



# Newsletter

November – December 2007

## INTERNATIONAL REGULATORY DEVELOPMENTS

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## EUROPE

### Heavy-duty Euro VI Proposal published

On 21 December 2007 the European Commission formally published its proposal for a Heavy-duty Euro VI emissions Regulation. The proposal is framed as the 'political part' of a split-level Regulation, which will allow the technical content to be established by the 'comitology' procedure, in which the content is agreed by the Commission and Member States with Parliament having a right of scrutiny, rather than needing to go through the same full parliamentary debate and voting procedure as the 'political part'.

The emissions limits proposed are in line with Scenario A of the Commission's consultation document (0.4g/kWh NO<sub>x</sub> and 0.01g/kWh PM). The implementation date proposed is 1 April 2013 for new Type Approvals and 1 October 2014 for all engines except replacement engines for in-service vehicles.

Limit values are shown for the ESC and ETC tests with equivalent values for the World-Harmonised cycles to be introduced at a later stage.

**Euro VI Emission Limits**

	Limit values							
	CO (mg/kWh)	THC (mg/kWh)	NMHC (mg/kWh)	CH <sub>4</sub> (mg/kWh)	NO <sub>x</sub> (3) (mg/kWh)	NH <sub>3</sub> (ppm)	PM mass (mg/kWh)	PM (1) number (#/kWh)
ESC (CI)	1500	130			400	10	10	
ETC (CI)	4000	160			400	10	10	
ETC (PI)	4000		160	500	400	10	10	
WHSC (2)								
WHTC (2)								

Note:

PI = Positive Ignition,

CI = Compression Ignition

(1) A number standard is to be defined at a later stage

(2) The limit values relating to WHSC and WHTC will be introduced, at a later stage, once correlation factors with respect to the current cycles (ESC and ETC) have been established

(3) The admissible level of NO<sub>2</sub> component in the NO<sub>x</sub> limit value may be defined at a later stage

Once the results of the UN-ECE's Heavy-duty particles measurement programme (PMP) are available, a particulate number standard and method will be implemented.

The proposal also increases durability requirements to 160 000km, 300 000km, or 700 000km or 5, 6 or 7 years respectively, depending on the vehicle category. The proposal lays the groundwork for the introduction of the World-Wide Harmonised On-Board Diagnostics (WWH-OBD) requirements, provisions on off-cycle emissions and the use of Portable Emissions Measurement Systems for in-service conformity.

The proposal sets the basis for requirements on replacement pollution control devices, measurement of fuel consumption and CO<sub>2</sub> emissions, use of consumable reagents and OBD systems. Test procedures, reference fuel, and detailed requirements will be defined in the technical Regulation.

The proposal permits Member States to provide financial incentives for new vehicles complying with the requirements once the implementing measures (the technical Regulation) are in place, but ceasing on 1 October 2014 at the latest. It also permits incentives for retrofitting provided that the Euro VI emissions limits are met, and for scrapping non-complying vehicles. The proposal can be found at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0851:FIN:EN:PDF>

### Proposed Directive on the Promotion of Clean and Energy Efficient Vehicles

On 19 December 2007 the European Commission proposed a Directive on the promotion of clean and energy efficient vehicles. This is intended to promote the market introduction of vehicles able to reduce fuel consumption, CO<sub>2</sub> and pollutant emissions. The proposal covers all road transport vehicles procured by public authorities and by operators providing transport services under contract to local authorities.

The approach is based on the internalisation of operational lifetime costs of vehicles in the procurement award process. Common rules are defined for calculating lifetime costs for energy consumption, CO<sub>2</sub> emissions, and pollutant emissions. An example is shown below:

Vehicle type	Vehicle price	Life-time cost for					Vehicle price + lifetime costs
		Fuel	CO <sub>2</sub>	NO <sub>x</sub>	NMHC	PM	
Bus (1 million km)	150.000 €	313.500 €	30.210 €	87.780 €	2.622 €	9.918 €	594.030 €
Diesel car (200.000 km)	17.000 €	5.500 €	530 €	220 €	10 €	435 €	23.695 €
Petrol car (200.000 km)	15.000 €	7.700 €	669 €	70 €	20 €	87 €	23.547 €

The application of these criteria will be optional in a first phase and mandatory from 2012.

