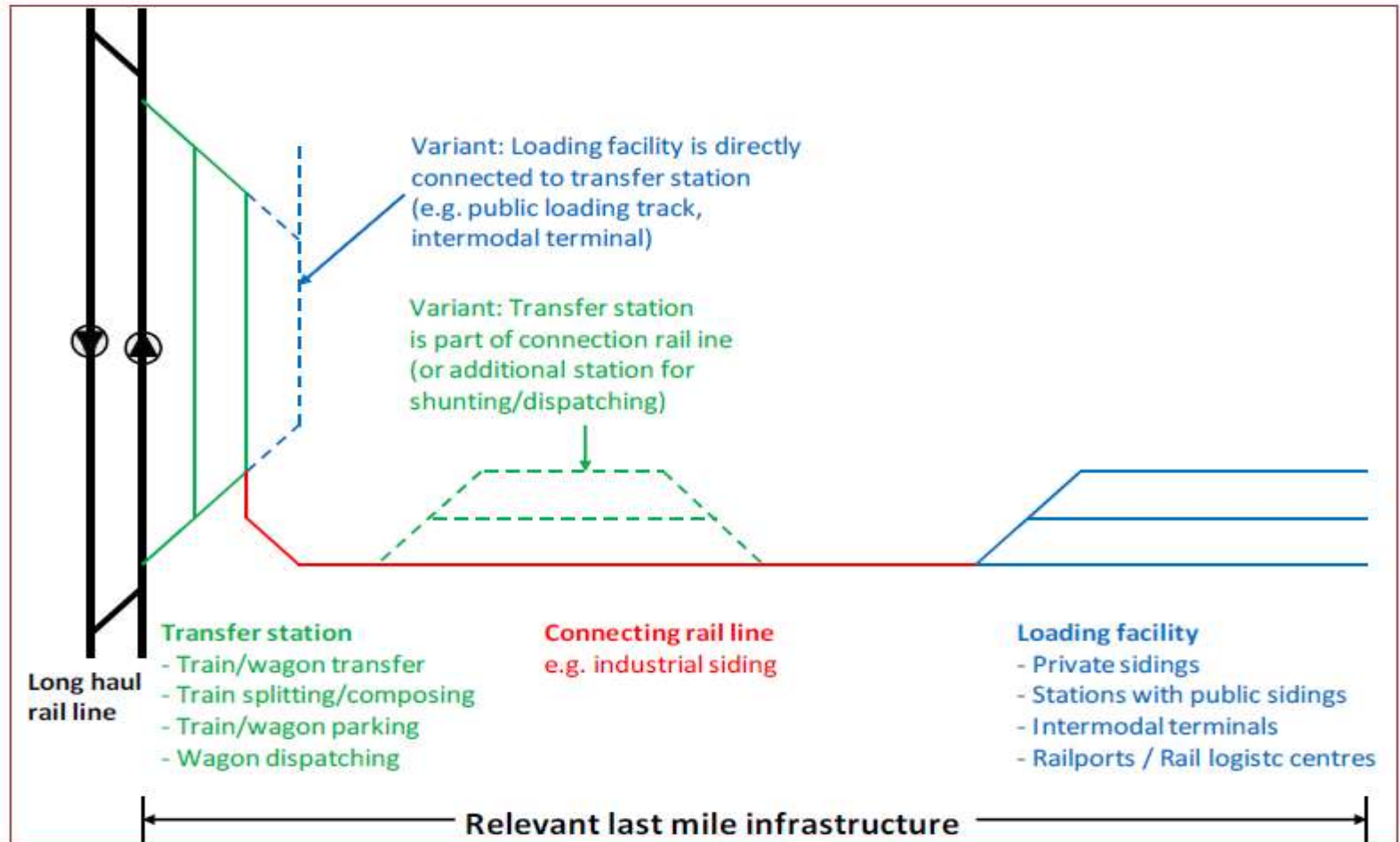
March 2016: early termination

Figure 39 - Assumed changes the energy mix in power generation in Germany 2010-2030



