



# Newsletter

January - February 2006

## INTERNATIONAL REGULATORY DEVELOPMENTS

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## EUROPE

### Euro 5 Emissions Proposal being discussed in Council

Discussions on the Commission's proposal for a Euro 5 emissions legislation for passenger cars and light-duty vehicles COM(2005)683 have started in the Environment Council working group. The working group is preparing the Environment Council of Ministers meeting that to be held on 9 March 2006. Several EU Member States seem to want the new Euro 5 Regulation to provide a longer-term perspective and therefore already include a second stage of significantly lower emissions limits, in particular with regard to NOx.

At the start of the working group discussions, a Member States Seminar on Euro 5 was organised by the Austrian Presidency of the EU. The seminar was very well attended by over 70 Member States officials. Presentations were given by the European Commission, the European Environment Agency (EEA), the US Environment Protection Agency (EPA), the Japanese mission to the EU and the World Health Association (WHO) next to stakeholders' views from ACEA, AECC, Transport & Environment (T&E), international consultant Michael Walsh and the Technical University from Graz.

ACEA's Secretary General, Mr Ivan Hodac, mentioned that major development efforts on DeNOx catalysts are ongoing and that SCR is being investigated for passenger cars.

AECC's Dirk Bosteels presented latest information on emissions controls technologies and their performances, in particular on NOx control for diesel cars, and reviewed the key-findings and results from a recent AECC light-duty demonstration programme.

### Euro 5 Rapporteur in European Parliament

MEP Mr Matthias Groote, from the German PSE delegation, has been confirmed as the European Parliament Rapporteur for the Euro 5 Regulation. His draft report on Euro 5 will be discussed in the coming months in the Environment Committee and amendments are to be tabled before mid June.

3 other Committees - Industry, Research and Energy (ITRE), Transport and Tourism (TRAN) and Internal Market and Consumer Protection (IMCO) - will also consider the draft report and provide their opinions in due time. Rapporteurs for the opinion reports have been appointed in these Committees as well: MEP Ivo Belet (EPP-ED), MEP Liberadzki Boguslaw (PSE) and MEP Weisgerber Anja (EPP-ED).

### Responses to Euro 5 Emissions Proposals

The motor industry and Brussels-based environmental groups have responded to the European Commission's formal proposal for a Euro 5 light-duty emissions Regulation.

ACEA said that the proposal "failed to address the concerns that ACEA expressed in the opinion submitted during the stakeholder consultation". They claimed that the proposed 25% reduction in NOx limits for gasoline engines is "a challenging and costly target" and said that the proposed 18-month lead time from entry into force of the new regulation "is not sufficient for the industry to bring the new technology into full production, which requires at least 3 years."

On the other hand, the European Environmental Bureau said that the proposal is much too weak and "the Commission has once again put the demands of car makers above the needs of its citizens." The European Federation of Transport and the Environment, T&E, said that "European car manufacturers will soon be selling dirtier diesel cars in their home market than they export to the United States if the Euro 5 proposals are approved".

### EU Urban Environment Thematic Strategy

The European Commission has adopted a Thematic Strategy on the Urban Environment. It puts forward a voluntary approach to environmental management and clean transport rather than the requirement, previously discussed, for all cities with a population over 100000 to draw up environmental management and greener transport plans.

The Communication notes that the Commission will consider targets and measures aimed at controlling particulate matter and ozone pollution including new vehicle standards (light-duty Euro 5, heavy-duty Euro VI) and it will reflect on measures to promote wider use of differentiated charging in environmentally sensitive areas and for the designation of low emission zones with restrictions for polluting transport.

### European Environment Agency Report on Environment & Health

A new report from the European Environment Agency "Environment & Health" says that air pollution is responsible for the highest burden of environment-related diseases in Europe. Recent estimates indicate that 20 million Europeans a day suffer from respiratory problems and estimates of the air pollution impact made within the European Commission 'Clean Air for Europe' (CAFÉ) programme found that in the EU about 350000 people died prematurely in 2000 due to

outdoor air pollution of fine particulate matter (PM2.5) alone. This corresponds to an average loss of life expectancy of about 9 months for every EU citizen and is comparable to the loss of life expectancy due to road accidents in the EU. The report says that asthmatic persons, and particularly asthmatic children, are sensitive to air quality and several studies show a strong association between exposure to air pollution and the aggravation of asthma. To what extent air pollution initiates asthma is unclear.

## Long-term Effect Study of Air Pollution

A study published in Occupational and Environmental Medicine assesses the long term effects of air pollution on mortality.

French scientists enrolled the participants in a 1974 survey aimed at investigating the effects of air pollution on chronic respiratory diseases (PAARC). They analysed the associations between air pollution and mortality in more than 10000 adults from seven French cities over 25 years. The results demonstrated that urban air pollution assessed in the 1970s was associated with increased mortality over 25 years. In addition, they showed that inclusion of air monitoring data from stations particularly exposed to local traffic can overestimate the mean population exposure and bias the results. After exclusion of six areas heavily influenced by local traffic, the analyses showed an increased risk of non-accidental mortality related to 10 µg/m<sup>3</sup> in mean concentrations of total suspended particles, black smoke, nitrogen dioxide, and nitric oxide. Consistent patterns for lung cancer and cardiopulmonary causes were also observed.

## European Biofuels Strategy

The European Commission has adopted a Strategy for Biofuels. Measures include producing a report this year on possible revision of the biofuels Directive; encouraging Member States to favour biofuels and consider biofuel obligations; and existing proposals to promote clean and efficient vehicles.