### Commission Proposals on Car CO<sub>2</sub>

The European Commission has issued its proposed legislation to reduce the average CO<sub>2</sub> emissions of new passenger cars to 120g/km by 2012.

The draft legislation defines a limit value curve of allowed CO<sub>2</sub> emissions for new vehicles according to the mass of the vehicle. The curve is set in such a way that a fleet average of 130g of CO<sub>2</sub> per kilometre is achieved. A manufacturer must ensure that by 2012 their measured fleet average emissions are below the limit value curve. Thus the CO<sub>2</sub> emissions of heavier

cars will have to be improved proportionately more than lighter cars. Manufacturers will still be able to make cars with CO<sub>2</sub> emissions above the limit value curve provided these are balanced by cars which are below the curve, so long as the fleet average remains at 130g/km. An additional 10g/km reduction will be achieved by efficiency requirements for components such as air conditioning and tyres.

The proposal includes an “excess emissions premium”. This will be based on the number of g/km that an average vehicle sold by the manufacturer is above the curve, multiplied by the number of vehicles sold by that manufacturer. A premium of €20 per g/km has been proposed in the first year (2012), gradually rising to €35 in the second year, €60 in the third year and €95 in 2015. The proposal will now be sent to the Council and to the European Parliament as part of the co-decision legislative procedure.

## Council and Parliament reach Compromise on Air Quality Directive

The European Parliament and the Council of Ministers have reached a compromise agreement on the EU Air Quality Directive. The Directive covers PM, NO<sub>2</sub> and NO<sub>x</sub>, ozone, CO, lead and benzene.

MEPs and the Council agreed on an initial target value of 25µg/m<sup>3</sup> for PM<sub>2.5</sub> from 2010. From 2015, this figure would become a binding limit. From 1 January 2020 this would be 20µg/m<sup>3</sup>, but the Commission must review the figure in 2013. For PM<sub>10</sub>, annual average maximum concentrations are to be reduced to 40µg/m<sup>3</sup>. The daily limits for PM<sub>10</sub> will be a maximum of 50µg/m<sup>3</sup>, which must not be exceeded more than 35 times per year.

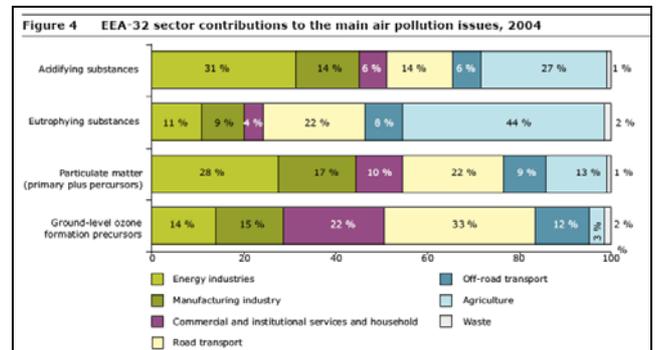
The agreement allows a three-year exemption to the PM<sub>10</sub> limit values for areas or cities which cannot meet the targets "because of site-specific dispersion characteristics, adverse climatic conditions or transboundary contributions". This exemption would be granted only if Member States submit a plan showing why the maximum figures cannot be met despite measures taken at national and local level.

## Reports on European Air Pollutants

A report from the European Environment Agency (EEA) says that the concentrations of ozone and particulate matter have not improved since 1997 despite substantial cuts in emissions of air pollutants.

The report estimates indicate that up to 43% of the European urban population was exposed to PM<sub>10</sub> concentrations in excess of the EU air quality limit value between 1990 and 2004 even though PM precursor and primary PM emissions fell by approximately 45% over the period. Although ozone

precursor gas emissions fell by 36% from 1990 to 2004, exposure to ozone has not decreased since 1996. Up to 60% of the European urban population was exposed to ozone concentrations in excess of the EU air quality limit values between 1990 and 2004.