Source: „Verkehrsverflechtungsprognose 2030 sowie Netzumlegung auf die Verkehrsträger“ – Erstellung einer regionalisierten Strukturdatenprognose im Auftrag des BMVS, Final report December 2012

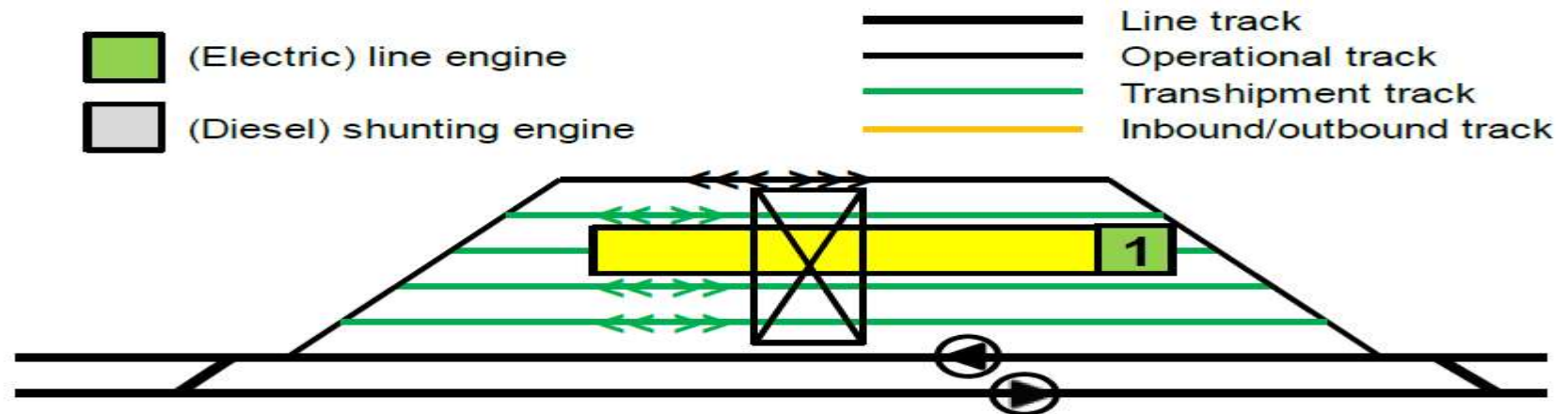
Figure 1 - Components of “Last mile infrastructure” for rail freight



Source: HaCon



Figure 115 - “Innovative” terminal layout and associated rail processes





Shift2Rail - General objective

Provide the European rail sector with the necessary framework to stimulate the development of breakthrough innovations that contribute to a faster and cheaper transition to a more attractive, competitive, efficient, integrated and sustainable European rail system, thereby supporting the achievement of the Single European Railway Area and the competitiveness of the rail sector as a whole.

Specific objectives

- **Develop, integrate, demonstrate and validate** innovative technologies and solutions that contribute to:
 - ✓ reduce **life-cycle costs** of the railway transport system
 - ✓ increase **capacity** of the railway transport system
 - ✓ increase **reliability and punctuality** of rail services
 - ✓ a **more attractive service profile**, providing users with an integrated end-to-end solution for their transport needs
 - ✓ remove remaining technical obstacles to **interoperability and efficiency**
 - ✓ reduce **negative externalities** such as noise, vibrations, emissions and other environmental impacts

The role of technical demonstrators

- Close the gap in the innovation chain (from **ideas to market**)
- Support market **uptake and impact** by enabling the testing of innovative solutions under real-world conditions
- Ensure **strong involvement** of all stakeholders thanks to collaborative nature of demonstrators
- Strengthen the **European dimension** with cross-border demonstrators
- **Quantify** the impact of the introduction of each new technology and of different combinations of technologies
- Provide increased **visibility** and generate interest in the rail industry to attract top graduates from across Europe

