



# Newsletter

July - August 2006

## INTERNATIONAL REGULATORY DEVELOPMENTS

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## EUROPE

### Progress on Light-Duty Euro 5 Regulation

The proposed EU Regulation on Euro 5 light-duty vehicle emissions has now reached the stage where in September the European Parliament's lead Committee – the Environment Committee – will vote on their proposed report on the Regulation. It will then go to a plenary session of the full Parliament for a first reading, probably in October.

The Parliament's Rapporteur on Euro 5 has tabled a draft report with 43 amendments to the Commission's proposal. MEPs in the Committee have tabled further amendments and opinions from other relevant Committees will also be considered. The Rapporteur's draft report calls for a Euro 5 diesel NOx limit of 180mg/km instead of the 200mg/km proposed by the Commission and for new Euro 6 limits to reduce this further to 75mg/km. Implementation dates for Euro 5 are proposed as 1 June 2009 (new types) and 1 June 2010 (all registrations) and 1 year later for N1 classes II and III and 'heavy M1s'. The Rapporteur's draft report proposes that Euro 6 would follow 5 years later.

To assist natural gas vehicles, the draft proposes separate total and non-methane hydrocarbon limits (THC and NMHC); both to be met by all vehicles. The THC limit would remain at the Euro 4 level of 100mg/km instead of falling to 75mg/km as in the Commission's proposal, but the NMHC limit would be set at 68mg/km. The draft also calls for adoption of a particle number limit no later than the Euro 6 stage and for CO<sub>2</sub> limit values to be introduced for a future Euro 7 stage. A durability requirement of 200000km is proposed. The draft also proposes retaining the 'heavy M1' derogation (which allows cars of over 2.5 tonnes to be approved to commercial vehicle limits) until the Euro 6 stage for non-off road vehicles with more than 7 seats including the driver, for rescue and emergency vehicles and for vehicles intended for the transportation of people with disabilities.

A further development has been the circulation by the Commission of a first draft for the 'implementing measures' for the Regulation. This will comprise the technical content including test procedures, deterioration factors, OBD thresholds and procedures for approval of aftermarket (replacement) emissions control systems. The draft will be discussed at an MVEG meeting in early September.

### Report says Overestimation of Cost of Environmental Legislation is 'Inevitable'

A report commissioned by DG Environment examining cost assessments for EU environmental legislation concludes that some overestimation of costs is

inevitable, and implies that regulatory flexibility could make accurate predictions even more difficult.

The report draws on several case studies, including Euro 1 car emissions. The authors found that in many cases, the estimates made before the regulation were about twice as large as the results seen after implementation. In particular, large differences between these two estimates were usually due to the introduction of new technologies after implementation of the legislation. Considerable underestimates of the cost reduction potential of innovation may also occur if predicted costs are based on data for prototypes or first applications that have not yet benefited from economies of scale and 'learning curve effects'.

The report says that for emissions legislation, cost estimates often tend to decrease over time due to improvements in technology and efficiency.

### EU Consultation on a Regulation for Hydrogen-Powered Vehicles

The European Commission has launched an Internet consultation on a preliminary draft proposal for a Regulation on hydrogen-powered motor vehicles.

The objective of the draft is to lay down harmonised testing requirements for the type-approval of all class M and N vehicles powered by either liquid or gaseous hydrogen. The main aim of the proposed Regulation is to ensure the safe operation of hydrogen-powered vehicles by incorporating them in the European vehicle type-approval framework. It will establish safety requirements for the hydrogen storage system of these vehicles.

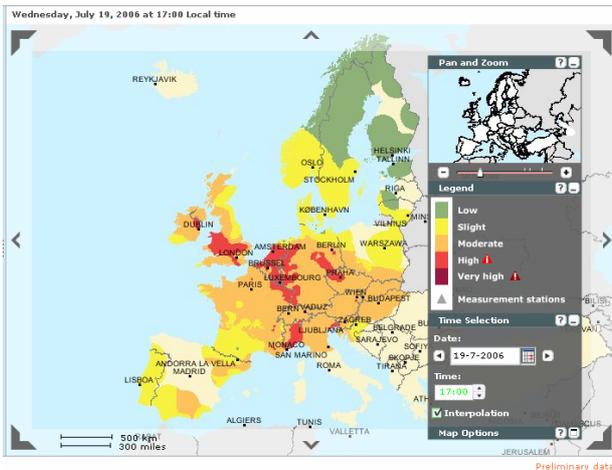
### European Transport White Paper Review

The European Commission has proposed a green propulsion programme and an urban transport green paper in its mid-term review of the 2001 transport white paper, but has dropped a key objective of decoupling transport demand from economic growth. It has also downgraded a second key target of shifting transport from roads to "greener" modes.

The review argues that increased globalisation has led to the creation of large logistics firms, which means that the EU will have to "focus much more on strengthening the competitiveness of its multimodal transport industries". An impact assessment accompanying the review concludes that returning the share of rail traffic to 1998 levels cannot be met. It says that continuing to focus on modal shift would have a negative impact on mobility and growth. The review sets a timetable for achieving actions foreseen in 2001 that have not yet been taken forward.

## European Environment Agency launches Ozone-tracking Web Tool

The European Environment Agency has unveiled a near-real-time Internet tool which can display levels of ground level ozone pollution across the EU. The system draws on data from over 500 monitoring stations. Users can monitor and track ozone pollution incidents at pan-European scale or check levels in their own or in another region. The website also provides background information for citizens on ozone pollution and its health implications.



The site is at <http://www.eea.europa.eu/maps/ozone>.

## Danish draft Act for Environmental Zones

Denmark has notified the European Commission of a draft Act concerning particle filters on heavy vehicles in city environmental zones.

