

Rail Safety & Standards Board

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Len Porter
Chief Executive

04 December 2007

Dear Bill

Rail Industry Environmental Performance Indicators

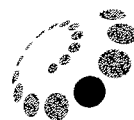
This letter sets out the rail industry's thinking on the development of environmental indicators to be reported to the Office of Rail Regulation (ORR).

One of RSSB's roles is to build consensus across the rail industry and to facilitate the resolution of cross-industry issues. In preparing this proposal we have drawn together the views of the industry as a whole and had this letter endorsed by the Sustainable Development Steering Group (SDSG).

As you know the industry is working with the Department for Transport (DfT) and yourselves to support the government in achieving the aims defined in their sustainability strategy, *Securing the Future*.

We understand that the ORR currently publishes "National Rail Trends" (NRT), which is the main official rail publication containing data on passenger usage and rail performance. NRT is updated quarterly and a yearbook is produced at the end of each financial year. You committed in your document *ORR's Sustainable Development & Environmental Duties – Conclusions* published in April 2007 to include sustainability indicators for the rail industry in this reporting by the end of 2007. We understand that you are currently reviewing the data already collected and reported through this mechanism to identify social and economic indicators for the rail industry and that you require the industry to propose environmental indicators for reporting to ensure coverage of all three pillars of sustainability.

The industry has agreed to report two environmental indicators immediately and an expanded set of environmental indicators after further development work. This letter sets out details of the indicators for immediate reporting and provides indicative timescales for the development of further indicators.



Indicators for immediate reporting

The two indicators for immediate reporting are:

- Total traction energy consumption (aggregated) and
- Total carbon dioxide emissions from traction energy (aggregated).

Normalisers

Both indicators will be normalised by passenger km and net tonne km. They will be GB mainline railway wide figures and will exclude yellow on track machines.

It may also be useful to sit alongside these metrics a measure of the carbon intensity of electricity supply to illustrate the effect this has on the carbon performance of electric traction.

It is hoped that we will be able to develop a metric normalising passenger and freight vehicle performance in the future in a way which could provide a measure of the technical efficiency of vehicles and possibly enable the comparison of different stock. This is likely to be a “type testing” metric which there would be no merit in tracking year on year.

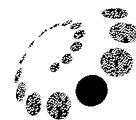
Purpose

Rail contributes to the social, environmental and economic, sustainability of the UK. The key environmental issue for the UK, the transport sector and therefore for rail is climate change. Rail’s main contribution to improving this aspect of sustainability relates therefore to the part it can play in addressing climate change. This contribution can primarily be made through meeting some of the increased demand for travel and, where possible, achieving modal shift from more carbon intense modes such as road and air. We also recognise the need to continually improve our own energy efficiency and carbon intensity to further reduce the impact of rail. These metrics are a first step in measuring and managing the carbon intensity of rail services. They will also provide an early comparison with other modes while more sophisticated cross-modal comparison metrics are developed nationally and internationally.

Methodology

These indicators will be based on energy consumption data. Electricity consumption figures will be provided by Network Rail and diesel consumption figures provided by TOCs and FOCs. The figures provided will be aggregate for GB railways and the underlying data which shows TOC consumption will be provided for the purpose of validating the aggregate figures. Over time the methodology will be improved to provide more robust TOC consumption data, recognising the intention of DfT to use this data in the next control period for setting targets. A break down will be provided by devolved administrations: England and Wales, and Scotland.

The data for diesel consumption will be converted to carbon dioxide figures through calculation factors defined in the National Atmospheric Emissions Inventory (NAEI).



The data for electricity consumption will be calculated from Network Rail data on train electricity consumption (adjusted for losses in the high voltage national grid and losses in the rail electricity distribution network). This data is available 90 days after the end of the financial year. Information on the emissions from major power stations will be taken from the NAEI and combined with information on electricity generated from major power stations and renewable generators from the Digest of UK Energy Statistics.

Passenger km and net tonne km normalising data will be sourced from ORR NRT data. This will be combined with ATOC data to derive the split between electric and diesel passenger km.

Collection and calculation of passenger service figures will be carried out by ATOC annually. Freight data will be provided by individual operators directly to you. The first set of reporting on data from financial years 2005/06 and 2006/07 will be available for passenger and freight services at the end of December 2007. It is hoped that completed data collection and analysis will be available in future years by the end of Aug, commencing in Aug 2008. These timescales are subject to more detailed discussions between ORR and the industry on the process for data processing and publication.

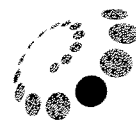
We recognise that these proposals do not include a commitment to report carbon dioxide emissions against 1990 levels in line with the UK Government's reporting against Kyoto Protocol commitments. Unfortunately this is not possible as reliable data for energy consumption is not available as far back as 1990.

We also acknowledge that at present we cannot commit to reporting non-traction energy consumption or associated carbon dioxide emissions. This is because data on non-traction energy consumption is not currently collected uniformly across the industry. This is however an area we hope to report on in the future following further development work.

