



UIC

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Category: Energy efficiency and CO2.

TRAINER.

NL Environment and Spatial planning

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1. Purpose of the project/Organization of the Project/Physical tasks of the Project.

TRAINER (www.iee-trainer.eu) aimed at improving energy efficiency by the railways in at least 5 EU-countries: the Netherlands, Slovenia, Slovakia, Italy, Greece. Training programmes and facilities have been developed and implemented to initiate and optimise energy efficiency improving measures by railway operators. The training programmes aim at train drivers, station personnel and the management of railway companies. TRAINER focused on energy efficient driving (ecodriving) but went beyond, addressing additional energy saving possibilities concerning technology (rolling stock and infrastructure) and organisation. Long Term Agreements, which include Energy Management Systems (EMS), have also been addressed as means to accelerate and substantiate energy efficiency improving measures in the railway sector. TRAINER closely collaborated with the FP6 project Railenergy (www.railenergy.org) and the association of European Railways UIC.

2. Results and Impact on the sustainability performance of Rail.

- a. **An instruction film (in 8 languages) for train drivers and the railway management**
- b. **A WIKIpedia like Universal Manual (in 6 languages) for establishing energy efficiency improving training programmes in the railway sector.**
- c. 2 Demo tours along good practices in Europe conducted: First one in October 2007, in the Netherlands and Germany, second one in March 2008, in Slovenia, Slovakia and Austria.
- d. Training programmes for train drivers, station personnel, rail company management in the Netherlands, Greece, Slovenia, Slovakia and Italy.
- e. 19,500 Train drivers have been trained in ecodriving through train-the-trainer activities. Additionally further dissemination has been achieved through the instruction film and the universal manual.
- f. TRAINER resulted in an annual 0.15 Mton CO₂ emission avoidance through the training of 19,500 train drivers and further dissemination. From 2010 on, when all the 21,450 train drivers of the 5 participating railway companies will have been trained, the result may mount up to 0.20 Mton/year. The potential for all 150,000 EU25 train drivers is an annual CO₂ emission avoidance of 2.4 Mton. Wide and solid international networks. TRAINER has gained a respectable position in the international world of the railways.
- g. Additionally several hundreds of station personnel have been trained in relevant energy efficiency improving subjects.

- h. An intensification of the training of train drivers may result in a doubling of the CO₂ emission avoidance, meaning 0.40 Mton/year.
- i. Through an intense training of all the EU train drivers and/or massive implementation of a sophisticated driver advisory system like the GekRO (used by the Danish railways (DSB)) the CO₂ emission avoidance might mount up to 2.4 Mton/year.
- j. Long Term Agreements (LTA's) as means of energy efficiency improvement have been brought to the notice of railway companies, ministries and agencies in several countries.
- k. TRAINER has started a big process, that is still going on and goes far beyond the running period and geographical limits of the TRAINER project.
- l. The "Train to Copenhagen" of NS, the Dutch railways, applied energy efficient driving when travelling from Amsterdam to the Copenhagen summit in December 2009.

3. **How succes of the project was or will be measured.**

Collecting accurate and solid monitoring data turned out to be difficult. Unlike for road vehicles it is a hard job to get a clear picture of the energy consumption of a singel train or train set. In countries with more than one railway company the energy bills are mostly split on the basis of calculations based on assumptions of e.g. the energy consumption of the rolling stock, the number of kilometres driven and the seat occupancy. Energy efficiency improvements made become not naturally noticeable as a cost reduction for a particular railway company. Its competitors too profit. The monitoring of the energy consumptions of train and train sets and of single railway companies is the subject of tough energy billing discussions. The reduced CO₂ emissions resulting from TRAINER therefore had to be calculated by means of estimates, best guesses, assumptions and general data from the UIC data base.

But in general one can say that the energy savings are absolute savings and in the range of 5-15 %. Saving energy and reducing CO₂-emissions are in the same range. To some extent energy saving is also saving the same percentage in energy costs (after pay back time of the training and investment costs of course).