The draft Act contains the following technical regulations for diesel lorries and buses over 3.5 tonnes that are intended to be used in one of the environmental zones established in Copenhagen, Frederiksberg, Århus, Aalborg and Odense:

- After 1 July 2008, vehicles registered before 1 July 2001 must have a particle filter, unless the vehicle as a minimum satisfies the Euro 3 particle standard.
- After 1 July 2010, vehicles registered before 1 July 2006 must have a particle filter, unless the vehicle as a minimum satisfies the Euro 4 particle standard.
- For the purposes of enforcement, all diesel-powered lorries and buses over 3.5 tonnes that are intended to be used in an environmental zone shall have an environmental zone mark visibly affixed to the vehicle.

Users of vehicles registered in another country must instead be able to produce documentation at any time to show that the vehicle complies with the first two particle emissions requirements and a registration certificate showing the vehicle's age.

## Irish Air Quality Report

The Irish Environmental Protection Agency (EPA) has published its annual report on air quality. The report showed that although pollutant levels in Ireland during 2005 complied with international standards, NO<sub>2</sub> and PM10 particulate matter are the main air pollutants in the Republic.

The results were based on data from 25 air quality monitoring stations around the country which provide hourly and daily figures. NO<sub>2</sub> and PM10 levels were highest in urban areas, largely due to traffic density. The highest reading for nitrogen dioxide was almost 25% below the recommended safe level. There were also fewer recordings of PM10 levels in excess of recommended limits in 2005 than in previous years.

## Dutch Provincial Aid for Environmental Innovation in Public Transport

The European Commission has decided not to raise any objections to the Dutch Province of Gelderland's plans to allocate € 4.6 million of aid to initiatives which explore new ways for protecting the environment and making public transport more efficient and more appealing to the users.

The province has realised that the current licence holders of public transport services often under-invest with respect to the environmental protection and innovation in public transport. This has led the province to design a new scheme which provides funding opportunities for both technical innovation and innovative services. All stakeholders, be they research institutions, NGOs, companies, or public administrations can apply for the grants.

## Flemish Measures on Particle Emissions

The Flemish government has approved a number of measures to reduce the emission of fine substance particles by vehicles.

From 1 August 2006, companies that fit existing vehicles with particulate filters that are on the Swiss certified Vert-list, or which purchase Euro V-trucks can recover 25 or 35% of the investment (dependent of the size of the company). The Flemish authorities have also started negotiations with the Belgian Federal government for a raised investment allowance for particulate filters and Euro V trucks.

In addition, the Flemish government has selected an 'Ecoscore' system for the reform of passenger vehicle tax from 2008. The Ecoscore is a criterion for the ecological soundness of the vehicle. It takes into account the vehicle's impact on greenhouse gases, air quality (including Euro standard and the presence or absence of a filter) and noise pollution.

The statement from the Flemish Ministries of Finance and of Environment says that trucks are responsible for 45% of the emission of fine dust particles and for almost 60% of the emissions of nitrogen dioxide by all road transport. A Euro III engine emits almost 3 times more NO<sub>2</sub> and 5 times more fine particles than a Euro V engine. Filters reduce 90% or more of the emission of the fine particles.

## Denmark to Restrict 'Chip Tuning' due to Effect on Emissions

Denmark is to amend its 2001 Road Traffic Act to introduce a number of restrictions on 'chip tuning', or modifying vehicles' electronic systems to achieve better performance.

The new rules will require all providers of related services and equipment to demonstrate that their work does not lead to increased air pollution. The rules outlaw the marketing and sale of non-approved devices. The changes also make vehicles that have had such work carried out subject to inspection, and require their registration documents to be revised to describe any changes.

Concerns that chip tuning is leading to increased emissions led the Danish Environment Agency to commission a report from the Danish Institute of Technology in 2004. The report concentrated on diesel vehicles, as the process of chip tuning is most common where a demonstrable improvement in performance is easiest to achieve, which is the case with diesel engines.

## UK Expert Group Report on NO<sub>2</sub>

The UK's Department of Environment, Food & Rural Affairs (DEFRA) has published for comment a draft report on NO<sub>2</sub>. The Air Quality Expert Group (AQEG) was commissioned by DEFRA to investigate why, despite significant falls in annual mean concentrations of total nitrogen oxides (NO<sub>x</sub>) in urban areas over recent years, concentrations of NO<sub>2</sub> at roadsides have not declined as expected. AQEG analysed monitoring and emissions data and carried out modelling studies to determine the extent of this trend and investigate the possible explanations.

The group concluded that the most likely explanation of the observed trend in NO<sub>2</sub> concentrations is a change in the percentage of road traffic NO<sub>x</sub> emissions directly emitted as NO<sub>2</sub>. Emissions measurements indicate that the increased proportion of primary NO<sub>2</sub> from road transport is related to the increasing number of light-duty diesel vehicles, (especially Euro 3 cars) fitted with oxidation catalysts and the fitting of diesel particulate filters to heavy-duty vehicles, particularly London buses.