The Commission will also examine how biofuels can best contribute to emissions targets and will look again at limits on biofuel content in petrol and diesel. They will also examine the scope for biofuel use to count towards CO<sub>2</sub> emission targets for car fleets.

## Study on Scenarios for Emissions Reductions for Recreational Craft

The European Commission's Directorate-General for Enterprise and Industry has recently contracted to the European Confederation of Nautical Industries (ECNI) a study on the feasibility and impact of possible scenarios for further emissions reduction measures

for recreational craft engines. Directive 2003/44/EC requires the Commission to explore possibilities for further improvement and to report on this to Parliament and the Council by the end of 2006. On the basis of this report the Commission, Parliament and Council will have to decide whether a proposal for legislative change will have to be developed.

## Belgian Incentives Announcements

At the opening of the Brussels' Motor show, Belgian Prime Minister announced a new measure to encourage the installation of Particulate Filters on Diesel cars. In 2006, a special deduction from personal income tax will be given for those installing a filter of this type.

This announcement was followed on 13 January by one from the Flemish Environment Minister. He said that freight transport is responsible for 45% of the total fine particles emitted by transport and he wants to tackle the transport sector's problems with fine dust drastically. He intends to consult with the transport industry on incentives for new investment in trucks with Euro IV and V engines. These incentives would end as soon as the standard becomes obligatory. He also proposes a permanent incentive for the fitment of Particulate Filters to older types of engines (up to and including Euro III).

## Spain to tackle Transport Emissions

The Spanish government has published draft legislation to improve the effectiveness of air quality controls by regional and local authorities. Legislation to introduce unspecified "economic instruments and market mechanisms" to reduce transport emissions is to be introduced in 2006. The environment minister later announced that the government plans this year to introduce fiscal measures to discourage the purchase of diesel-engined cars, SUVs and other heavily-polluting private vehicles. No details have been released but Spanish daily El Pais quoted official sources as saying that the vehicle tax on medium-sized engines would be raised from 7% to 12%.

In a related development, Madrid city council announced that, from 2008, heavily-polluting vehicles - generally those over 15 years old - will be excluded from the historic city centre in an attempt to reduce nitrogen dioxide (NO<sub>2</sub>) emissions by 13%. Fine particulate (PM10) air pollution in all of Spain's major cities is well above EU limits that came into full force in 2005, and nitrogen dioxide exceeds maximum levels set for 2010 in the six largest cities.

## **Switzerland proposes Actions on Particulate Matter**

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The head of the Swiss Department of the Environment, Transport, Energy, and Communication (UVEK) has proposed a nine-point action plan to reduce emissions of particulate matter. UVEK estimates that ambient particulate pollution in Switzerland is responsible for 3700 premature deaths per year and annual extra health costs of SFr4.2 billion (€2.7 billion). In many Swiss cities, especially in winter, ambient particulate levels exceed the 24-hour PM10 limit of 50µg/m<sup>3</sup>.

Three of the nine measures apply to vehicles. The first requires the development of new criteria for energy-efficient and low-emissions light-duty vehicles, to be based on fuel consumption, PM, NOx, HC and CO<sub>2</sub> emissions and noise. These criteria will form a basis for purchasing and tax programmes or driving bans. The second measure will require diesel buses operated by public transit agencies to be equipped with the best available technology for the reduction of PM emissions, beginning in 2007. The third measure is to develop more stringent emissions standards for passenger vehicles and truck engines. Separate from this plan, the head of UVEK said he will submit further control measures to Parliament, including a rule mandating particulate filters on all new diesel passenger vehicles.

## **Report on Irish Air Quality 2004**

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A new report from the Irish Environmental Protection Agency finds that the concentrations of particulate matter (PM10) and nitrogen dioxide (NO<sub>2</sub>) were lower in 2004 than in 2003, but emissions from road traffic are now the primary threat to the quality of air in Ireland. The report says that although improved emissions control technologies have significantly reduced the emissions from individual cars and other vehicle categories, road traffic remains one of the most important sources of air pollutant emissions due to the significant proportion of vehicles with relatively little pollution control still in service and the large increase in vehicle fleets overall.

In the case of NOx the decrease has become apparent only since 2000, reflecting the higher contribution of diesel engines to NOx emissions, the slower uptake of technological controls for such engines and the fact that heavy goods vehicles are major emitters of NOx.

## **Belgian Survey predicts declining Vehicle Emissions**

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Emissions of NOx and particles from vehicles on Belgian roads could decline by 70% by 2030 despite the expected growth in traffic from 80 billion kilometres per year in 2004 to 100 billion in 2030, a new study by Transport & Mobility Leuven has concluded. Anticipated technological improvements in vehicle engines are cited as the main reason for the reduction in the emissions of dangerous gases, except for carbon dioxide.

## **Paris Air Quality improves but still fails to meet EU Targets**

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Air quality improved slightly during 2005 in the Greater Paris region but the French capital is unlikely to meet European Union targets for 2010 without new action to curb transport, industrial, and household emissions.

Airparif's annual air quality survey recognised that new emissions control technology introduced by major European carmakers has substantially reduced some forms of transport-based pollution. The report nonetheless points to worrisome trends in some forms of air pollution, including nitrogen oxides, ozone, and particulate matter, and suggests France must further reduce traffic while taking new steps to curb industrial and household emissions if it hopes to comply with the EU's clean air initiative.

## **German Upper House agrees Test Requirements for Retrofit Filters**

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The Bundesrat - the German parliament's upper house - has agreed an order that regulates the test requirements for the retrofit particulate filters for diesel vehicles. According to the Federal Ministry of the Environment, retrofit filters could reduce annual particulate emissions by more than 2000 tonnes. The questions of tax incentives and the proposed vehicle labelling requirements are still to be finally negotiated.

