

Commission proposal COM(2011)665 establishing the Connecting Europe Facility

Funding for rail freight noise must be addressed now

May 2012

Summary

In order to meet EU objectives on curbing noise emissions from freight, the rail sector is currently facing huge costs to retrofit freight wagons with noise-reducing brakes before the end of their natural lifespans. Furthermore, there is not a consistent approach in dealing with noise, which means that other transport modes are not facing similar levels of costs.

In the context of the current discussions on the Connecting European Facility (CEF) proposal, CER wishes to stress the importance of addressing this issue of funding for rail freight noise reduction projects as a top priority and therefore would like to:

- point to the need for consistency across modes: funding for rail freight wagon retrofitting must originate from outside the rail system unless and until similar noise charging is imposed on the road sector, in order to avoid any distortion to competition;
- reiterate its support for the 20% co-funding rate proposed by the Commission;
- stress that such a co-funding rate should be further increased to 30% to stimulate retrofitting;

Noise is a top environmental priority for railways

Noise is a side effect of all major modes of transport and the fast growing demand for transport in Europe leads to disturbance of an increasing number of citizens. While the perceived noise annoyance is much higher for air and road traffic than rail¹, the reduction of noise is a key environmental priority for railways.

The rail sector has put in much effort over the past 50 years to achieve significant progress in noise abatement in order to ensure the continued acceptance of this transport mode. Nevertheless, some European citizens are still affected by railway noise levels above 55 dB², although the affected population is not evenly distributed and depends on geography, density of population and amount of traffic.

For this reason, **European railways support cost-efficient EU noise control measures that aim at reducing the number of people regularly affected by rail noise**, and they are committed to continue the progress through noise abatement solutions.

¹ Position paper, working group health and socio-economic effects (WG HSEA), European Commission, 2004

² Noise above 55 dB is considered noise pollution

Legislative measures for rail noise abatement

While noise creation (emissions) is legislated on a European level, noise reception is submitted to the subsidiarity principle and legislated at national level. The EU has addressed rail sector noise emissions in interoperability directives and corresponding technical specifications for interoperability (TSIs).

Currently the following regulations are in force:

- Technical Specification for Interoperability (TSI) for Rolling Stock (high speed rail), adopted in 2002
- TSI for interoperability for Noise (conventional rail): adopted in 2005, revised in 2011
- TSI relating to high-speed railway infrastructures, adopted in 2002

These measures drastically reduce noise emissions from new or upgraded rolling stock as more stringent requirements in terms of noise emissions have to apply.

At the same time, the EU has adopted Directive 2002/49/EC (Environmental Noise Directive) which requires member states to submit noise maps and actions plans. With this instrument the Commission seeks to get an overview on the existing noise situation as well as the possible noise reduction within its member states.

The rail sector has a long history of noise mitigation

Railway noise measures can be divided into two main categories, namely source-related measures such as modified brakes (e.g. composite brake blocks), modified or damped wheels, and infrastructure-related measures such as rail dampers and noise barriers.

The rail sector has a long history of noise mitigation and has put much effort into understanding noise creation and propagation and into finding different abatement possibilities. This has led to a **package of solutions** (see table 1), such as the introduction of disc-braked passenger vehicles, to new freight wagons being fitted with composite brake blocks (K-blocks), and the construction of noise barriers along major lines and noise absorbers on slab tracks, among other measures.

Noise abatement method	Overall noise reduction potential	Noise abatement effect	Comment/status
Retrofitting with Kblocks	5 - 10 dB (strongly depending on rail roughness)	Network wide	K-blocks are homologated however require adaptation of the braking system
Retrofitting with LLblocks	5 - 10 dB	Network wide	LL-brake blocks are only provisionally homologated, being under investigation (Europe Train)
Wheel absorbers	3 - 4 dB for highspeed trains and 1 - 3 dB for freight trains other conventional trains	Network wide	Effect strongly dependent on local conditions. Wheel maintenance difficulties may occur
Track absorbers	1 - 3 dB	Local	Track maintenance difficulties may occur, effect strongly dependent on local conditions, not homologated in most countries
Combination of wheel and track	2 - 5 dB		Major impact of wheel and track maintenance. The combination of the 2 measures has a local effect.
Acoustic rail grinding	1 - 3 dB or more depending on local hotspots	Local	Effect strongly dependent on local rail roughness conditions, smooth wheels are a precondition for effect