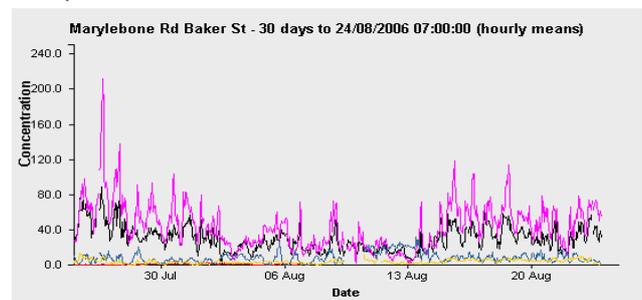
AQEG says that the increase in the fraction of NO<sub>x</sub> emitted as NO<sub>2</sub> by road traffic is likely to have implications for the attainment of the Air Quality Strategy Objectives for NO<sub>2</sub>. Levels are still expected to fall in the future, but not as fast as had previously been expected. The group highlights the importance of future choices of vehicle abatement technologies, particularly with regard to PM reduction methods that may increase primary NO<sub>2</sub> emissions. The Group draws attention to the conclusions of its first report ('Nitrogen Dioxide in the United Kingdom') which highlighted that NO<sub>2</sub> should not be considered in isolation from other pollutants, and that trade-offs would be likely. They also say that the best current evidence suggests that health effects from exposure to particulate matter are much more significant than those from NO<sub>2</sub>. Long-term exposure to PM<sub>10</sub> is linked to respiratory and cardiovascular diseases and symptoms amongst patients suffering from asthma. The observed changes in NO<sub>2</sub>/NO<sub>x</sub> ratio are localised and have no climate change implications.

The report 'Trends in Primary Nitrogen Dioxide in the UK' is available at:

<http://www.defra.gov.uk/environment/airquality/aqeg/index.htm>.

## London Pollution Maps go On-Line

A new website showing maps of the most polluted streets in Central London has gone on-line. Images are updated hourly with news of pollution levels. The website shows details of NO<sub>2</sub>, PM<sub>10</sub>, ozone and other pollutants, depending on the equipment at each site. Users can zoom in on specific sites to obtain details of the equipment available, the latest hourly readings, and plots of historical data.



The site is available at [www.londonair.org.uk](http://www.londonair.org.uk)

## Improved Air Quality in French Cities

A study published by the French environment institute (Ifen) shows that air quality in large French towns has improved between 2000 and 2005 as a result of a fall in primary emissions and weather conditions. The level of ambient NO<sub>2</sub> fell by 10% and SO<sub>2</sub> fell by 17%. Ozone only recovered its 2000 level in 2005.

The study focused on carbon and sulphur dioxides and ozone. It showed pollution to be stable between

2000 and 2002, then worsening slightly in 2003 before improving in 2004 and 2005. Towns having between 250 000 and 1 million inhabitants recorded a 17% fall in the air pollution index. Cities of over one million inhabitants showed a 12% drop in the index and cities of 100 000 to 250 000 recorded a 9% fall in the index.

## **Russia may delay Euro 2**

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The Prime-Tass News Agency has reported that the Russian government may indefinitely suspend the introduction of Euro 2 emissions standards for cars imported to Russia. The standard was due to come into effect on 1 September. The reason is reported as being the inability of certifying bodies to handle all the car imports into the country. Russia's Industry and Energy Ministry, Interior Ministry and the Federal Customs Service are now drafting a joint ruling on the introduction of Euro 2 standards for imported cars.

## **NORTH AMERICA**

### **EPA prepares to set Guidelines for Urea-SCR Systems**

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In October the US Environmental Protection Agency (EPA) is expected to issue guidelines to approve the use of SCR control systems for diesel NOx reduction.

EPA is reported to be considering rules that will require the vehicle to eventually stop running if drivers fail to keep the tank filled, focusing on an early-warning system that notifies drivers when the urea tank is low. The Agency also is considering an inducement that forces drivers to refill the urea tank - for example, preventing the engine from starting if the tank is empty or automatically locking the fuel filler door until the urea supply is replenished.

EPA is also focusing on the widespread availability of urea; tamper-proofing; assuring that the system works in cold weather; and assuring that the urea refill interval is at least as long as the manufacturer's oil change interval so both items can be serviced at the same time by the dealership.

### **OEMs plan for Diesel NOx Treatment**

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A panel discussion at the DEER conference in August focussed on light-duty diesels in the North American market which, according to one prediction will reach 12% of North American light-duty vehicle sales by 2013. During the discussion several car manufacturers presented their views on the emissions systems necessary to meet the Tier 2 Bin 5 levels.

Although all the manufacturers would use particulate filters to meet Tier 2 Bin 5, their NOx control approaches differed. BMW preferred urea-SCR but GM and VW were considering the use of either urea-

SCR or NOx adsorbers, with urea-SCR favoured for larger engines. Honda, on the other hand, seemed to prefer NOx adsorber aftertreatment in conjunction with advanced combustion. DaimlerChrysler will use a combined non-urea SCR system to meet Tier 2 Bin 8, rather than Bin 5, in the Mercedes E-320 BlueTec. In this an upstream NOx adsorber generates ammonia during regeneration. The ammonia is then stored in the washcoat of an SCR catalyst and used for additional NOx reduction.

### **California issues Staff Report on In-Use Regulations for Heavy-Duty Diesels**

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The California Air Resources Board (ARB) has released its staff report on proposed heavy-duty Diesel In-Use Compliance Regulations. Although ARB has the authority to conduct in-use compliance testing, none has been performed because it is very costly and time consuming, as it requires removal of the engine from the truck. The proposed regulation, which is identical to the EPA testing programme adopted in 2005, would require engine manufacturers to measure and report in-use emissions using on-board portable emissions measurement systems (PEMS) during typical over-the-road operation.

### **EPA Review of Ground-Level Ozone Standards**

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The US Environmental Protection Agency (EPA) has released its second draft Staff Paper on ground-level ozone. The Clean Air Act requires EPA to periodically review the National Ambient Air Quality Standards for ozone. The paper is part of this review.

Initial staff options and conclusions include:

- Retaining the current primary ozone standard at 0.08ppm as well as an option revising it to 0.07ppm.
- Changing to a cumulative standard that gives greater weight to higher concentrations. This would better protect vegetation from ozone damage.