## **Danish Proposal for Mandatory Particle Filters on Wood-burning Stoves**

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The Danish Environmental Protection Agency is to carry out a cost-benefit analysis of a proposal that could lead to particle filters being made mandatory for wood-burning stoves and fireplaces. Cars and lorries contribute less to particle pollution than wood stoves in Scandinavia. Recent studies have shown that Denmark's 700000 domestic wood-burning heaters are responsible for up to 50% of ultra-fine (PM2.5) particulate emissions and for 60% in Norway. At the same time the EU's new biomass action plan is trying to boost the use of wood energy.

## Finland studies Particulate Pollution from Domestic Fires and Boilers

The Finnish environment ministry has commissioned a study on emissions from domestic fires, focusing on emissions of ultra-fine particulate matter (PM2.5). Firewood and wood-pellets are widely used in homes and saunas in Finland where domestic wood burning is thought to contribute 40% of national PM2.5 emissions. The study is intended to pave the way for new emissions standards for boilers and fireplaces.

## Euromot Rail Diesel Study

Euromot (the European Association of Internal Combustion Engine Manufacturers) has published details of a rail diesel study which is carrying out a detailed assessment of technical and operational measures that could be used to reduce NOx and PM10 emissions from diesel traction across Europe.

The study covers existing and future diesel-fuelled traction units in the EU25 Member States plus Norway, Switzerland, Bulgaria and Romania. The project consists of four main work packages on fleet characteristics; screening of potential abatement measures such as diesel particulate filters, Selective Catalytic Reduction, Exhaust Gas Recirculation (EGR) and re-engining; the contribution of rail diesel exhaust emissions to local air quality; and the development of possible emissions reduction strategies.

## NORTH AMERICA

### DaimlerChrysler announces Light-Duty NOx Systems for the US

At the North American International Auto Show in Detroit, DaimlerChrysler announced a group-wide initiative for advanced clean diesel powertrains.

The company showed an E 320 BlueTec and Vision GL 320 BlueTec on the Mercedes-Benz stand and a Jeep Grand Cherokee BlueTec Concept Car on the Chrysler Group stand. The first production application will be the Mercedes-Benz E 320 BlueTec, to be launched then in the US. Each of these BlueTec vehicles uses a 155 kW V6 diesel engine, but the emissions aftertreatment systems differ. DaimlerChrysler is using BlueTec to refer to a combination of technologies for passenger cars and light trucks to reduce all relevant emissions. Components will vary with the vehicle.

The E320 model uses an oxidation catalytic converter, an advanced DeNOx catalytic converter, a particulate filter, and a Selective Catalytic Reduction system (SCR) in that sequence. The VISION GL uses a

combined oxidation catalytic converter and particulate filter, urea injection and an SCR catalyst.

### New EPA Air Toxics Regulations include new cold NMHC Standards

The US Environmental Protection Agency (EPA) has proposed new Mobile Source Air Toxic (MSAT) regulations including new passenger car standards for hydrocarbon emissions at cold temperatures.

Air toxics include benzene and other hydrocarbons such as 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, and naphthalene. The MSAT proposal would also set a new 0.62% (by volume) annual average benzene standard for gasoline from 2011 and evaporative standards for fuel containers from 2009. Federal and California evaporative emission standards for light-duty vehicles would be harmonised.

EPA says that recent research indicates that the current test procedures often do not result in robust control of NMHCs at colder temperatures below 75°F (approx. 24°C). For example, on recent Tier 2 certified vehicles, the reported 20°F HC levels were, on average, 10 to 12 times higher than the equivalent vehicles' measured 75°F hydrocarbon levels.

EPA is therefore proposing adding an NMHC requirement to the cold temperature (20°F, approx. minus 7°C) CO test for gasoline-fuelled passenger vehicles using the FTP cycle. There would be a sales-weighted fleet average non-methane hydrocarbon (NMHC) emissions standard of 0.3 g/mile for lighter vehicles (≤6000 lbs) or 0.5 g/mile for all vehicles above 6000 lbs (including trucks up to 8500 lbs and passenger vehicles up to 10000 lbs). The standard would phase in between 2010 and 2013 for the lighter vehicles, and between 2012 and 2015 for the heavier vehicles. There would be a credit program and other provisions to provide flexibility for manufacturers, especially during the phase-in periods.

Vehicle Weight Class (GVWR) <sup>A</sup>	NMHC Emission Level (grams/mile)	Phase-In Schedule <sup>B</sup>					
		2010	2011	2012	2013	2014	2015
≤ 6000 lbs	0.3	25	50	75	100		
≥ 6000 lbs	0.5			25	50	75	100

<sup>A</sup> Gross Vehicle Weight Rating

<sup>B</sup> Percent of each manufacturer's fleet, by model year, that must comply with the standard.

EPA believes that the standards would be achievable through calibration and software control strategies on Tier 2 level vehicles without additional hardware. In the recently-proposed rule for fuel economy labelling, EPA is also seeking comment on the issue of requiring manufacturers to run the heater and/or defroster while conducting the cold FTP test.

## **California publishes Final Proposal on NO<sub>2</sub> Limits for Diesel Retrofit**

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The California Air Resources Board (ARB) has issued a staff report detailing the final proposal on NO<sub>2</sub> limits for verified diesel retrofit technologies.