NO<sub>2</sub> concentrations declined as NO<sub>x</sub> emissions decreased, the report says. Traffic sites generally exhibit higher concentrations than urban sites, which in turn tend to be more affected than rural locations. Exceedances at hot spot locations (e.g. main roads) are observed all across Europe. The report is at [http://reports.eea.europa.eu/eea\\_report\\_2007\\_2/en/Air\\_pollution\\_in\\_Europe\\_1990\\_2004.pdf](http://reports.eea.europa.eu/eea_report_2007_2/en/Air_pollution_in_Europe_1990_2004.pdf)

A second EEA report (NEC Directive Status Report 2006) says that a number of EU Member States are likely to miss legally-binding 2010 emissions targets for four important air pollutants. The report says that in spite of significant decreases of NO<sub>x</sub> emissions since 1990 (e.g. Germany by 50%), all the countries except Greece are actually above their ceilings. Of the EU-15, only Portugal and Finland expect to be below their emissions ceiling by 2010. 11 Member States indicated that, without taking additional measures, they will not reach their ceilings by 2010.

## 3<sup>rd</sup> International Environmentally Friendly Vehicles Conference

The German government hosted the 3<sup>rd</sup> International Conference on Environmentally Friendly Vehicles (EFV) in Dresden on 19 and 20 November 2007.

Speakers at the conference included representatives from the European Commission, Germany, Japan, the US, China, India and Australia, as well as the UN's World Forum for Harmonisation of Vehicle Regulations (WP.29), motor manufacturers and non-governmental organisations. The issue of world-harmonised standards was a recurring theme throughout the conference, and there were calls to establish world-harmonised benchmarks to define environmentally-friendly vehicles. Although much of the discussion centred on cars and commercial vehicles, Dr. Arun Jaura of India's Mahindra & Mahindra showed that in India 73% of the vehicle parc

is two-wheelers, 13% is passenger vehicles and 14% is commercial vehicles. The 4<sup>th</sup> EFV conference will be held in India in 2009.

## **Amsterdam wants to establish Environmental Zones**

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Amsterdam has asked the Dutch cabinet for an amendment to the law to allow it to establish environmental zones. Amsterdam's alderman says the city is already doing everything it can to get the air cleaner. The city's buses and trams have been cleaned up and from in the middle of 2008 part of the city will be a prohibited area for lorry traffic. But the city is still unlikely to meet the European air quality standard for fine particulate in 2010. The Mayor says that the 5% dirtiest cars cause 40% of all air pollution in the city. The target is to get rid of cars without particulate filters and petrol cars of 15 to 20 years old.

## **Netherlands extends Subsidy Scheme for Lorry Soot Filters**

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The Netherlands has allocated an additional subsidy of 25 million Euros for its subsidy programme for lorry retrofit soot filters in 2008. The programme started in June 2007 but the initial €70 million budget was taken up by the beginning of November 2007. Some 17000 filters have been installed. The scope has been extended to cover buses for public transport which were previously covered by a separate scheme.

## **Austrian Bonus/Malus Scheme for CO<sub>2</sub> and NO<sub>x</sub>**

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From 1 July 2008 Austria will give a bonus of €300 for newly-registered vehicles emitting less than 120g/km CO<sub>2</sub>. The bonus excludes value added tax, currently 20%, and so corresponds to a gross bonus of €360. In addition a bonus up to a maximum of €200 (excluding VAT) can be achieved if NO<sub>x</sub> emissions fall under the limit values for Euro 5 and Euro 6. There is also to be a €25 penalty for each g/km of CO<sub>2</sub> over a target value. From 1 July 2008 the target will be 180g/km, reducing to 160g/km from 1 January 2010. The current bonus/penalty system for Diesel particle filters (€300 bonus to maximum penalty of €150) is to be extended until the new scheme starts.

## **Italian Incentives Plan adopted**

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On 11 December 2007 Italy's Council of Ministers adopted a final regulation allowing continued emissions incentives for the transport sector. The measure allocates €70 million for enterprises or groups of firms intending to renew their fleet. The decree allocates a direct contribution amounting to €3400 for small and medium companies (SMEs) or

€2250 for larger companies aiming to purchase or lease new commercial vehicles of 11.5 tonnes or more and meeting Euro V standards. The incentive rises to €4250 for SMEs located in the developing areas of Calabria, Campania, Sicily, Puglia and Basilicata and €3400 for other businesses located in the same area. To become operational, the measures need approval from the European Commission.