Priority areas – Funding needs

Innovation Programme	Funding needs as estimated by industry IP (million EUR)	Expected budget per IP based on available budget (million EUR)
1. Rolling stock	357	235
2. Advanced Traffic Management & Control Systems	260	171
3. Infrastructure	272	179
4. IT Solutions for Attractive Railway Services	129	85
5. Technologies for Sustainable & Attractive European Freight	160	105
Transversal activities and running costs	220	145
TOTAL	1398	920

Shift-2-Rail 2014 - 2020

IP1 - Cost Efficient and Reliable Trains

Overview of the Technical Demonstrators

TD1.1 - Traction Systems

TD1.2 - Train Control and Monitoring

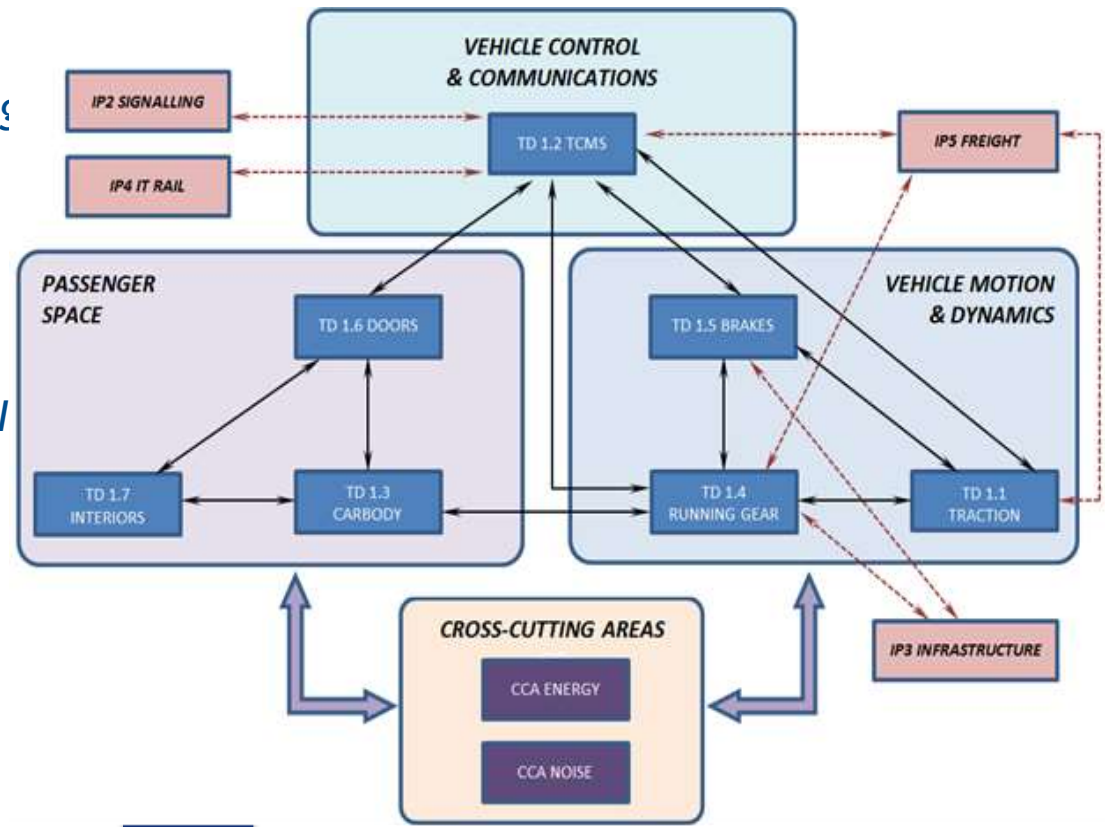
TD1.3 - Carbody Shell

TD1.4 - Running Gear

TD1.5 - Brakes Systems

TD1.6 - Doors and Access Systems

TD1.7 - Train Modularity In Use (TMI)



Where do we go from here?

Competition of supply costs of electricity

Electrification of gaps and last-mile infrastructure

Decarbonisation through higher share of renewables

More efficient use of electricity through new technologies

Thank you for your attention