EPA has also released second drafts of the Human Exposure Analysis and the Health Risk Assessment and a first draft of their Technical Report on Ozone Exposure, Risk and Impacts Assessments for Vegetation. These documents include estimates for meeting the current and potential alternative standards as well as the impacts of ozone on agricultural crops, forests, and other plants.

Following review by the Clean Air Science Advisory Committee (CASAC) (a group of independent scientific and technical experts set up by Congress) EPA will publish a final Staff Paper this autumn.

## **California Test Plan for Off-Highway Recreational Vehicles**

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In preparation for its rulemaking on evaporative emissions from small engine recreational vehicles, the California Air Resources Board (ARB) has announced that it will evaluate emissions from a variety of off-highway recreational vehicles (OHRVs) in a test programme to start later this year.

The initial part of the programme will evaluate evaporative emissions from All-Terrain Vehicles (ATVs), off-road motorcycles and snowmobiles. The second stage, due to start in 2007, will comprise measurements of exhaust emissions from a fuel injected, off-road motorcycle and one ATV.

## **Canadian Trucking Alliance plan to reduce Emissions**

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The Canadian Trucking Alliance (CTA), a federation of more than 4500 of Canada's provincial trucking companies, has released an action plan for the reduction of smog and greenhouse gas emissions. According to the Association, the plan would have the equivalent impact of removing over 200 000 heavy-duty trucks from Canadian roads.

Specific measures include accelerating the penetration of 2007-2010 compliant heavy-duty trucks through federal tax incentives to trucking companies; encouraging auxiliary heating/cooling systems to eliminate truck idling; controlling truck speeds; the development of viable alternative fuels, particularly the definition of acceptable biofuel blends; and reducing emissions from all modes of freight transportation, such as from locomotives and marine vessels.

## **EPA recognises Marine Engine Manufacturer for Catalyst Technology**

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In a ceremony on 26 July 2006 the US Environmental Protection Agency recognised Indmar Marine Engines for being the first manufacturer to develop and sell inboard marine engines equipped with innovative catalytic converters like those in cars. The small, spark-ignition engines reduce smog-forming gases by more than two-thirds and are capable of meeting the new emissions standards which EPA will propose later this year.

## **Engine Manufacturers' Report on Urea Infrastructure for SCR**

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A revised report on the development of a urea supply infrastructure to support the use of selective catalyst reduction (SCR) has been released by the Engine Manufacturers Association (EMA).

The report is an update of a study originally conducted in 2003. It examines the supply, market conditions, and options for urea distribution for both light-duty and heavy-duty vehicles in North America and concludes that a urea infrastructure can be in place by the time it is needed by vehicle owners. Retail systems for urea are projected to include small, over-the-counter containers for the automotive market and bulk supplies for heavy-duty trucks. The report charts key milestones for the development of a urea supply infrastructure for mobile sources, including agreement on the use of SCR technology between EPA and engine and vehicle manufacturers by early 2007, the introduction of SCR-equipped light-duty diesel vehicles by mid-2008, and the introduction of SCR-equipped heavy-duty diesels near the end of 2009.

The report is available on the EMA website at: [www.enginemanufacturers.org/admin/content/upload/186.pdf](http://www.enginemanufacturers.org/admin/content/upload/186.pdf)

## **SOUTH AMERICA**

### **Santiago's Smog is worsening again**

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Chile's capital is losing ground in its battle against pollution after hard-won gains in the 1990s. From 1990 to 2000 air pollution levels fell in Santiago as factories switched to cleaner fuels and old buses were retired. The metropolitan area, home to roughly 6 million people, had seen the end of pollution emergencies and 'pre-emergencies' that forced cars off the street and shut down industrial plants.

Chile's economy is booming due to robust exports and this has aggravated pollution. Brand new superhighways crisscross Santiago and sales of cars - the main pollution source in the capital - have surged. Official numbers show that in the last two years, levels of PM2.5 have risen in several districts of Santiago and are well above international safe air standards. Since January Santiago officials have declared 14 alerts, when air pollution reaches the lower end of a potentially dangerous range, making 2006 the most polluted year since 2003. Public pressure for tougher anti-smog measures has mounted this year as local media have reported the deterioration in air quality.

### **Colombian Measures to reduce Pollution**

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Colombia's Ministries of the Environment and Transport are drafting a resolution to tighten emissions standards for all types of vehicles.

The resolution would set in-use standards for gasoline-powered vehicles built in 1998 or later. Standards being considered would cap carbon monoxide at 1.5% of exhaust, and hydrocarbons at 300 parts per million. Diesel vehicles' exhaust could not exceed 40% opacity for vehicles of model year 1998 or newer. In both cases the limits for older

vehicles are less stringent. Gasoline vehicles would also be prohibited from producing visible emissions for more than ten seconds consecutively. Public transport vehicles would have to undergo testing annually, while private vehicles would be tested every two years. Owners of vehicles found to be in violation of the emissions standards would have five days to make repairs and be retested satisfactorily. The draft law would also require regional and municipal authorities to carry out testing operations at least three times annually using mobile testing equipment on roadways.

For newly imported or manufactured vehicles, 10% of each shipment of a single model would have to be tested, and the importer or manufacturer would have to guarantee that the vehicles meet emissions standards for the first 20 000km of use. If one of the new vehicles fails to meet the standards, the owner would have 10 days to make repairs, during which time no vehicle in the shipment could be sold. Vehicle importers would have to present certification of emissions testing to the Colombian Institute of Foreign Commerce. Emissions testing in the vehicle's country of origin would be accepted as long as that nation's emissions standards were equal to or stricter than Colombia's.