## **Swiss Particle Number and NO<sub>2</sub> Limits for Construction Machines**

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Switzerland has notified the European Union of a draft revision to its Ordinance on Air Pollution Control affecting construction machinery. The revisions will introduce limits on particle numbers and an NO<sub>2</sub>:NO<sub>x</sub> ratio and will prohibit the use of copper-based additives or copper-based exhaust system coatings.

The draft ordinance stipulates that from 1 May 2008 for new diesel-powered construction machines over 37kW and from 2010 for new machines between 18 and 37kW the following emissions standards apply:

- a new particle number emissions limit of  $1 \times 10^{12}$ /kWh according to the UN-ECE PMP-Method,
- an NO<sub>2</sub>:NO<sub>x</sub> limit ratio of 30% mass,
- fulfilment of the requirements for the other pollutants of EU Directive 97/68/EC.

The notification says that the standards are regarded as fulfilled if the construction machines are equipped with tested and approved particulate filters.

## **Germany proposes PM limits for Small Wood-burning Stoves**

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Germany's Environment Ministry (BMU) is proposing to introduce limit values for particulate matter and carbon monoxide emissions from small wood-burning stoves. The BMU says that approximately 97% of the total dust from fire-places and furnaces consists of health-endangering fine dust and that the total quantity of this fine dust exceeds that from the exhaust pipes of all Diesel passenger cars and trucks. Modern pellet heaters will easily meet the new standards, says the Ministry. Older heaters that cannot prove compliance will have to be retrofitted with a filter or replaced as part of a long-term renovation programme from 2012 to 2024. The Cabinet will consider the proposal early in 2008.

## **Turkey to reduce Diesel Sulfur**

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In 2008 Turkey will reduce the sulfur content of its gas oil and diesel fuel to better harmonise with European Union standards. Turkey's energy markets regulator will change the regulations to reduce the levels of sulfur in diesel for commercial vehicles and cars to

50ppm from 1 July 2008 and from 1 January 2008 the sulfur levels for fuel for tractors will be reduced to 1000ppm (currently 2000ppm). Diesel containing 7000ppm sulfur will be taken off the market.

## **NORTH AMERICA**

### **California will not delay Particulate Filters for Auxiliary Power Units**

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California Air Resources Board (CARB) staff have said that the agency plans to reject petitions for delaying CARB's regulations that require 2007 model year and older trucks to install diesel particulate filters on any operating auxiliary power unit (APU). They indicated that other options are available for cooling, heating, or running electrical appliances in truck cabs, including the use of APUs running on fuels other than diesel. Ten APU manufacturers have so far submitted certification documents for approval.

### **California proposes Amendments to Retrofit Verification Procedure**

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The California Air Resources Board (CARB) has issued final proposals to amend the State's procedures for verification, warranty and in-use strategies to control emissions from Diesel engines. The proposals include a requirement to use the non-road transient cycle (NRTC) for verification of systems for off-road applications, with a phase-in permitted for submissions made during 2008 to allow the change from the current 8-mode steady-state cycle. The amended rules would also allow verification of technologies for abatement of NO<sub>x</sub> alone, for fitment to 2007 and newer original-equipment engines that are already equipped with a PM control device meeting California's Level 3 requirements.

### **US EPA to harmonise Retrofit NO<sub>2</sub> Requirements with California**

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The US Environmental Protection Agency has said that it intends to harmonise with California's retrofit NO<sub>2</sub> limits and NO<sub>2</sub> testing requirements, which come into effect on 1 January 2009. From that date the California Air Resources Board (CARB) requires verified retrofit technologies to limit any increase in NO<sub>2</sub> emissions to a 20% increase relative to baseline NO<sub>2</sub> emissions. CARB already limits the NO<sub>2</sub> increase for verified retrofit technologies to 30%.

### **US and Canadian Ports to prohibit older Trucks from 2008**

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From 1 January 2008 the port of Vancouver in British Columbia, Canada, is to restrict access to the port by container trucks made before 1989. A year later the

prohibition will be extended to cover trucks made before 1994. Trucking companies will also be required to pass increasingly stringent annual exhaust gas opacity checks and random opacity checks. Vancouver is co-operating with Seattle and Tacoma in Washington State, USA, to set requirements for ocean-going vessels, cargo handling equipment, rail vehicles and harbour vessels as well as trucks.

