

# Towards a transatlantic diesel standard

BY PETE SWEENEY

EUROPE and the US have historically diverged in their different attitudes towards the environmental impact of diesel emissions. The Clean Air Task Force, an organisation sponsored jointly by the automobile industry and the US Environmental Protection Agency (EPA), released a report last month blaming 21,000 premature American deaths each year on diesel pollution. The EPA estimates that 65 million Americans live in areas where air quality violates federal standards, thanks in part to diesel emissions from heavy-duty engines used in industry, agriculture, and mass transport.

"The EU standards for diesel emissions are a little more lenient than in the US," says Rich Cregar of the National Alternative Fuels Training Consortium at the University of West Virginia. The combination of high emissions standards and low standards of fuel has resulted in the near absence of passenger diesel cars from the US market. "Overall, the market in the US was not receptive to early diesel powertrains," says Adrian Schmitz, environmental and policy communications manager for Ford Europe. In 2004, 52% of new cars sold in Europe were diesels. In the US that number hovered around 3%. "But we believe clean diesels hold great promise," says Schmitz.

It now appears that harmonisation of transatlantic emissions standards is imminent. "I don't really see that there's a big disparity between the EU and the US," says Cregar. "The only issue is sulphur standards and that's been resolved. The US

goes to the EU sulphur standard in September 2006."

Europe has traditionally been more intolerant of sulphur content in diesel fuel. While diesel fuel in Europe may contain up to 15 parts per million (ppm) of sulphur, the primary component in particulate pollution, US standards currently allow between 3,400ppm and 500ppm depending on engine type.

The EPA's acceptable cetane levels – another quality indicator of particular to diesel fuel – have not been harmonised with Europe. "Higher cetane numbers in the states may come about automatically through the conversion to ultra low sulfur fuel and the addition of biodiesel and/or cetane enhancers", says Cregar. "Yet if these improvements are not enough, further improvement in cetane would probably simply require a more expensive fuel as a result of further refining."

Industry experts unanimously cite "tremendous advances" in diesel technology, particularly "common rail" systems, that are making the new diesel engines more efficient than even the new wave of hybrid fuel cars, which can only achieve their vaunted efficiency figures under specific driving conditions involving lots of starts and stops. In one EPA test, a diesel outperformed a hybrid's fuel economy by nearly ten miles per gallon. Diesel engines can also use "biodiesel" fuels with little or no modification. Biodiesels are made from vegetable or animal fats yet share some 95% of diesel's energy efficiency without any petroleum-based polluting factors, including carbon dioxide emissions. Biodiesel's drawback



**Downtown New York: as many as 21,000 Americans are believed to die prematurely from diesel pollution**

– cold weather can cause it to gel – can be mitigated by mixing it in solution with low sulphur diesel. A recent collaboration between DaimlerChrysler, Volkswage, and Choren Industries has produced a product called "SunDiesel" which they claim cuts carbon dioxide emissions by 90%. SunDiesel is produced from biomass and is therefore renewable. While biodiesel appears more immediately attainable than alternative energy sources like hydrogen fuel cells, producing economically viable quantities of biodiesel fuel presents a challenge and an opportunity for the agriculture sector. The US Congress recently agreed a \$1/gallon excise tax credit for biodiesel to spur production.

The immediate challenge for European car manufacturers is the largely unexploited market for diesel passenger cars in the US. According to a report released by JD Power and Associates, a US-based marketing information services firm, the US market for diesel engines will increase to 10% by

2011. The same survey indicates that the total market for hybrid vehicles will grow to 3% in the same period. The US currently has no factories producing diesel engines for passenger cars. Once US diesel fuel standards align with European ones, European diesel engine manufacturers should be able to cross-market diesels in both markets. "Ford Motor Company and PSA Peugeot-Citroën are planning to expand production capacity", says Schmitz, citing "a high demand for [diesel] engines... that will soon outstrip the existing supply base." As a result Ford is adding production capacity for diesels at Dagenham in the UK by 2007, and at Volvo's Skövde engine plant in Sweden by 2006.

This opportunity may not come without local cost. Günter Verheugen, the commissioner for enterprise and industry, admitted to "substantial overcapacities in the mature EU market" in a recent speech on the auto industry. Some of this overcapacity is found in the traditional petrol engine

manufacturing sector. The cost of converting such plants to diesel production appears to be prohibitive. Fiat and GM have struck a bargain to address the imbalance in diesel versus conventional fuel capacities; Fiat buys petrol engines from GM while GM buys Fiat's diesel engines.

But Fiat recently announced plans to close its Alfa Romeo plant in Arese, which produces conventional petrol engines. Thanks to the expense of retooling existing diesel plants, other industrialised nations already attracting investment from the automobile industry, notably in Latin America and Asia, are also positioned to compete for new investment. Cregar also claims some European manufacturers are eyeing the US. "As a matter of fact", he says, "some European manufacturers are considering expanding automobile production in the USA to offset currency losses due to the weak US dollar."

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## Italy – banning cars from city streets

By Anna McLauchlin

**CARS** are being banned from the roads in cities across Italy in an attempt to meet European air pollution limits that came into force in January.

Seven cities, including Rome, Milan and Turin, banned all cars and motorbikes from its roads on two Sundays in February and March, and say they will continue on a regular basis as long as limits are threatened.

Milan also stopped odd- and even-numbered cars from driving on alternate days during a nine-day period when it became clear it would come close to breaching the pollution limit.

Under the rules, all EU cities must not let the level of amount of small particles in the air rise above 50 micrograms per cubic metre of air on more than 35 days in a year. Many of Italy's regional authorities feared that they would hit the limit by the end of February.

Markus Liechti from the European Federation for Transport and Environment says that there is no reason to believe that Italian cities are any more polluted than others in Europe, and is baffled as to why other cities haven't taken any action.

He cites Berlin as one example of a city that risks breaching the 50µg/m<sup>3</sup> limit. NGOs have demanded action, he said.

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## A race to satisfy impending legislation

**AN UGLY** battle is being fought between car manufacturers in the drive to produce technology that will satisfy impending emissions legislation.

So far, only Toyota markets a system - called the 'D-Cat' - which reduces diesel particles as well as emissions of Nitrous oxides (NO<sub>x</sub>), which is one of those that will be targeted by the Euro 5 emission limits to be set by the European Commission later this year. The D-Cat has been used in Toyota's Avensis model since 2003.

In January, the German car manufacturers association VDA, representing the major car firms published a study that throws doubt on the durability of the

Toyota system.

Toyota claims that the technology complies with the current Euro 4 emission standards but could also be enough to comply with stricter standards being discussed for Euro 5. But the VDA claims that the NO<sub>x</sub>-reducing performance is significantly reduced after several thousand kilometres.

Toyota insists its technology is "revolutionary". A spokesman for the Japanese carmaker said that the VDA had used different data from the official data on which Toyota based its findings.

"If there is scientific data that confirms something different then we're happy to look at it, but so far we have received nothing," he said.