In addition to the measures on diesel sulfur already announced, gasoline sulfur content is to be reduced to 300ppm by the end of 2010. It is now at 1000ppm.

## **Bogotá Decree on Vehicle Restrictions**

Bogotá's new restrictions on the use of older trucks and buses may be expanded to other areas of the city in addition to the three neighbourhoods ranked as having high pollution. The city's Environment Department, DAMA, has now to classify the capital's other neighbourhoods by 15 September and to propose measures to control their pollution.

Decree 174 also prohibits the circulation of buses on one out of every 10 weekdays, in a rotating schedule depending on the last digit in their license plates. The restrictions on trucks and buses circulating in the city have been modified from the original proposals. Trucks weighing more than five tons will be prohibited between 9 a.m. and 10 a.m. on weekdays, beginning on 1 October. However, the restriction is not to apply to buses and cargo vehicles belonging to companies participating in a newly established Environmental Self-Regulation Program. If bus owners do not agree to sell older, highly polluting buses at the prices offered by a city buy-back programme, the city will expropriate them. The city will also institute new unified transport management policies intended to reduce the excess number of buses.

## **ASIA-PACIFIC**

### **Indonesian Environment Ministry lays out Plans to cut Pollution**

Indonesia's environment authorities have finalised a plan to address Indonesia's deteriorating urban air quality. The plan calls for boosting natural gas to 5% of fuel consumption in the industrial and public sectors of four major cities by 2009, and raising biofuels to at least 2% of fuel consumption nationwide by the end of the same year. The government aims to cut the amount of air pollution generated by motor vehicles and industrial activity to half of present levels by 2020. In the transport sector, it will work towards this goal by increasing the availability of low-sulfur gas, reducing emissions thresholds for new vehicles, and introducing a "transport demand management" system to discourage the use of private vehicles.

### **New South Wales orders Euro V Buses**

The State Transit Authority of New South Wales, Australia, has ordered 250 Volvo B12B low-entry Euro V bus chassis for use in Sydney. The buses will use Volvo's new 12-litre DH12E engine with selective catalytic reduction (SCR) to comply with Euro V emissions standards. This standard is not officially required in Australia until 2011/2012. The first chassis are scheduled for bodybuilding in July 2006 and delivery of bodied buses is expected to start in late 2006, continuing until 2010 at a rate of approximately 50 units per year.

### **Japanese Renewable Fuels Standard**

Japan is enacting a national renewable fuels standard to promote ethanol-gasoline fuel blends. It will require all new cars to be able to run on 10% ethanol by 2010. Japan currently allows the sale of a 3% ethanol blend, or E-3, within the country but high ethanol prices and a lack of infrastructure mean that distribution of the alternative fuel has been negligible. To support the standard, Japan is preparing to launch a pilot programme to build ethanol production and distribution infrastructure.

### **New Zealand moves towards Lower Sulfur Fuels but delays Manganese Review.**

The Government of New Zealand has announced new rules to cut the amount of sulfur in petrol and diesel. From January 2008, the sulfur level in both grades of petrol will be reduced to 50ppm. From January 2009, sulfur levels in diesel will be reduced to 10ppm. Meanwhile, a review of manganese levels in petrol has been postponed until 2010. By then it is expected

better information will be available internationally to make an informed decision.

Associate Energy Minister Harry Duynhoven says that the Government remains committed to the introduction of zero sulfur petrol, but a decision cannot be made until regional security of supply issues have been resolved. Many countries from which New Zealand imports petrol have not yet indicated when they will be requiring 10ppm sulfur petrol for domestic use, or when refineries will produce 10ppm sulfur petrol.

## JAMA urges ASEAN to adopt Global UN-ECE Vehicle Standards

The Japanese Automotive Manufacturers Association (JAMA) has urged ASEAN members to adopt the global UN-ECE standards for vehicles rather than create an alternative set of regional regulations. JAMA's recommendations to utilise the 1958 UN Agreement, together with a roadmap to achieve the working group's goals, were presented to a meeting of the ASEAN Consultative Council working group.

## AFRICA

### South Africa proposes new Air Quality Standards

South Africa has unveiled new draft air quality regulations designed to help implement the country's National Environmental Management: Air Quality Act, which took effect last September.

The new draft standards would strengthen limits on eight different pollutants: sulfur dioxide, nitrogen oxides, carbon monoxide, particulate matter, ozone, lead, benzene, and dust deposition. For particulate matter the old standards are  $180\mu\text{g}/\text{m}^3$  over a 24-hour period, and  $60\mu\text{g}/\text{m}^3$  for the annual average. The proposed new standards would tighten those limits to  $75\mu\text{g}/\text{m}^3$  in a 24-hour period, with an annual average of  $40\mu\text{g}/\text{m}^3$ .

### South African Industry View on Catalyst and Exhaust System Exports

The chairman of South Africa's Catalytic Converter Interest Group (CCIG) has urged the South African government to enhance incentives for the export of full vehicle exhaust systems.

The catalytic converter industry currently exports more than ten million converters annually at a total value of over 9.8bn Rand (just over €1bn), and provides over 4000 jobs in monolith production, PGM coating and converter production. Catalytic converters are already the biggest contributor to South Africa's vehicle component export industry. CCIG says that

replacing 25% of catalytic converter exports with complete exhaust systems, including the catalytic converters, would generate about 2500 additional direct jobs. The CCIG chairman suggested that the Motor Industry Development Programme in South Africa consider offering enhanced incentives for the export of full exhaust systems, with catalytic converters qualifying for the same export credits as other automotive components. The value added ratio (final selling price as a multiple of input cost) can be about 1.8 times for a catalytic converter, but almost three times more for a complete exhaust system.