The verification procedures used for systems to reduce PM emissions from in-use diesel vehicles and equipment includes a limit on emissions of NO<sub>2</sub>. An NO<sub>2</sub> limit of 20% of the baseline NO<sub>x</sub> emission level was set in 2004, but was delayed to 1 January 2007 because manufacturers were not able to meet it without sacrificing robustness. ARB has now concluded that most verified PM control devices remain unable to meet the NO<sub>2</sub> limit by 2007. Catalysed PM filters, the most common high efficiency retrofit device, need sufficient NO<sub>2</sub> to assure collected PM can be burned off in a wide variety of engine applications and duty cycles.

ARB now proposes that instead of this 20% cap on NO<sub>2</sub> as a proportion of baseline NO<sub>x</sub>, the limit should be based on a maximum incremental increase over the model-specific engine-out level. In other words, the new limit excludes the NO<sub>2</sub> emitted by the engine itself and limits only the NO<sub>2</sub> contributed by the PM filter. ARB proposes, from 1 January 2007, a maximum NO<sub>2</sub> increase equivalent to 30% of the total baseline NO<sub>x</sub>. Most of the currently verified filters would be able to meet this limit. ARB also proposes that from 1 January 2009 this limit be reduced to 20%, which would require systems to be redesigned to reduce NO<sub>2</sub> emissions. Normally the test engine must not have engine-out NO<sub>2</sub> emissions that exceed 15% of the total NO<sub>x</sub> emissions by mass as measured over the emissions test cycle. However, if there is a special category of engines with higher NO<sub>2</sub> emissions levels, this requirement may be adjusted at the discretion of the Executive Officer.

The testing requirements would be revised to include additional pre-conditioning for technologies whose NO<sub>2</sub> emissions are influenced by the presence of ash and soot. The proposed pre-conditioning procedure entails repeating an appropriate certification test cycle for 25 to 30 hours to control the amount of soot and ash in the new unit. An applicant may choose to run the engine for up to ten hours under conditions that include significant high load operation, as part of this period. Following preconditioning, the unit must be run on the emissions test engine using the emissions test cycle, and the backpressure must be recorded. The unit would then be ready for testing. When the aged unit is tested for the verification procedure or for in-use compliance, the average backpressure must be within 30% of the average backpressure recorded for the new device.

## **Revised California Proposal on Off-Road PM Reductions**

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California Air Resources Board (ARB) staff has presented a revised proposal for the reduction of diesel particulate matter (PM) emissions from off-road mobile sources (> 25 hp). The proposed regulations target construction and mining equipment, industrial equipment such as forklifts and airport diesel ground service equipment. Following 'fine tuning' Board approval is expected in December.

## **California adopts further PM Controls**

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The California Air Resources Board has adopted diesel particulate matter control measure for on-road heavy-duty diesel vehicles operated by public agencies and utilities. The rule mandates municipal and utility vehicle owners to reduce PM emissions through the application of Best Available Control Technology (BACT) by specified implementation dates phased-in by engine model year groups.

## **EPA Report on Diesel Retrofit Experience**

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The US Environmental Protection Agency (EPA) has released a report "Diesel Retrofit Technology and Program Experience". The report identifies over 220 retrofit projects throughout the US and is designed to serve both as a reference tool on diesel retrofit technologies and programmes and to document lessons learned from the projects. The report is available at: [www.epa.gov/cleandiesel/publications.htm](http://www.epa.gov/cleandiesel/publications.htm).

## **Canadian Air Quality worsens**

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Statistics Canada has published environmental data showing deteriorating air quality in Canada between 1990 and 2003. Seasonal ground-level ozone concentrations averaged about 40 parts per billion in Canada in 2003, up 16% percent from 1990 levels.

## **California targets Trucks from Mexico**

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The California Air Resources Board has approved revisions to its roadside inspection programme to allow fines for heavy-duty diesel vehicles not certified to meet US emissions standards or better. The action primarily targets foreign purchased and registered commercial vehicles operating in California, particularly those crossing the border from Mexico.

## **California Lower-Emission School Bus Programme**

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California ARB has also released the staff report on its proposed revisions to the Lower-Emission School Bus Program Guidelines. California has approved \$25

million in 2005-2006 fiscal year to reduce children's exposure to diesel emissions from school buses. The revised programme will replace the oldest buses first and target retrofit funding to emissions control devices that provide the highest percentage reduction (Level 3), with a priority on funding devices that provide the lowest NO<sub>2</sub> emissions.

## **California Smoke Inspection**

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The California Air Resources Board (ARB) has adopted amendments to the heavy-duty vehicle smoke inspection programme. This will require all commercial vehicles over 10000 lbs. gross vehicle weight operating in the state to meet emissions standards at least as stringent as the US EPA standards applicable for the year of manufacture of the engine and to be appropriately labelled. The main aim is to ensure that heavy-duty vehicles entering California from Mexico comply with US standards, as some heavy-duty engines sold in Mexico were not certified to US standards.

## **Report on US Particle Pollution**

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The US Public Research Group (PIRG) has released a new report "Plagued by Pollution" which finds that a third of the US population is living in areas with unsafe levels of fine particle pollution. The report is based on a 2004 survey of state environmental agencies and finds that fine particle pollution exceeded the annual and/or 24-hour health standards in 55 large, mid-size, and small metropolitan areas in 21 states.

## **EPA withdraws Oxygenate Requirement for Reformulated Gasoline**

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The US Environmental Protection Agency (EPA) has announced the nationwide removal of the 2% oxygen content requirement for reformulated gasoline (RFG). An oxygenate is added during the summer months to reduce ozone-forming emissions.

The final rules (one for California, another for the rest of the country) also amend the current prohibition against combining volatile organic compound (VOC)-controlled RFG blended with ethanol and VOC-controlled RFG blended with other oxygenates. The oxygen requirement had become controversial in recent years because the most widely used oxygenate, MTBE, had contaminated water supplies in several states.

