

**Measure 15: Enter into dialogue with the rail industries in the context of a voluntary agreement to reduce adverse environmental impact**

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<p><i>Policy package:</i> <b>2D:</b> Rail Safety, Quality and Environment</p>
<p><i>Measure 15:</i> Enter into dialogue with the rail industries in the context of a voluntary agreement to reduce adverse environmental impact</p>
<p><i>What is the problem being addressed ?</i></p> <p>According to the analysis presented in Annex I of COM(2002) 18 final, rail is a relatively environmental friendly mode of transport. Studies on external costs of transport modes underline this statement. However, the railways have done little in recent times to sustain this position in the future. The performance of rail freight in terms of noise emissions, energy efficiency and diesel emissions is hardly improving, also due to the long investment cycles for rolling stock (25 to 40 years). This is worrying especially knowing that the load factor of rail freight wagons is low (ca. 50% of wagons run empty). Other modes such as road haulage are making significant progress in their environmental performance. Trucks are becoming quieter, more energy efficient and cleaner thanks to stricter emission standards. Hence, there is a serious risk that the railways could lose the environmental bonus that constitutes one of their advantages.</p> <p>In this context, the policy guidelines of the Transport White Paper of 2001 clearly state that a modern European transport system, to be optimised to meet the demands of enlargement and sustainable development, must be sustainable from an economic and environmental viewpoint as well. In addition, the Green Paper Future Noise Policy of November 1996 of the European Commission states that the “public’s main criticism of rail transport is the excessive noise level”. Railway <b>freight</b> traffic is the main contributor to the noise problems of the European Railways followed by high speed and inner-urban railway lines.</p>
<p><i>Measure’s costs and/or benefits:</i></p> <p>Rail undertakings will make supplementary costs for improving the maintenance of the rail vehicles to reduce the rolling noise. In particular for rail freight wagons the brake blocks could be changed and cast iron brake blocks replaced by composite one less noisy. Infrastructure managers will make supplementary costs in order to improve the quality of the infrastructure by track maintenance, track up-grading or new design.</p>
<p><i>Legislative implementation at the EU level:</i></p> <p>The Commission undertook a study to investigate cost-effective railways noise abatement measures (cfr Status and options for the reduction of noise emission from the existing European rail freight wagon fleet – including a third party assessment of the UIC/UIP/CER Action Programme Noise reduction in Freight traffic – January 2004). The study recommends a set of actions such as defining limit values for a new rolling stock, a voluntary agreement on retrofitting brake blocks for the existing wagon fleet and the introduction of an emission-based track access charging system to provide incentives for investment.</p> <p>In September 2001 the Commission mandated the European Association for Railway Interoperability (AEIF) to develop TSI that define noise emission limit values for new rolling stock and appropriate maintenance rules to tackle the noise problem, in the framework of the Interoperability Directive 2001/16/EC for conventional rail systems. The so-called “Noise TSI” might be adopted before the end of 2004.</p> <p>Acting on the existing fleet the Commission will enter into a dialogue with industrial players to assess cost-effective options, including voluntary measures by industry for noise abatement in the existing rail wagon fleet and specific measures for the rolling stock in accession countries.</p> <p>In any event, Directive 2002/49/EC of the European Parliament and of the Council relating to the assessment and management of environmental noise states that the Commission shall submit to the European Parliament and the Council, no later than 18 July 2006, appropriate legislative proposals. This Directive has been adopted on 25 June 2002. A Position Paper on the European strategies and priorities for</p>

railways noise abatement has been elaborated by the Working Group Railway Noise of the European Commission, in the year 2003.

