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European Industry has Moved to Euro 6

The European Union moved to the introduction of Euro 6 emission limits on buses and coaches (and other vehicles) from the start of 2014.

There were initially limited short-term derogations for Euro 5 vehicles which had been in build by September 2013 and those tended to be applied to combinations of chassis and bodywork.

In fact some countries, notably the United Kingdom, were slow to incorporate Euro 6 standards in their own domestic legislation so Euro 5 vehicles continued to be available into 2015. Also, small series production vehicles could be homologated with Euro 5 engines.

As can be seen from the chart, Euro 6 required a reduction in Particulate Matter to 0.01g/kWh, and reductions in Nitric oxides(NOx) to 0.4g/kWh. These were very strict limits and required substantial engine development by the manufactures.

The major European manufacturers reckoned that they each spent at least EUR1bn on developing the latest generation of engines. Fortunately, for the bus and coach industry, many of those power units are shared with trucks which are built and sold in much higher volumes. Even so, it is estimated that prices of vehicles rose by around EUR10-12,000, simply because of the greater complexity and, in most cases, much larger and more powerful cooling systems.

At the same time, some manufacturers decided to introduce completely new models, rather than shoe-horn Euro 6 engines and their larger cooling systems into existing models. At the same time, they introduced various other new features, making it much more difficult to have a direct comparison between Euro 5 and Euro 6 prices.

Most manufacturers achieved Euro 6 limits by a combination of Selective Catalytic Reduction and Exhaust Gas Recirculation. Iveco and Fiat Power Train said that their modern Cursor range of engines could achieve the new limits solely by SCR, which gave them an advantage in weight and economy. Scania also offers selected engines for buses which only need SCR after-treatment.

The manufacturing industry feared that some customers would try to buy ahead while Euro 5 engines were still available, and that there could be a drop in production when Euro 6 became mandatory. To some extent, that happened, but not to any serious effect.

Daimler Buses was quick to perceive the potential threat and was quick off the mark in the introduction of Euro 6 engines. The company held extensive comparative tests under practical working conditions with Euro 5 and Euro 6 city buses in Wiesbaden in Germany, and similarly with Setra coaches on an intercity circuit.

They found savings of up to eight per cent in fuel consumption with the Euro 6 models. Even if the average saving is only around five per cent, bearing in mind the price of diesel, that saving will soon compensate for the additional purchase price of a Euro 6 bus or coach.

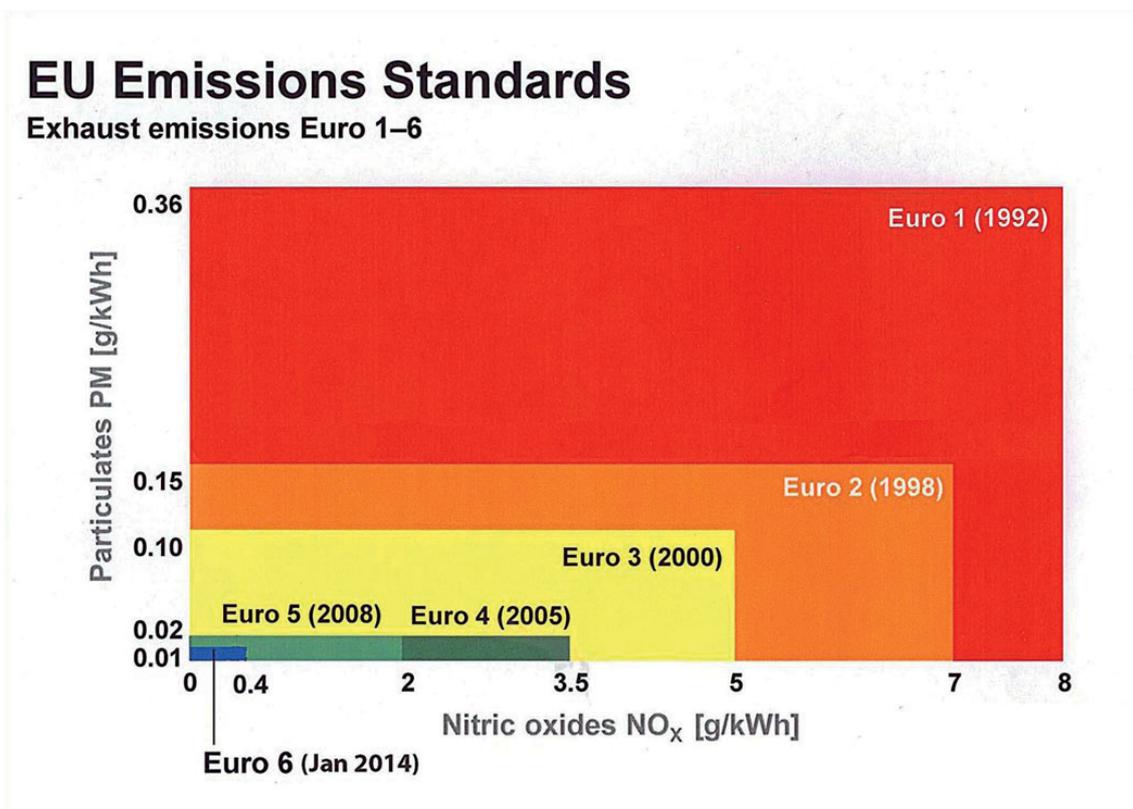
The cost of amortising a new bus or coach is around 8-9 per cent of the total operating cost per mile. Therefore, the increase in price for Euro 6 was only very marginal. In Western Europe, the labour costs of drivers, maintenance and

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other staff continue to represent around 60% of the running costs per km of a typical bus or coach.

Operators have found that savings in fuel consumption are real and that even further savings can be achieved using telematic systems that are mounted in the driver's compartment. A series of lights advise the driver to be as economical with fuel as possible. Green lights signify very good performance. Yellow indicate that there could be an improvement, while red lights will indicate harsh acceleration or braking. These systems can be monitored by bus depots so that the best drivers are awarded bonuses and those who are less efficient can be trained and brought up to higher standards.

It is unlikely that there will be a further round of emission legislation after Euro 6, but legislators will concentrate on maximising fuel economy. Manufacturers have identified various measures which can be taken and, when put together, can achieve significant further savings.



EU Bus and Coach Euro 6 Emissions Standards