For trucks, the aim is to reach, by 2010, the equivalent PM emissions level of 1994 trucks and by 2015 to have 80% of heavy-duty trucks reaching the equivalent PM emissions level of 2007 model year engines. Both targets would be met through purchase of new vehicles or by using approved retrofit packages. The short-term goal for cargo handling equipment is to have the cleanest available technology as soon as possible through retrofits, cleaner fuels, and idle reduction. For trains, the three ports support reducing PM emissions from all new locomotives by 90% in the long term but, in the interim, suggest re-powering or retrofitting and use of biodiesel or ultra-low sulfur diesel fuel as options. For ocean-going and harbour vessels, the long-term aim is to be the performance measures that IMO - the International Maritime Organisation - adopts, with cleaner fuels as a short-term option.

The California Air Resources board (CARB) has also adopted a regulation for trucks that operate at California's largest ports and inter-modal rail facilities. The regulation will be implemented in two phases. By 31 December 2009 all pre-1994 trucks must be retired and 1994-2003 model year trucks must be retrofitted with a verified Level 3 particulate control technology. In Phase II all trucks must meet or exceed the 2007 model year emissions standards by 31 December 2013. The two main ports in California, Los Angeles and Long Beach, which account for about two-thirds of the port trucks affected by this regulation, are in fact adopting an even more aggressive programme. From 1 October 2008, pre-1989 trucks would be banned from port service. From 1 January 2010, this would be extended to 1989-1993 trucks and un-retrofitted 1994-2003 trucks would also be banned. 2 years later (two years ahead of the CARB regulation) the ban would be extended to pre-2007 trucks.

### **Canadian Consortium will Develop and Test Clean Locomotive Technologies**

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A consortium headed by GE Canada has received funding from Sustainable Development Technology Canada (SDTC) to demonstrate advanced high-performance catalyst technologies on diesel-powered locomotive engines to reduce air emissions and fuel usage. The SDTC is a non-profit organisation

established by the Canadian government in 2001 to finance the development of clean technologies.

Consortium members will develop and demonstrate the Clean Diesel Locomotive project, a retrofit emissions control package designed for diesel locomotives. The package will incorporate diesel particulate filtration (DPF) and selective catalytic reduction technologies, and biodiesel fuels. The Canadian National Railway Co. will demonstrate the technologies on newer GE locomotives used in Canada and the United States. The Canadian Pacific Railway will test DPF and biodiesel technologies on modernised EMD SD40-2 locomotives.

## **US Proposal to reduce Emissions from International Ships**

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The US Environmental Protection Agency (EPA) has issued plans for new emissions standards for diesel engines on board large ocean-going vessels.

The proposal targets emissions from the largest ('Category 3') marine diesel engines, which have a capacity  $\geq 30$  litres per cylinder and are mainly used for propulsion of ocean-going vessels. The proposal would introduce:

- Tier 2 NO<sub>x</sub> limits beginning in 2011 that would achieve a 15 to 25% NO<sub>x</sub> reduction.
- Tier 3 NO<sub>x</sub> limits beginning in 2016 that would apply when ships are operating in US ports and coastal areas and that would require the use of catalytic aftertreatment emissions control technology capable of reducing NO<sub>x</sub> emissions by 80% or more.
- NO<sub>x</sub> limits for existing engines built before 1/1/2000 that would achieve a 20% NO<sub>x</sub> reduction. These standards would phase-in from 2010/2012.
- PM and SO<sub>x</sub> performance standards beginning in 2011 that would apply to all vessels when they are operating in US ports and coastal areas and that could be achieved through the use of low sulfur fuel or the use of exhaust gas cleaning technology.

## **US Federal Court Rejects CAFE Rules for Light Trucks**

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A US Federal appeals court has rejected the Corporate Average Fuel Economy (CAFE) standards for 2008-2011 model year light-duty trucks.

The court ruled that the National Highway Transport Safety Administration (NHTSA) had failed to address why light-duty trucks (i.e. pick-ups and SUVs) should be granted higher maximum fuel consumption limits than passenger cars. The CAFE standards rejected by the court were introduced in March 2006 and require most light-duty trucks to improve fuel economy from 22.5 miles per US gallon (approx.