4. **Why should this paper be rewarded?**

3 Reasons.

- a. **The TRAINER project started and stimulated the energy efficient driving by the Dutch Railways and extra cooperation on the theme of energy saving between the TOC en IM; Routelint is the exponent of this cooperation.**

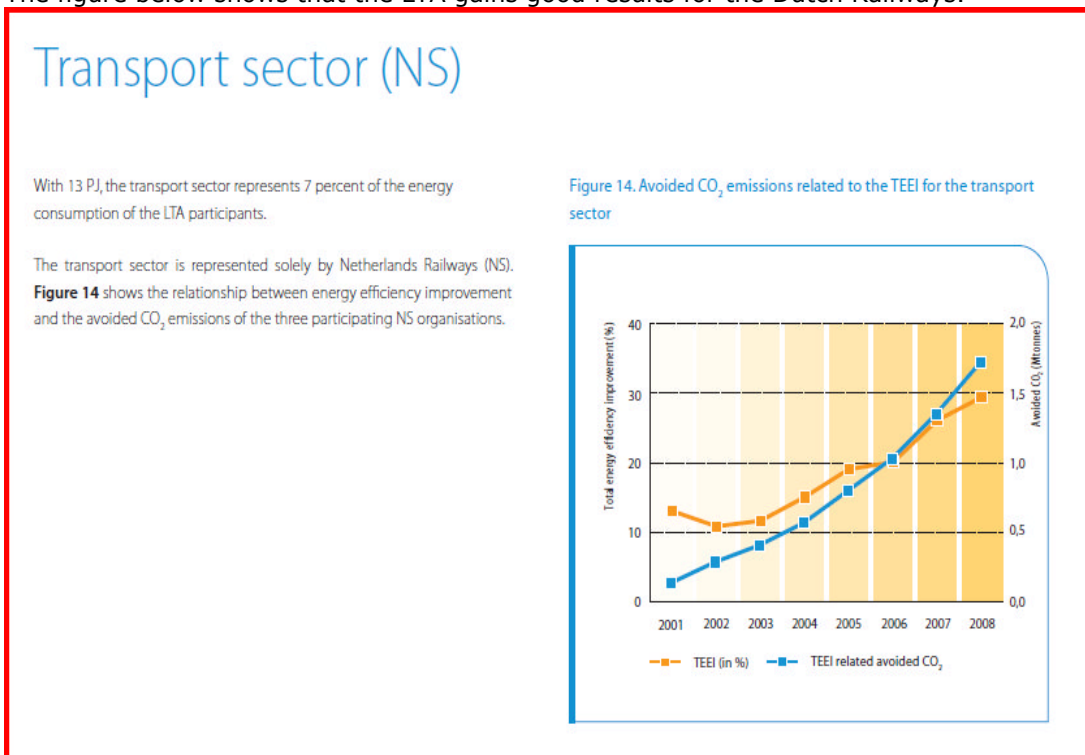
In 1999, the Dutch Railways (and the infrastructure manager ProRail) signed a Long Term Agreement on energy efficiency (LTA) with the Dutch Ministry of Economic Affairs. According to the agreement NS must improve the energy efficiency by 11% from 1997 to 2010. The UIC hosts a website on energy efficiency technologies for railways which has been used as a point of departure for identifying energy saving options. A study of this EVENT Database (Tracks for saving energy, 2005) was aimed to identify promising energy saving options that could be applied by the passenger division of the Dutch Railways, NSR. Drawing on experiences with energy saving technologies elsewhere in the world, the most promising options had been selected and evaluated on their merits for use with NSR. Broadly, the more promising options belonged to the themes of

- energy efficient driving style,
- mass reduction,

Potentials for energy efficient driving style

Changes in driving style can yield energy savings at relatively low cost, and can be achieved by methods such as shutting off traction well before arriving at a station. Drawing on German experiences, it is estimated that even under pessimistic assumptions, the initial investment costs of an extensive programme for energy efficient driving are likely to be earned back by energy savings in less than a year. The energy saving potential is likely to be on the order of 5-10%, though a lesser part of this may already have been achieved because existing (relatively limited) efforts at energy efficient driving on intercity lines within NSR, which have not been evaluated.

The figure below shows that the LTA gains good results for the Dutch Railways.



- b. TRAINER is the prove that international cooperation can lead to joined efforts and good results. In terms of UIC slogans: It is Get on with it (GOWI) avant la lettre.**
- c. TRAINER is just the beginning. Cooperation with Railenergy and other projects/partners can lead to organized individual implementation of energy management systems at TOC's in EU countries. This certainly will lead to the real : GOWI Part II.**

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