Up to date, concerning the development of existing EU legislation relating to railway noise emissions, the following Commission decisions have been adopted:

Interoperability of the Trans-European high-speed rail system (see Directive [96/48/EC](#))

- Technical specification for interoperability (TSI) relating to high-speed rolling stock – Commission Decision [2002/735/EC](#)
- Technical specification for interoperability (TSI) relating to high-speed railway infrastructures – Commission Decision [2002/732/EC](#)

Interoperability of the conventional Trans-European rail system (see Directive [2001/16/EC](#))

- Commission Decision [2004/446/EC](#) of 29 April 2004 specifying the basic parameters of the ‘Noise’, ‘Freight Wagons’ and ‘Telematic applications for freight’ Technical Specifications for Interoperability referred to in Directive 2001/16/EC

The TSI Noise related conventional Trans-European rail system is expected to be adopted before the end of the year 2004. The TSI Noise related to the Trans-European high speed rail system is expected to be revised in 2005. In addition, the directive 2002/49/EC adopted on the 25<sup>th</sup> June 2002 requires noise management plans to be drawn up by the appropriate national authorities, in order to reduce environmental noise from railways, as early as 2007. Its implementation might push for developing cost-effective measures such as retrofitting brake blocks of existing rolling stocks, as recommended by the WG6’s position paper published in 2003.

Finally, with regard to the reduction of atmospheric emissions, new emission standards for rail locomotives have been laid down in *Directive 2004/26/EC of the European Parliament and of the Council of 21 April 2004 amending Directive 97/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery*. A study undertaken by UIC and other partners and co-financed by the Commission shall analyse the technological and operational solutions to reduce atmospheric emissions from rail locomotives. Results shall be provided before the end of 2005.

*What are the objectives ?*

The reduction of adverse environmental impacts concerns two main targets:

Noise abatement

The most significant rail noise source is the rolling noise, i.e. the noise created by the wheel-rail interaction. This concerns, of course, both passenger and freight services, but the problem is much more acute in the case of freight. The iron brake blocks of freight wagons scratch the surface of the wheels, which aggravate the rolling noise. Today modern brake blocks based on composite materials (e.g. K-block and LL-block) can reduce the noise emissions by 8dBA to 10dBA. Railways undertakings consider the equipment of new freight wagons with K blocks and the retrofitting of existing wagons with LL block as cost effective. New freight wagons equipped with K-blocks are currently being purchased by some national railway companies. However, the technical development of LL blocks and therefore the retrofitting of existing wagons seems to be encountering problems. Only two sorts of K-blocks have been homologated by UIC. Experimentations are on-going concerning the homologation of LL-blocks. Besides technical problems, a major challenge is the financial costs of the retrofitting/modernisation of the European fleet, in particular in the New Member States. UIC has estimated that out of the ca 1 million freight wagons in Europe 600.000 would need retrofitting.

Concerning the retrofitting program of the existing fleet, the Commission is following a progressive approach. In 2004, the AEAT Study commissioned by the Commission and jointly funded together with the railways, wagon owners and the manufacturers (mentioned above) carried out a third party assessment with respect of the results and preliminary conclusions of the UIC Action Program and a survey of possible implementation scenarios and funding options for retrofitting operation. UIC, CER, UIP and UIRR proposed the Commission to wait until summer 2004 before starting further discussions on a retrofitting program to get reliable answers concerning the availability of LL-blocks which are expected to reduce the cost of the retrofitting programme by around 2.5 billion Euros (compared to a K-Blocks scenario). Before

the end of 2004, the Commission will enter into a dialogue with the industry to step forward the retrofitting programme for rail freight wagons. EIB and industry will be involved in this process. A true achievement of this program requires a wide (all the EU rail companies) implementation of the retrofitting measures in order to cover a sufficient part of the rolling stocks, as well as an European harmonised incentive in order to allow a full effect on the EU scale without competitiveness distortion.