Validity

Whilst this will be a good approximation of the energy consumption and carbon dioxide emissions from rail traction the data and conversion factors do have a number of limitations including:

- The conversion factors used to calculate carbon dioxide emissions from electricity and diesel consumption data are provided by DEFRA (NAEI) and DBERR (Digest of Energy Statistics). How accurately these indicators reflect emissions from the current fleet therefore depends on how up to date these conversion factors are.
- The conversion factors to calculate carbon dioxide emissions for electric traction will be based on average carbon intensity of UK electricity generation. This does not reflect either the fact that Network Rail currently purchases all electricity from British Energy, which has a lower carbon intensity than the UK average or the actual carbon intensity of the electricity consumed at a particular time of day or year.



- The figures to estimate the split of passenger km between electric and diesel services are based on estimates of the split of passengers between diesel and electric traction (vehicle kms operated) drawn from data in the rail settlement plan model.
- The figures for diesel consumption will be provided by each operator where possible and the accuracy of this information will vary from company to company. For a number of companies the consumption data is estimated e.g. where operators use the same facilities in a depot. However it is felt this should not be statistically significant, at least at the aggregate level.

Environmental indicators for potential reporting to ORR in the future

Indicators

The industry has also agreed the following list of indicators proposed for potential future reporting to ORR after further development:

- Air emissions
- Noise impact
- Traction energy efficiency and carbon intensity indicators
- Non traction energy consumption
- Non traction carbon intensity
- Waste material generated
- Water consumption

Timescales for future reporting

Indicative timescales for the delivery of indicators are set out below:

Short to medium term delivery

- *Air emissions*

Data likely to be ready for reporting in Aug 2008. This indicator requires work on collection procedures and conversion factors.

Likely to include average GB rail emissions figures for carbon monoxide (CO), sulphur oxides (SO_x), nitrogen oxides (NO_x) and particulates (PM10). These can be calculated using the energy consumption data and conversion factors. The conversion factors must be agreed within the industry and the accuracy of calculating at such a high level tested prior to the industry's first reporting cycle.

- *Noise*

The data for this indicator is being produced in response to the timescales for the Environmental Noise Directive. It is assumed that the ORR can obtain the noise data direct from DEFRA and the Scottish Executive.

This indicator should show the number of people affected by rail noise above a threshold level. Data collection is linked to work being done to comply with the Environmental Noise Directive (END) and will be capable of comparison with road and aviation data. This indicator and the threshold level would be drawn from the DEFRA and Scottish Executive Strategic Noise Mapping exercises which is based on their noise calculation model. The data for Scotland is



available now. Timescales for England and Wales are not clear but their mapping should be complete by the end of 2007 to comply with the END timescales. The availability of this data is completely dependant on the national mapping programmes. The END requires that noise maps are updated every five years, or sooner if there is a significant change. This indicator is therefore only likely to change every five years.

Medium term delivery

These indicators require work on definition and collection processes.

- *Traction energy efficiency and carbon intensity indicator*
This indicator will aim to illustrate the energy efficiency and carbon intensity of rail operations *per se*, independent of passenger numbers or freight volume. For example energy normalised by seat km. Work is required to develop the data to normalise energy consumption data in this way. It has been agreed that data reporting for the industry voluntary commitment will be complete by the end of Quarter 3 2008.
- *Non-traction energy consumption and carbon intensity indicator*
It is proposed that the non-traction energy and carbon indicators will be based on data collected in response to the Carbon Reduction Commitment (CRC) scheme currently being discussed with DEFRA. DEFRA's current proposals require energy reporting for all sites with annual electricity consumption from mandatory half hourly meters in excess of 6,000 megawatt-hours (MWh). Non-traction carbon dioxide emissions would be calculated from this data. It is anticipated that data reporting for non-traction energy will be aligned to the requirements of the CRC scheme which are yet to be finalised.

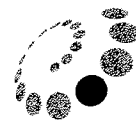
Longer term delivery

These indicators require fundamental work on indicator definition and data collection.

- *Waste material generated and water consumption*
These indicators are at a much earlier stage in development and require the development of definitions and a more detailed understanding of the feasibility and resource implications of data collection. It is proposed that further work is done by the industry on potential waste and water indicators and that RSSB and RSDG brings forward more detailed proposals in spring 2009.

HLOS

It is anticipated that all proposed indicators will be in operation by the end of the financial year 2009/10 with the exception of the waste and water indicators. This will enable data collection and calculation processes to be refined during the following couple of years so that the data set would be available for the next control period (2014-2019).



For your information the industry is also continuing a programme to identify and develop other indicators across the economic, social and environment spectrum for internal use to enable the industry to better understand and contribute further to sustainable development.

If you have any queries on this submission or require further detail please do not hesitate to contact me.

Yours sincerely

Len Porter

cc. Members¹ of the Sustainable Development Steering Group (SDSG) and the Rail Sustainable Development Group (RSDG)

¹ Note: These groups include representation from the ORR, DfT, TfL and Transport Scotland as well as full cross industry representation.