## Pollution in Capital of Zimbabwe exceeds WHO Standards

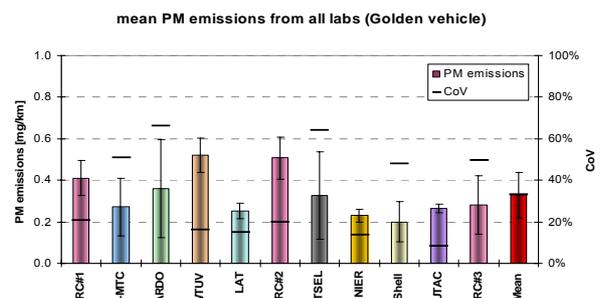
The World Health Organisation (WHO) has said that the level of air pollution in Zimbabwe's capital city of Harare is above set standards, posing a serious risk of acid rain and respiratory illnesses.

WHO said the air in Harare had a heavy concentration of sulfur and nitrogen dioxide. The Air Pollution Information Network Africa (APINA) attributed the increase of air pollution in the city to the rapid expansion in the national vehicle population and higher energy demand. Zimbabwe does not yet have a national air pollution monitoring mechanism apart from random checks. The only pollution monitoring organisation is the Air Pollution Control Unit of the Harare City Health Department, which carries out routine air pollution monitoring at eight sites.

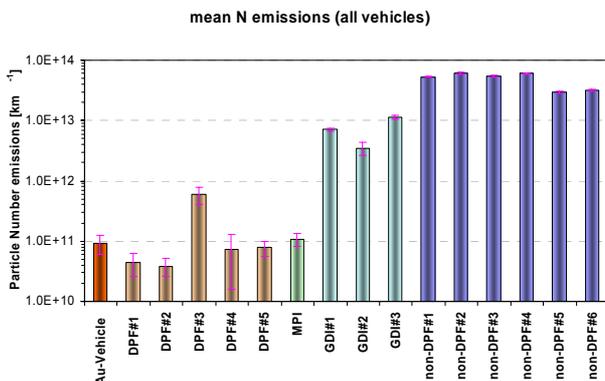
## GENERAL

### Draft Report on UN Particulates Measurement Programme

A summary of the final results of the PMP light-duty Inter-Laboratory Correlation Exercise has been published on the UN-ECE web site. The 'golden vehicle', provided through AECC, was measured in each of the nine laboratories that participated in the programme. All the PM results were well below  $1\text{mg}/\text{km}$  using the PMP's improved procedure for mass measurement. There was clear differentiation between DPF-equipped and non-DPF vehicles.



Particle number levels for DPF-equipped vehicles were below  $10^{11}/\text{km}$  except for one vehicle which gave results approximately 1 order of magnitude higher. Results for non-DPF vehicles were all between  $10^{12}$  and  $10^{13}/\text{km}$ . GDI vehicle particle numbers were between these levels.



Source of graphs: PMP Light-Duty Inter-Laboratory Correlation Exercise Final Results Summary; GRPE-PMP-17-3; UN-ECE.

## Smog Damage to Crops Costing Billions

Scientists are warning that emissions from internal combustion engines are costing billions of dollars in crop damage each year from ozone formation. Ozone is formed by a reaction between nitrogen oxides and volatile organic compounds emitted by road traffic.

An assessment of 45 countries made in 2002 for the UN Economic Commission for Europe found that ozone is already costing farmers in Europe and the former Soviet Union more than six billion euros (7.5 billion dollars) a year. Frank Raes, a Dutch scientist at the EU's Joint Research Centre in Ispra, Italy, a unit funded by the European Commission, estimates that each year India loses five billion dollars in crops because of ozone, followed by China, with 2.5 billion dollars. They are followed by Iran, Pakistan, Turkey and the east and west coasts of North America.

## New Study finds that Pollution restricts Children's Lung Growth

A study<sup>1</sup> from the University of Leicester (UK) recently published in the New England Journal of Medicine concludes that carbon particles in vehicle emissions reduce the lung capacity of children.

The research used the carbon content of airway macrophages as a marker of individual exposure to particulate matter derived from fossil fuel and modelled the exposure to PM10 at or near each child's home. Each increase in primary PM10 of  $1.0\mu\text{g}/\text{m}^3$  was associated with an increase of  $0.10\mu\text{m}^2$  in the carbon content of airway macrophages, and

each increase of  $1.0\mu\text{m}^2$  in carbon content was associated with a 13% reduction in the lung function.

The researchers concluded that "Higher levels of exposure to carbon particle are associated with lower levels of lung function."

<sup>1</sup> Kulkarni, N, et al, Carbon in Airway Macrophages and Lung Function in Children, New England Journal of Medicine, Volume 355:21-30, 6 July 2006

## Measurement of Pollutant Exposure for Different Commuting Methods

A paper to be published in 'Environment International' has studied the relative exposure to traffic derived HC pollutants between bus and cycling commuters in Dublin<sup>2</sup>.

In this study, the difference in pollution exposure on a route in Dublin was compared by sampling for five vehicle related hydrocarbons - benzene, 1,3-butadiene, acetylene, ethane and ethylene. Samples were collected during both morning and afternoon rush hour periods using a fixed speed pump to gain representative concentrations across the whole journey. Journey times were also measured, as were typical breathing rates in order to calculate the overall dose of pollutant inhaled on the journey.

Results clearly picked up significantly higher pollutant concentrations in the bus compared to cycling and also revealed elevated concentrations on the congested side of the road compared to the side moving against the traffic. However, when respiration rates and travel times were taken into account to reveal the mass of pollutants inhaled over the course of a journey, the pattern was reversed, showing slightly enhanced levels of hydrocarbons for the cyclist compared to the bus passenger.