#### Reduction of atmospheric emissions from diesel train engines

At local and regional level emissions from diesel train engines can constitute a significant nuisance as diesel locomotives ensure ca. 13% of all rail traction in Europe. Modern diesel engine technology for trucks and non-road mobile machinery brought about a significant improvement in particulate matters (PM) emissions, CO, HC and Nox emissions. The technology is available for both modes, but the basic problem of the poor performance of rail in this respect is the long service life of diesel locomotives (30 to 40 years) compared with trucks (10 to 15 years) which slows down the spread of new technologies in the fleet. Therefore, the Commission's approach is twofold, addressing new rolling stock as well as the existing rolling stock, the former addressed by the new limits set up in the Directive 2004/26/EC, and the latter entering into a dialogue with industrial players to assess cost-effective options including voluntary measures by industry to improve the emission performance of existing diesel locomotives.

#### *Interactions with other WP measures:*

Measure 15 is linked to:

- Measure 10 European Railway Agency: step up rail safety by setting up a Community structure for railway interoperability and safety, as railway noise is one important item of concern,
- Measure 8 *Second railway package: ensuring a high level safety for the railway network based on rules and regulations established independently and a clear definition of the responsibilities of each player involved* due to issues as licensing of railways undertakings and the levying of charges depending also on the level of noise,
- Measures 44 and 45 on the development of the trans-European network (Measure 44) and on the general rules for granting the Community financial aid in the field of trans-European networks, as the financing of the TEN-T by the EU should include targets and requirements for noise abatement measures.

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#### *Output indicators:*

The key output indicators include:

- Number of new freight wagons fitted with modern brake blocks and share of new wagons on the total size of the wagons fleet.
- Number of existing freight wagons retrofitted with modern brake blocks and their share on the total size of the fleet.
- Average freight wagon age and mileage.
- Number of new diesel engines fitting air emission limits and their share on the total size of the diesel engine fleet.
- Number of existing diesel engines retrofitted with devices improving air emissions and their share on the total size of the diesel engine fleet.
- Average diesel engine age (as compared to the average age of diesel trucks) and mileage.

Since the seventies, a large reduction of the freight wagon fleet has been observed in the EU. During the nineties, rationalisation of the fleet accelerated and in 1997 it consisted of only some 550.000 units compared to 1,5 million in 1970. In Western Europe, most rail freight wagons in 1995 were in the 16-26 year age category, while Eastern European fleet, which were replaced with greater consistency, were 6 – 16 years old. As the average age of wagon is high their technical characteristics are often out of tune with today's market requirements.

As a result of the implementation of this measure, even if the total number of rail vehicles will be not strongly affected, the quality of the rail vehicle stock will be improved, for both existing stock and the new

vehicles. This is true also for the rail infrastructure, where the noise abatement shall promote a better quality of the existing tracks and new design standards for the new tracks.

*Outcome indicators: intermediate impacts on transport markets*

The continuous use of noisy freight wagons with iron brake blocks could lead to operating restrictions (e.g. during the night) imposed by national authorities to protect the population against sleep disturbances and other health impacts of noise. Therefore, there is a serious risk that international rail traffic could be hampered by national measures and that the railways could lose further competitiveness against road haulage.

Thus, the implementation of this measure should avoid this risk and, by this way, contribute to increase the competitive position of rail freight against road, and the public acceptance of the development of railways, to be monitored observing the modal share of rail freight transport.

*Outcome indicators: final impacts on transport users and non users*

Further implementation of a common European strategy for railway noise abatement would affect the following outcome indicators:

Rail/rolling stock construction costs, as new standards for track/rolling stock design shall be adopted.

Rail/rolling stock maintenance costs, as better maintenance of the existing tracks/rolling stock should be considered for noise reduction.

Share of population exposed to rail transport noise.

Regarding the noise exposure, the EEA estimates in its TERM 2001 report that “that 30% of Europeans are exposed to road noise levels, and around 10% to rail noise levels above 55 Ldn dB(A) (Ldn day/night level over the whole day with a 10 dB(A) penalty for night time noise [22:00 to 7:00])”. The national exposure data for rail transport show that night is the critical period in countries where there is night freight traffic.