## **Auto Workers Union Calls for Incentives for US Production of Clean Vehicles**

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The president of the American United Auto Workers union has called for the government to provide economic incentives for the production of flexible-fuel,

hybrid, clean diesel, and other advanced-technology vehicles and parts in the United States.

He proposed several possible approaches including mandating that a certain percentage of all vehicles sold in the US be flex-fuel capable by a specified date; providing incentives for alternative fuel processing plants; and extending tax credits to encourage filling stations to distribute alternative fuels.

## **A new Approach to monitoring Air Pollution**

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The 4 February edition of 'New Scientist' reports that pigeons are to be used to monitor air pollution over San Jose, California. The plan is that from August, twenty of the birds will carry a GPS receiver, CO and NO<sub>2</sub> sensors and a cell-phone circuit board with SIM card and communication chips to measure levels of pollutants they encounter and beam them back to the University of California, Irvine. Results will be produced as an interactive map.

## **Report on Health Impacts of Locomotive and Marine Diesel Emissions**

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A report on the analysis of health impacts of emissions from locomotive and marine diesel engines has been released by STAPPA/ALAPCO (The State and Territorial Air Pollution Program Administrators - STAPPA and the Association of Local Air Pollution Control Officials - ALAPCO).

The report, which uses the same methodology that EPA used to estimate the health impacts of the non-road engine standards adopted in 2004, calculates that these emissions are responsible for over 4400 premature deaths annually. The two organisations say that EPA could avoid most of these premature mortalities, as well as most of the other adverse health impacts and have urged EPA to finalise locomotive and marine diesel engine standards to reduce emissions by at least 90%, with full implementation taking effect beginning in 2011.

## **Childhood Asthma linked to Pollution**

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The Commission for Environmental Cooperation has warned that the growing incidence of childhood asthma across North America may be directly related to children's exposure to outdoor and indoor air pollution. Data on the incidence of asthma in children provided by the United States, Canada and Mexico point to a rising number of childhood asthma cases. One possible contributor is outdoor air pollution, such as ground-level ozone and particulate matter, which remains a problem for all three countries.

The report stressed that the data represent only a first step in addressing the health impacts of

environmental issues on children. Significant data gaps and comparability issues must be addressed before the reporting system can be considered robust.

## Mexico finalizes Low Sulfur Fuel Specifications

The Mexican government has finalized and published the official Mexican NOM-086 which updates and sets new specifications for both gasoline and diesel.

Type	2003	2004	2005	2006	2007	2008	2009	2010	2011
PEMEX Premium	300/500	250/300		30/80					
PEMEX Magna									
Mexico City	500		300/500			30/80 (1)			
Rest of Country	1000		300/500				30/80		
PEMEX Diesel	500			300	15 (2)	15			

Notes: (1) Applies to Mexico City, Guadalajara and Monterrey only. (2) Only in the frontier zone - essentially the northwest corner of Mexico, specifically defined in the regulation.

## ASIA-PACIFIC

### Hong Kong tightens Emissions Standards

From 1 January 2006, all newly registered light motor vehicles (up to 2.5 tons) in Hong Kong are required to comply with Euro 4 emissions standards while emissions standards for diesel private cars will be tightened up to the most stringent Californian standards. Vehicles of 2.5 to 3.5 tons must comply with Euro 4 standards from 1 January 2007. The government also plans to tighten the emissions standards for vehicles over 3.5 tons from 1 October 2006. Legislation for submission to the Legislative Council is being drafted.

As a result of tightened emissions limits, retrofits and the use of LPG by taxis, suspended particulates and nitrogen oxides emitted by motor vehicles in the urban areas of Hong Kong had been reduced by 79% and 41% respectively by September 2005.

### Bangladesh introduces Euro 1 and 2-equivalent Emissions Standards

The government of Bangladesh has introduced 'Bangladesh-I and II' emissions standards equivalent to Euro 1 (for diesels) and Euro 2 (for petrol and CNG) and has adopted a roadmap for improving the air quality of the capital and other cities that are being badly affected by vehicle exhaust emissions.

An official announcement said that the new emissions standards will come into effect immediately. Amendments have been made to the relevant schedules of the Bangladesh Environment Conservation Rules that cover motor-vehicle

emissions. The standards also include inspection and in-service requirements. The roadmap included with the amendment details the permissible emissions limit and timeframes applicable for diesel and other vehicles registered before and after September 2004.

### Bangladesh I:

Locally made and new and imported used diesel vehicles

*Light-duty vehicles (max 8 seats + driver and max 2.5 tons GVW)*

g/km	CO	HC+NOx	PM	Procedure
New Type Approval	2.72	0.97	0.14	91/441/EEC
Conformity of Production	3.16	1.13	0.18	
Imported used	3.16	1.13	0.18	

*Medium-duty vehicles (8-15 seats + driver and 2.5-3.5 tons GVW)*

g/km	CO	HC+NOx	PM	Procedure
New Type Approval	6.9	1.7	0.25	93/59/EC
Conformity of Production	8.0	2.0	0.29	
Imported used	8.0	2.0	0.29	

*Heavy-duty vehicles (>15 seats + driver and >3.5 tons GVW)*

g/kWh	CO	HC	NOx	PM	Procedure
New Type Approval	4.5	1.1	8.0	0.36	91/542/EEC and ECE Reg. 49.02
Conformity of Production	4.9	1.23	9.0	0.4	
Imported used	4.9	1.23	9.0	0.4	