<sup>2</sup> O'Donoghue, R.T., et al, University of Dublin, Trinity College; Exposure to hydrocarbon concentrations while commuting or exercising in Dublin.

## New Research finds Risks for Babies in Areas with High Levels of Pollution

New research from scientists at UCLA, published in the medical journal Pediatrics, says that babies living in neighbourhoods with the worst air pollution face a greater risk of dying from respiratory problems during their first year.

The research team examined death records of nearly 20000 babies under a year old who died between 1989 and 2000 in San Bernardino, Riverside, Los Angeles and Orange counties of California. They compared the deaths of infants who had lived in the most polluted areas, such as northwest Riverside County, with those of babies who had lived in the region's cleanest air.

The study found that:

- Babies 28 days to three months of age who lived in areas with the highest levels of carbon monoxide were three times as likely to die of a respiratory illness as those living in areas with the lowest levels.
- Babies seven to 12 months of age who lived in areas with the highest particulate pollution faced twice as much risk of dying from respiratory ailments as babies in areas with clean air.
- Babies 28 days to 12 months of age in areas with the highest levels of nitrogen dioxide had a 44% higher risk of succumbing to sudden infant death syndrome. However, the researchers cautioned that the link between air pollution and sudden infant death syndrome is not as well supported in previous research.

The researchers also pointed out that the study's pollution measurements came from about 34 monitoring stations, but each baby's pollution exposure could have varied from the station reading, depending on how close the infant was to pollution sources such as freeways and factories. Also they did not know which infants were exposed to cigarette smoke. The results were, however, adjusted for differences in race, the mother's age and education, the level of prenatal care and several other factors.

## FORTHCOMING CONFERENCES

### **Air Pollution and Environmental Health, from Science to Action:**

#### **The Challenge of Particulate Matter**

6-8 September 2006, Lille, France

Details at [www.iuappa-lille2006.org](http://www.iuappa-lille2006.org)

*Sessions include source identification and apportionment of particulate matter; air pollution and environmental health policies, PM measurement and analysis; and PM emissions from road traffic and health impact assessment.*

### **AVL Kongress: Motor und Umwelt / Engine and Environment – Gasoline versus Diesel**

7-8 September 2006, Graz, Austria

Details from [www.avl.com](http://www.avl.com)

*What developments in diesel and gasoline engine technology, driven by higher fuel prices, demanding emissions standards and air pollution restrictions, are to be expected? Exhaust gas aftertreatment trends – market-specific solutions?*

### **European KONES 2006: International Scientific Congress on Powertrain and Transport Means**

10-13 September 2006, Nalezow, Poland

*The latest achievements in engine research, development and design with special attention to*

*biofuels, ecology, injection and spray, combustion processes, exhaust aftertreatment, particulate filters, durability and reliability, and catalysis.*

### **Driving Low Emissions: Future EU Policy for fuel-efficient cars**

13 September 2006, Brussels, Belgium

Details at

<http://www.transportenvironment.org/Article203.html>

*This one-day event, organised by Transport and Environment (T&E) and co-sponsored by the governments of the United Kingdom and the Netherlands and Renault and Toyota, will specifically focus on policies to speed up progress towards more fuel efficient cars in Europe. Speakers include Stavros Dimas, Commissioner for Environment, Anders Wijkman MEP, Pieter van Geel, Netherlands Secretary of State for Environment (tbc) and a Representative of UK Department for Transport.*

### **2<sup>nd</sup> Advanced Powertrain Control Symposium**

14 September 2006, Birmingham, UK

Details from [enquiries@tic.ac.uk](mailto:enquiries@tic.ac.uk)

### **Global Powertrain Congress 2006 World Powertrain Expo**

19-21 September 2006, Novi, Michigan, USA

*Technical programmes include Combustion, Emissions and Performance; Hybrids; and Natural Gas and Biofuels.*

### **AVECC 2006 Asian Vehicle Emissions Controls Conference**

20-23 September 2006, Jaipur, India

'On invitation only' Conference jointly organised by [ECMA](#), [MECA](#) and [AVECC](#)

*As with previous AVECCs in 2001 (Thailand) and 2004 (China), AVECC 2006 is a technical symposium that will bring together experts from regulatory agencies, industry, and academia in Asia and around the world to share information and ideas on motor vehicle emissions control technology developments and experience.*

### **Aaqius & Aaqius 5<sup>th</sup> Forum on "Control of Diesel Emission"**

28 September 2006, Paris, France

### **Aachen Colloquium**

9-11 October 2006, Aachen, Germany

Details at [www.aachener-kolloquium.de](http://www.aachener-kolloquium.de)

### **Abgas- und Verbrauchsverringerung: Auswirkungen auf die Luftqualität und den Treibhauseffekt**

16-17 October 2006, Andechs, Germany

## **SAE 2006 Powertrain & Fluid Systems Conference**

16-19 October 2006, Toronto, Canada

*Blending a solid foundation in the conventional spark ignition (SI) and compression ignition (CI) technologies with advanced alternative power sources, the cutting-edge technical programme will feature more than 200 papers and presentations by top policymakers.*

## **2006 International CITA Conference**

17-20 October 2006, Hanoi, Vietnam

*The conference will highlight the themes "The Future of Vehicle Inspection – Contributing to Sustainable Road Transport" and "Developments in Inspection of 2 & 3 Wheeled Vehicles". Each day will start with keynote speeches that describe roadworthiness enforcement policy, developments and practice in different regions of the world. Following the keynote speeches, delegates will join workshops on regional, strategic and technical topics.*