Operational	Variable	Local	Negative effect on operations and railway capacity. Method hinders railway traffic and therefore not in line with efforts to promote sustainable transport
Noise barriers	5 - 15 dB	Local	Effect dependent on height and local geography, negative effect on landscape, influence on railway maintenance procedures
Noise insulated windows	10 - 30 dB	Local	Effect is only achieved when windows are closed

Table 1: Most common railway noise abatement solutions³

Measures most often implemented are noise barriers or insulated windows. **The largest potential, however, lies in treating noise problems at source.** The TSIs described above drastically reduces noise from new rolling stock. Finally, in specific cases, special solutions such as track and wheel absorbers or rail grinding are possible and used in several cases.

Technological solutions for retrofitting

In order to further reduce noise from existing wagons, rolling noise emitted by the freight wagons equipped with cast-iron brake blocks remains the key issue. **With the natural renewal rate of the freight wagon fleet, the noise problem will be gradually solved within the next 25 years-time,** as new wagons placed on the market since 2006 have to be compliant with the TSI Noise limit values.

However, the EU’s objective is to reduce the noise emitted from freight wagons before the end of their natural lifespan. In order to achieve this, **noise can be drastically reduced by retrofitting the wagons with composite brake blocks.** Currently two types are being developed and implemented: **the K- and the LL- blocks.**

K-blocks have been already homologated (approved for use) and can be used for retrofitting, while the homologation of LL blocks is currently in progress. However, there is a significant cost difference: K-blocks require a modification of the whole braking system of existing wagons, while LL-blocks can be fitted with only minor adaptations of the braking system, resulting in a significant reduction of costs.

Therefore, **it is a priority and a challenge for the sector to complete the homologation of the LL-brake block,** while ensuring that appropriate incentive schemes and funding will make retrofitting economically viable.

Rail sector strategy

The **railway sector’s noise reduction strategy** is based on the following pillars:

- Introduction of TSI limit values in new freight vehicles
- Promotion of retrofitting of existing freight vehicles with composite brake blocks
- Build and maintain noise barriers, noise absorbers and install noise insulated windows
- Pursue further solutions in special cases such as rail grinding, rail absorbers, etc.

³ ERRAC Roadmap, WP 01 - The Greening of Surface Transport. “Towards 2030 - Noise and Vibrations Roadmap. 2011.

Since it is generally acknowledged that retrofitting the existing freight fleet is the best path towards reducing railway noise, the rail sector is engaged with the EU to ensure that **retrofitting plans are cost-efficient without jeopardising the competitiveness of rail transport.**

To make this happen, clear decisions and appropriate funding levels have to be agreed now. The discussion on the 20% (and possibly higher) co-funding rate for retrofitting projects represents a key milestone on the path of further reducing railway noise.

Retrofitting with composite brake blocks produces savings in Europe

While the current efforts from the railway sector focus on both source- and infrastructure-related measures, source-related measures are generally considered a preferable method to achieve cost-efficient noise abatements because of their network-wide effect. Nevertheless, a total of EUR 150-200 million are spent annually in Europe on the construction of noise barriers.