For diesels ≤85kW the limit is increased by a factor of 1.7

The PM limit also applies to CNG vehicles

### Bangladesh II:

Locally made and new and imported used petrol & CNG vehicles

*2 & 3 wheelers*

	CO g/km	HC+NOx g/km	Evap g/test	Procedure
4 stroke	4.5	3.0	-	ECE-40

*Light-duty vehicles (max 8 seats + driver and max 2.5 tons GVW)*

	CO g/km	HC+NOx g/km	Evap g/test	Procedure
New	2.2	0.5	2.0	94/12/EC
Imported used	2.2	0.5	2.0	

*Medium-duty vehicles (8-15 seats + driver and 2.5-3.5 tons GVW)*

g/km	CO g/km	HC+NOx g/km	Evap g/km	Procedure
New & imported used	5.0	0.7	2.0	96/69/EC

*Heavy-duty vehicles (>15 seats + driver and >3.5 tons GVW)*

g/km	CO	HC*	NOx	Evap g/test	Procedure*
New Type Approval	4.5	1.1	8.0	2.0	91/542/EEC and ECE Reg. 49.02
Conformity of Production	4.9	1.23	9.0	2.0	
Imported used	4.9	1.23	9.0	2.0	

\* NMHC for CNG vehicles, also 13-mode cycle for CNG vehicles

### Diesel Retrofit Programme in Hong Kong

The Hong Kong Government has adopted a new diesel retrofit regulation which will require 'pre-Euro' standard heavy vehicles to install approved emissions control devices from 1 April 2006.

The regulation covers large light buses, goods vehicles and buses over four tons first registered before 1 April 1995. The emissions control devices required are diesel oxidation catalysts capable of



reducing PM emissions by 30% and HC/CO emissions by 50%. Hong Kong's Environmental protection Department said that diesel vehicles are a major source of roadside air pollution in Hong Kong. A pre-Euro vehicle emits up to seven times more particulates than a vehicle meeting Euro III.

## **Guangzhou plans new Emissions Rules**

The Guangzhou Municipal Government has given a detailed plan to the State Council for approval to implement the State Phase III exhaust emissions standard this year. The State Phase II standard was implemented in Guangzhou last July. Phase III requires new vehicles to reduce emissions by half. If approved by the State Council, the city government will ask for on-board diagnostics (OBD) systems to be fitted to all new vehicles.

## **Emissions Action Plan for Assam**

The Pollution Control Board of Assam (PCBA), India has set up an action plan to curb vehicle emissions of harmful substances like benzene, volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH), small particulate matter (PM2.5) and nitrogen dioxide (NO<sub>2</sub>). Members of the Society of Indian Automobile Manufacturers (SIAM) have been instructed to organise free pollution check campaigns along with free servicing at least once in every six months.

## **Low Emission Vehicle Policy for China**

The Chinese Government has issued an official notice to encourage the use of environmentally-friendly, low-emissions cars. The note says that all restrictions on the use of such vehicles by public bodies and as taxis must be lifted before the end of March this year. It requires government departments to use tax incentives and alternative fuel pricing policies to encourage consumers to buy greener cars, and calls on manufacturers to invest more in development and production of low-emissions vehicles, including small cars and diesel and alternative fuel vehicles.

84 Chinese cities currently restrict the purchase or use of sub-compact cars, though they have been prominent among wholly Chinese manufacturers' ranges and are increasingly popular in view of rising fuel prices. Chinese industry sources suggest that a new tax regime which is in preparation will introduce differential taxes on low-emissions and high-emissions vehicles, and introduce reduced parking charges for smaller cars. Purchase taxes on vehicles with engines below 1 litre are expected to be lowered to 1% from 3% while taxes on cars of over 3 litres are thought likely to rise to 14-20% from 8%.

## **Singapore introduces Tax Incentives for Cleaner Vehicles**

Singapore's National Environment Agency and Land Transport Authority (LTA) have jointly announced a new incentive package for vehicles that use clean fuels or that meet Euro 4 emissions standards. A key aim is to reduce vehicle PM emissions. Diesel vehicles contribute about 50% of Singapore's total PM2.5 emissions.

To ease the transition to Euro 4 standards for diesel vehicles, which will be introduced on 1 October 2006, new Euro 4-compliant diesel taxis will receive a 40% rebate on the additional registration fee (ARF) paid when taxis are registered with the LTA and Euro IV buses and commercial vehicles will be entitled to an ARF discount of 5%. Owners registering Euro 4 diesel passenger cars will also see the special tax applied to their vehicles dropped from six times their current road tax to four times their road tax.

## **Shanghai restricts pre-Euro I Vehicles**

The Shanghai traffic authority has announced that it will issue certificates to owners of vehicles which meet the Euro I emissions standard. From 15 February, buses, cars and trucks without the special certificate will be forbidden to enter the city's inner ring elevated roads from 7 am to 8 pm. Any driver in the restricted area who fails to show a vehicle emissions certificate will be fined 200 Yuan (US\$25). From 1 October, all motor vehicles that emit pollutants exceeding the Euro I standard will be prohibited access to all the inner-ring roads between 7 am and 8 pm.

Vehicles coming from other towns which stay in Shanghai for more than a week are also required to apply for the certificate. The Shanghai Environmental Protection Bureau will adopt Euro III in the city next year and Euro IV probably in 2009.

## **GENERAL**

### **Study finds Ozone unsafe even at Very Low Levels**

A study by Yale University and Johns Hopkins to be published in the April 2006 issue of 'Environmental Health Perspectives' finds that even at very low levels, ozone increases the risk of premature death. The study found that there is still an increased risk of death even on days that currently meet the EPA limits for acceptable levels of ozone (80 parts per billion for the daily 8-hour maximum). EPA is currently considering whether more stringent ozone standards are needed. In a recent separate study conducted by researchers from Georgia Tech, it was found that large amounts of NOx (a major contributor to ozone

formation) are being transported to North America from across the Pacific Ocean and could be contributing to the increase in ozone levels over North America.