## **Towards Fuel Neutral Standards:**

### **Diesel vs Gasoline Engine**

18-20 October 2006, Isola di Ortigia, Siracusa, Italy

Details at [http://www.ata.it/Convegna/2006\\_Next/](http://www.ata.it/Convegna/2006_Next/)

## **FISITA World Automotive Congress 2006**

22-27 October 2006, Yokohama, Japan

Details at: <http://www.fisita2006.com>

## **SAE 2006 Commercial Vehicle Engineering Congress and Exhibition**

31 October - 2 November 2006, Chicago, USA

Details at [www.sae.org/comvec](http://www.sae.org/comvec)

## **World Refining & Fuels Conference Asia 2006**

7-9 November 2006, Beijing, China

Details at <http://www.worldfuelsconferences.com/2006eventas.html>

## **4. FAD-Konferenz: Herausforderung – Abgasnachbehandlungstechnologien für Dieselmotoren**

8-9 November 2006, Dresden, Germany

Details at <http://www.fad-diesel.de>

## **Small Engine Technology Conference**

13-16 November 2006, San Antonio, Texas, USA

*The conference theme is Future Trends in Small Engine Technology to Satisfy Long-Term Demands and topics include advanced combustion, environmental impacts and HCCI (Homogeneous Charge Compression Ignition.)*

## **IFQC Technology & Policy Briefing**

16 November 2006, Paris, France

## **Spark Ignition Engine Emissions (short course)**

20-24 November 2006, Leeds, UK

Details at <http://www.engineering.leeds.ac.uk/cpd>

*The course covers emissions and combustion fundamentals; sources of emissions in SI engines; catalytic control of emissions; fuel composition effects; and future engine design for low emissions.*

## **Symposium on International Automotive Technology (SIAT2007)**

17-20 January 2007, Pune, India

Details at: <http://www.araiindia.com/html/SIAT2007.jsp>

*Topics include engine and powertrain, emissions (Euro 3 and beyond), emissions inventory and ambient air quality, inspection and maintenance programmes and global harmonisation of standards.*

## **SAE Fuels and Emissions Conference**

23-25 January 2007, Cape Town, South Africa

Details at <http://www.sae.org/events/sfl/cfp.htm>

## **5th International CTI Forum Exhaust Systems**

29-31 January 2007, Nürtingen, Germany

Details at [www.abgastechnik-forum.com](http://www.abgastechnik-forum.com)

*The forum will cover exhaust aftertreatment for diesel engines and spark ignition, future emissions legislation, liquid and solid urea SCR-systems, diesel particulate filters, in-engine emissions reduction and particulate and soot measurement technology.*

## **MinNOx - Minimization of NOx Emissions through Exhaust Aftertreatment**

1-2 February, 2007, Berlin, Germany

Details at

[http://www.iav.de/eng/4\\_events/iav\\_conferences.php](http://www.iav.de/eng/4_events/iav_conferences.php)

*A significant reduction in NOx emissions from light- and heavy-duty diesel engines will be mandatory as a result of upcoming emissions limits in Europe, the US and Japan. The conference committee calls for papers focused on SCR for passenger cars and heavy-duty, Lean NOx traps; Diagnostics and Simulation of DeNOx systems.*

## **International Conference on Transport and Environment: a global challenge, Technological and Policy Solutions**

19-21 March 2007, Milan, Italy

*A conference jointly organised by DG JRC and Regione Lombardia as a follow-up of the successful Euro 5 Conference in Milan in December 2003. Themes that will be treated relate to environmental impact of transport, such as the Euro 5 and Euro VI emissions standards for LD and HD vehicles, the new Directives on fuels and air quality standards, the biofuels promotion strategy.*

**FINE! Dust-free into the future: International Final Congress on the EU-LIFE-Environment Project KAPA GS**

29-30 March 2007, Klagenfurt am Wöthersee, Austria  
More info from <http://www.feinstaubfrei.at>

*KAPA GS is a PM10 Action Programme co-financed by the EU. Initiatives to reduce particulate emissions at a local level are simulated in a computer model, tested on site and then adapted for permanent application. Measures that have been evaluated in the course of the project will be presented.*

**SAE 2007 World Congress**

16-19 April 2007, Detroit, Michigan, USA

Details at  
<http://www.sae.org/congress/techprogram/cfp.htm>

**Additives 2007: Applications for Future Transport**

17-19 April 2007, London, UK

Details at <http://www.rsc.org/ConferencesAndEvents/RSCConferences/Additives2007/index.asp>

*Targets for exhaust emissions, fuel economy and vehicle recyclability have to be accompanied by increased engine durability, extended lubricant drain intervals and improvements in vehicle performance and refinement. This conference will focus on the developments of fuel and lubricant additive technology in meeting these challenges.*

**4<sup>th</sup> AVL International Commercial Powertrain Conference**

9-10 May 2007, Graz, Austria

Lecture proposals before 21 September to  
[peter.wuensche@avl.com](mailto:peter.wuensche@avl.com)

*The conference programme includes a technical session on Exhaust Gas Aftertreatment.*

**EAEC 2007: 11th European Automotive Congress**

30 May - 1 June 2007, Budapest, Hungary

Details at <http://www.fisita.com>

*The conference will include themes on powertrain technology, vehicle and laboratory procedures, homologation and regulation and harmonisation in Europe.*

**GPC 2007 World Powertrain Expo and Congress**

17-19 June 2007, Berlin, Germany

Announcement and call for papers; abstracts due by 19 October 2006.

Details at <http://www.gpc-icpem.org>

**11<sup>th</sup> ETH Particles Conference**

20-22 August 2007, Zurich, Switzerland