Noise barriers are an effective element of noise abatement programmes where necessary, for example in urban areas. If barriers are coupled with measures at source, the length and/or height of barriers can be reduced, leading to significant cost savings. The STAIRRS⁴ project showed that **retrofitting of rail freight wagons with approved composite brake blocks has the highest cost-effectiveness** both on its own and combined with other measures such as noise barriers (see table 2). See www.stairrs.org

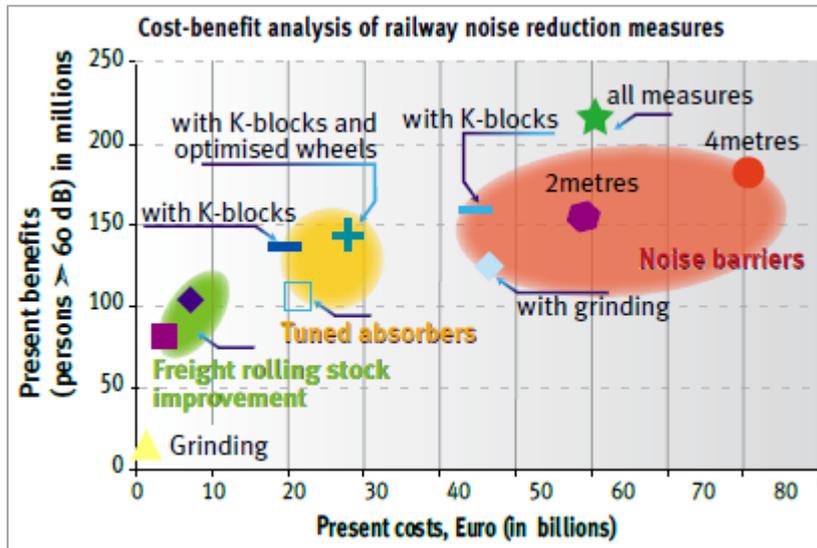


Table 2: The graph shows that solutions using composite brake blocks save considerable money in comparison to noise abatement with only noise barriers (Source: STAIRSS 2003)

In line with the general understanding on the best path towards silent railway, the European Commission has proposed, in Regulation COM(2011)665 establishing a Connecting Europe Facility (CEF), to grant EU funds for up to 20% of the total cost of projects aimed at reducing rail freight noise by retrofitting existing rolling stock.

⁴ STAIRRS (Strategies and Tools to Assess and Implement noise Reducing measures for Railway Systems) project. Study co-financed by the EU fifth framework programme and by the UIC

Given the potential overall savings that can be achieved in Europe by retrofitting the freight wagon fleet, as opposed to infrastructure-related measures, this 20% co-funding rate proposed by the Commission becomes even more important in the current economic downturn (see table 3).

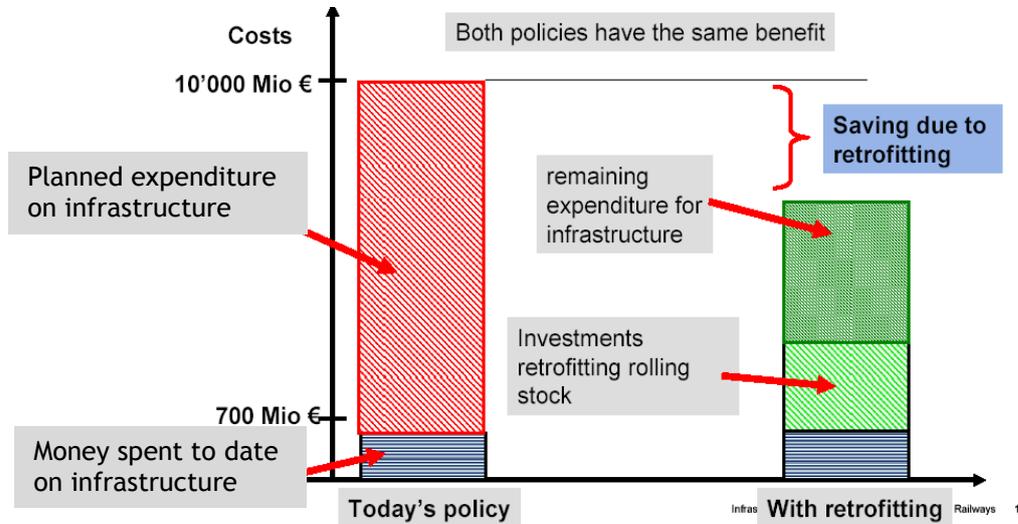


Table 3: The graph shows the potential savings in Europe by retrofitting the freight fleet with approved composite brake blocks⁵.