## Reduced Air Pollution improves Children's Health

A recently-published WHO report "Effects of Air Pollution on Children's Health and Development", demonstrates that children are particularly sensible to air pollution exposure. In particular, the report shows that pre- and post-natal exposure to air pollution leads to increasing respiratory infections, bronchitis, allergies and asthma, with increased risk of respiratory deaths in newborn children.

Although numerous studies have reported adverse effects of air pollution on children's health, only a few investigated the expected beneficial effects of air pollution reduction on respiratory health of children. Swiss researchers have investigated the cause-effect relationship between air pollution and children's health and whether a rather modest decline in air pollution levels in the 1990s in Switzerland was associated with a reduction in respiratory symptoms and diseases in school children. The findings of their study clearly show that the reduction of air pollution exposures contributes to improved respiratory health in children.

Across the nine studied regions, PM10 levels have decreased by 29% from 1993 to 2000. Adjusted for socio-economic, health-related, and indoor factors, the declining PM10 was associated with declining prevalence of chronic cough, bronchitis, nocturnal dry cough, and conjunctivitis symptoms. The reduction on prevalence rates was larger in areas with stronger decrease in PM10 levels. Based on the results of their study, the authors conclude that pollution abatement measures implemented in Switzerland in the 1990s have successfully contributed to improved respiratory health in Swiss school-children. Nevertheless, they point out that children's health can be further improved since in urban regions and in the proximity of streets with high traffic volume, current PM10 levels still exceed limits of the Swiss Clean Air Act.

## FORTHCOMING CONFERENCES

### 4<sup>th</sup> International Forum for Exhaust Gas and Particle Emissions 2006

14-15 March 2006, Ludwigsburg, Germany

More at <http://www.forum-emissions.com/>

*At the focus will be an overview of the current state of the art, particularly regarding concepts for fulfilling the high requirements for the reduction of NO and NO<sub>2</sub> to trace levels, and the outlook regarding future concepts for systems of exhaust gas aftertreatment.*

*Another focus of the Forum will be future exhaust gas instrumentation. For measuring extremely low emissions, new instruments will be required to serve as development tools having the highest standards with regard to confidence, precision, accuracy and robustness when measuring limited and non-limited exhaust gas components. Future trends and developments in the field of exhaust gas and particle instrumentation will be presented.*

### 7<sup>th</sup> European Fuels Conference

14-15 March 2006, Paris, France

Details at:

<http://www.wraconferences.com/wra107overview.html>

*Sessions include impacts of European fuel and vehicle legislation, off-road markets, auto fuels, biofuels and alternative fuels.*

### VDA Technical Congress 2006

22-23 March 2006, Munich, Germany

More from [www.vda.de](http://www.vda.de)

*Parallel sessions in the form of lectures and an exhibition on 'Environment and Energy' and 'vehicle safety and Electronics'.*

### Trends in der Nutzfahrzeug-Industrie

28-29 March 2006, Wiesbaden, Germany

Details at: <http://www.euroforum.de/p1100306>

*Topics to be covered include environment and emissions, engine technology, research and development and strategic planning.*

### Green Ship Technology 2006

29-30 March 2006, Hamburg, Germany

*The conference will examine the impact that protecting the environment is having on the industry and how new market opportunities are emerging as a result of the emphasis on 'green issues' including propulsion systems with clean engines.*

### CITEAIR 2<sup>nd</sup> Workshop

31 March 2006, Brussels, Belgium

More at <http://citeair.rec.org/>

*Common Information to European Air (CITEAIR) is a project co-funded by the European Union's INTERREG IIIC Programme. The CITEAIR project is in operation since March 2004 and this 2<sup>nd</sup> workshop will concentrate on the developed Common Air Quality Index and the Common Operational Website*

### 2006 SAE World Congress

3-7 April 2006, Detroit, Michigan, USA

More at <http://www.sae.org/congress/>

### Alternative Energy Sources for Automobiles

5-6 April 2006, Poitiers, France

Details at:

<http://www.sia.fr/Manifestations/ManifestationsSIA.htm>

## **ENGVA 12<sup>th</sup> Annual European NGV Conference**

24-27 April 2006, Brussels, Belgium

Details at: <http://engva.org/conference>

*The key messages of this year's European Natural Gas Vehicles Association conference are that, by relying more on natural gas and renewable energy like biomethane, NGVs can be the pathway to energy security as well as have a positive impact on the climate. Key speakers will be the policy makers and the analysts who provide input to their decisions.*

## **27th International Vienna Motor Symposium**

27-28 April 2006, Vienna, Austria

## **Engine Expo 2006**

9-11 May 2006, Stuttgart, Germany

## **World Hydrogen Energy Forum & Exhibition (HyTech 2006)**

16-18 May 2006, Beijing, China

*Covers both hydrogen fuel cells and Hydrogen ICEs.*

## **3. Emission Control in Dresden**

18-19 May 2006, Dresden, Germany

## **Hart World Refining & Fuels: Clean Energy & Fuels Conference**

30 May - 1 June 2006, Brussels, Belgium

*Topics will include Energy Trends & Developments in Asia, Russia, Africa/Middle East, New EU 25 Fuel Policy Developments, Progress on Central & Eastern European Regional Implementation of Fuel Quality Policy, Options to Meet the EU's Diesel Shortage, The Latest on Automotive Emissions Policy & Technology Trends, and Euro 5, CARS 21 & Predicted Fuel Policy Outcomes.*

