

## NRMM Diesel Emissions Directive

EPTTOLA supports the NRMM because:

- It enables a purchaser or owner to demonstrate that a vehicle meets acceptable environmental standards.
- It sets out clear testing standards and the limits to be achieved thus ensuring consistency and avoiding individuals (e.g. an operator, government, or owner) setting their own requirements, which would increase the costs to a purchaser and the engine manufacturer.
- The onus for compliance is on the engine manufacturer to ensure that products placed on the market meet all the requirements and thus avoids subsequent approval problems.

However there are a number of problems because:

- There is a limited choice of engines in the market place due to the small volume of rail demand and the high cost of compliance.
- New emissions limits require new engine designs and changes to ancillary systems, which results in an increased vehicle cost because of the necessity for redesign whenever new requirements come into force.
- The size and weight of the engine and additional ancillary equipment creates a packaging problem, particularly in the UK, and could lead to lower power locomotives, which are therefore less cost effective for an operator.
- The short duration for each emissions stage (3A, 3B, etc) results in a limited volume of engine sales.
- There is a lack of flexibility for replacement engines or follow on orders. This results either in having to change an existing rolling stock design or the inability to replace unreliable or life expired engines.
- The reliability of rolling stock may be compromised due to changes to design and the manufacturer (both of the engine and the rolling stock) may lack interest in developing solutions for products which have become obsolete.
- Spares availability may become a problem due to the increased number of parts resulting from design changes over the life of the rolling stock.
- Maintenance requirements will be increased due to the addition of after-treatment equipment and more frequent engine maintenance (for example fuel injector changes) will be necessary to maintain low emissions levels.
- The Directive amendment process creates uncertainty over future emissions limits, so manufacturers are uncertain where to direct their development efforts and purchasers are uncertain when to purchase new rolling stock or engines.
- New emission standards require higher specification (lower sulphur) fuels, which are more expensive.

- The technology required for complying with Stage 3A and 3B limits will reduce the fuel efficiency of diesel engines, increasing the operating cost and fossil fuel energy use.
- The increased fuel consumption will result in higher carbon emissions, a greenhouse gas which is not considered by the directive.
- The exhaust after-treatment required for Stage 3B and subsequent emissions stages may require a reactant (such as urea), which will require the necessary infrastructure at train fuelling points and depots to be installed at further cost.

All this means that:

- Purchase, maintenance and operating costs will be higher, which makes rail less competitive and may lead to modal shift to more polluting transport modes (for example road and short haul air).
- Modern lower emissions rolling stock may be less attractive than older rolling stock, leading to projected environmental benefits not being realised.

EPTTOLA suggests:

- The introduction of some flexibilities for rail, to allow:
  - Purchase of follow on rolling stock orders or additional maintenance parts which utilise the original emissions standard;
  - Replacement of engines with those of the original emissions level or better, but not necessarily the current emissions standards (for example upgrading to a Stage IIIA but not Stage IIIB engine).
- Longer periods of time for a particular emissions limit which would:
  - Encourage manufacturers to offer compliant engines.
  - Enable manufacturers to develop reliable products.
  - Increase sales quantity to reduce the purchase cost.
- Alignment of the limits and the introduction dates internationally, especially with US EPA limits, to help with the availability of rolling stock and engines.
- Alignment of the engine and fuel Directives to ensure that a suitable grade of fuel is available when the new limits are introduced.