Appropriate funding is key to avoid any distortion to competition

The lack of direct economic incentives for the rail sector to retrofit the current freight fleet and the fierce competitive market in which railways operate have to be taken into account when decisions of funding levels to reduce noise are taken.

If railways were forced to bear the costs of retrofitting internally, this would jeopardise the sector and bring about a reverse modal shift from rail to road, since noise is not treated as a negative externality to be penalised across all modes of transport.

In addition, since **railways are the most sustainable major mode of transport**, it is important that noise control measures do not have the consequence of forcing traffic onto other modes where the overall environmental impact would be worse. **A reverse modal shift from rail to road is opposite to the aims of the 2011 Transport White Paper which aim to increase rail freight.**

According to the European Commission's estimates, 370 000 wagons need to be retrofitted⁶ which would lead to investment costs in the range of EUR 200-700 million (when LL-blocks will be homologated) or EUR 1.0-1.8 billion (K-blocks) and to additional maintenance costs in the order of magnitude of EUR 200-400 million (aggregated until 2025, for both technologies).

Therefore, in order to make retrofitting viable and in order to avoid any distortion in competition with the road sector, **financing railway noise control from outside the system is key.** While it is expected

⁵ "Railway Noise in Europe. A 2010 report in the state of the art". UIC, 2010.

⁶ This figure exclude European freight wagons with an annual mileage of less than 10 000 Km. According to UIC the current number of wagons which need to be retrofitted amount to roughly 600 000

that the EU will introduce noise differentiated track access charges (NDTACs), only a few Member States seem to support NDTACs. In addition, it is still unclear which Member States will make funding available for retrofitting on a national basis.

The recent agreement signed between Deutsche Bahn (DB) and the German Government on the implementation of NDTAC in Germany⁷ clearly shows the risk of a distortion of competition if the funding rate for retrofitting programmes is not appropriate. While the agreement foresees the intention to reduce noise annoyance by rail noise by 50% till 2020, to be reached by a retrofitting rate of roughly 80%, the German state provides incomplete co-funding: 50%, but only up to a certain ceiling (EUR 152 million) which is too low to cover the costs faced by the sector.

Funding for retrofitting must be addressed now!

Along with the unclear situation concerning incentives and funding, and the lack of a consistent approach across the EU in dealing with noise, the railway also face the situation that other transport modes are not facing, for example new costs to retrofit their vehicles to meet new noise standards.

Therefore, **CER strongly welcomes the proposed co-funding of actions to reduce rail freight noise by retrofitting existing rolling stock with up to 20% of the total cost of the project**, proposed by the European Commission in the Connecting Europe Facility (CEF) proposal and calls on decision-makers to support this.

However, CER would like to highlight that the 20% level is not high enough, especially when taking operating costs into consideration. **Therefore, CER would like to call on decision-makers to increase the proposed co-funding rate for rail freight noise reduction projects by up to 30%**. In fact, in order to stimulate retrofitting plans in line with the EU objective on curbing noise emissions from the existing freight fleet, appropriate funding must be decided and should originate from outside the rail system. This is key to avoid any distortion to competition with the road sector and a reverse modal-shift to less sustainable transport modes.

The current discussion on co-funding rate for retrofitting projects represents a key milestone on the path of further reducing railway noise. It is critical to take action now on funding levels for supporting rail freight noise reduction projects which will have a positive impact on noise emissions from rail over the coming years.

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The Community of European Railway and Infrastructure Companies (CER) brings together more than 70 European railway undertakings and infrastructure companies. CER represents the interests of its members towards the European institutions as well as other policy makers and transport actors. CER's main focus is promoting the strengthening of rail as essential to the creation of a sustainable transport system which is efficient, effective and environmentally sound. For more information, see www.cer.be

⁷ ["Eckpunktevereinbarung zur Einführung eines lärmabhängigen Trassenpreissystems auf dem Schienennetz der OB Netz AG"](#)