## **Le Moteur Diesel: Challenge faible CO<sub>2</sub> et Réduction des Émissions**

## **Diesel Engines: The Low CO<sub>2</sub> and Emissions Reduction Challenge**

31 May - 1 June, Lyon, France

*This event is intended to provide the opportunity for experts from the automotive, heavy-duty and industrial vehicles industries, parts manufacturers, oil industry and research laboratories to exchange opinions and information on the potential of the diesel engine as a low CO<sub>2</sub>-emissions engine of the future.*

## **Euro Oil & Fuel 2006: Euro IV – Influence of Emission Limits on Demands Modification made for Engines, Fuels And Oils**

7-8 June 2006, Cracow, Poland

Details at: [http://www.itn.com.pl/pages/oil\\_fuel\\_ang.php](http://www.itn.com.pl/pages/oil_fuel_ang.php)

*Planned thematic sessions cover fuels and additives, engine oils, engine development and exhaust aftertreatment systems – technical solutions and future requirements.*

## **8<sup>th</sup> Highway and Urban Environment Symposium**

11-14 June 2006, Nicosia, Cyprus

Details at: <http://www.ags.chalmers.se/hues/>

*The aim of the symposium is to provide a forum for recent research and development on all aspects of the highway and/or urban environment. Organisers: Chalmers University of Technology, Sweden; the Cyprus Institute, Cyprus.*

## **Transport Research Arena Europe 2006**

12-16 June 2006, Gothenburg, Sweden

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

*The objective of this conference is to establish an event for the alignment of the road transport research and development stakeholders. Parallel sessions include one on energy, environment and resources covering low emissions vehicles, the need for combustion systems including advanced emissions control systems and further development of nanotechnologies that have the potential to deliver more effective catalyst materials.*

## **2<sup>nd</sup> International Symposium 'Environment & Transport' including 15<sup>th</sup> Conference on Transport and Air Pollution**

12-14 June 2006, Reims, France

Details at:

<http://www.inrets.fr/services/manif/env-trp2006/index.e.html>

*The themes will be evolution of transport systems, perception of the environment, the impact of transport on populations and ecosystems, the place of the environment in the concept of sustainable development, methods of evaluation, control methodologies and political scenarios for transport.*

## **Particles in Europe**

13-14 June 2006, Antwerp, Belgium

More info at [www.aamg-rsc.org](http://www.aamg-rsc.org) or e-mail [conference@aamg-rsc.org](mailto:conference@aamg-rsc.org)

*Conference with Posters and Exhibition arranged by the Automation and Analytical Management Group - Royal Society of Chemistry, UK and sponsored by the Flemish Environment Agency VMM, Belgium.*

*The conference will create an opportunity to present recent developments in monitoring strategies, requirements and analytical techniques to industry, the scientific community and public authorities. Delegates can expect papers covering the monitoring of the major particulates involved and their effects on air quality in the rural and urban environment will be discussed.*

## 10<sup>th</sup> ETH Conference on Combustion Generated Nanoparticles

21-23 August 2006, Zurich, Switzerland

## CAPoC 7 – 7th International Congress on Catalysis and Automotive Pollution Control

30 August - 1 September 2006, Brussels, Belgium

Details at:

<http://www.ulb.ac.be/sciences/cpmct/capoc7/index.html>

All topics related to applications and requirements of catalysis in automotive emissions control will be considered: catalyst technologies (TWC, lean burn of gasoline and diesel, cold start emissions); fuel cell catalysis; materials for catalysts, washcoats and fuel-borne catalysts; particulate emission control; NO<sub>x</sub> emissions control under lean conditions; modelling of aftertreatment systems; unregulated pollutants; integrated emissions control systems, on-board diagnostics; alternative fuel technologies and innovative technologies (new materials, recovery of precious metals, sensors).

## 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, Goa, India

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

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.

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

September 2006, Birmingham, UK

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

## FISITA World Automotive Congress 2006

22-27 October 2006, Yokohama, Japan

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

## World Refining & Fuels Conference Asia 2006

7-9 November 2006, Beijing, China

Details at:

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

## 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.)*

Abstracts (300-500 words) to be submitted online to SAE by 14 April, 2006.

## IFQC Technology & Policy Briefing

16 November 2006, Paris, France

## 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.

Abstracts to [siat2007@araiindia.com](mailto:siat2007@araiindia.com) by 31 March 2006.

## 5<sup>th</sup> International CTI Forum Exhaust Systems

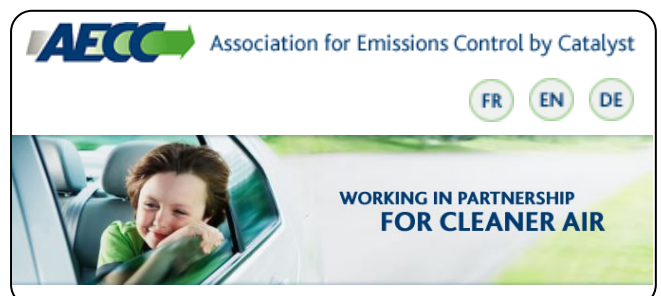
29-31 January 2007, Nürtingen, Germany

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.

By the time this Newsletter reaches you the new AECC website should be available in 3 languages.

The address remains the same: [www.aecc.be](http://www.aecc.be)



AECC Association for Emissions Control by Catalyst

FR EN DE

WORKING IN PARTNERSHIP FOR CLEANER AIR

The banner features a photograph of a young child sitting in a car seat, smiling. The text is overlaid on the image.

We hope you will find the new site even more useful.