10.5litres/100km) in 2008 to at least 23.5mpg (approx. 10.1 l/100km) by 2010. Passenger cars are required to meet a 27.5mpg (8.6 l/100km) average. The ruling orders NHTSA to develop new standards consistent with the court's opinion as soon as possible and for the earliest model year practicable.

## **US Energy Bills covering Fuel Economy and Biofuels**

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President Bush has signed into law an Energy Bill that includes the first significant increase for nearly 30 years in the US's light-duty vehicle Corporate Average Fuel Economy (CAFE) standards together with a significant increase in the renewable fuels standard.

The fuel economy requirements take the form of separate fuel economy standards for passenger cars and for light-duty trucks that begin in the 2011 model year and that culminate in a combined average new vehicle fleet fuel economy of 35 miles per US gallon (6.72 litres/100km) in 2020. New fleet fuel economy figures for the 2021-2030 model years are to be "the maximum feasible." Car manufacturers must meet a minimum fuel economy of 27.5 mpg or 92% of the average fuel economy projected for a given fleet model year, whichever is greater. There will also be a programme to allow manufacturers to trade credits between themselves. In addition the National Academy of Science is to conduct a study to determine appropriate methods to measure the fuel efficiency of medium- and Heavy-duty vehicles. Two years after the completion of the study, the Department of Transportation is to adopt fuel economy standards for these vehicles.

The Renewable Fuels Standard increases the required quantity of renewable fuels to 36 billion gallons (136 billion litres) per year by 2022. The production of ethanol from corn is capped at 15 billion gallons/year from 2015; the remainder is expected to be from "advanced biofuels," such as those derived from cellulosic feedstocks. Minimum lifecycle greenhouse gas emissions (GHG) improvements to be achieved are 20%; biomass-based diesel must deliver a 50% GHG improvement and cellulosic biofuels must deliver a 60% GHG improvement. The bill also authorises a study of biodiesel blends on engine and engine system performance and durability if ASTM has not established a standard for B20 (20% biodiesel) within a year of the bill's enactment. EPA must then produce a rule establishing a standard.

## **California Actions on Greenhouse Gases**

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The California Air resources board (CARB) has approved a greenhouse gas (GHG) emissions cap for the State of 427 million metric tonnes for 2020, a

reduction of about 173 million metric tonnes from the 'business as usual' scenario. Transportation, industrial emissions and electricity generation are the largest sources of GHG emissions in California, with transportation accounting for about 35% of the total.

Meanwhile California's landmark law requiring cuts in greenhouse gas emissions, which would affect cars, sport-utility vehicles, pick-up trucks and minivans from 2009 model-year, was upheld in a Federal Court. The Judge rejected arguments by car makers that Federal law should pre-empt the State's approach. But California still needed to obtain a waiver from the US Government to implement the law. At the start of November, Governor Arnold Schwarzenegger announced that California had filed a lawsuit against the US Environmental Protection Agency (EPA) for failing to act on California's request for such a waiver. This was then joined by a further 14 States.

However, on 19 December 2007, EPA announced that it had denied California's waiver. This is the first California waiver request that EPA has denied since the Clean Air Act was put in place. EPA said that the energy bill signed by President Bush earlier that day (see previous item) provided a "clear national solution, not a confusing patchwork of state rules, to reduce America's climate footprint from vehicles." Governor Schwarzenegger then said that the State would take legal action to try to reverse the decision.

## **Canada to regulate Fuel Economy**

The Canadian Government has introduced the Motor Vehicle Fuel Consumption Standards Act, under which mandatory fuel consumption standards will be established for light-duty road motor vehicles. The standards will be published by the end of 2008 and will come into force from the 2011 model year.

## **SOUTH AMERICA**

### **Brazilian States push Petrobras on Low-Sulfur Diesel**

Two major state Governments and environmental advocacy groups are claiming that Brazil's Petrobras is criminally negligent by failing to desulfurise diesel fuel to Euro 4 sulfur limits of 50ppm by a 2009 deadline set by Conama, the nation's Environmental Council. Instead, Petrobras was only aiming to introduce Euro 4 ULSD in major cities by 2010, leaving the rest of the country with higher-sulfur (500ppm) diesel. Opponents say this dual-standard situation will not stop older trucks and buses using high-sulfur diesel fuel from entering major Brazilian cities. Petrobras has now said that it plans to spend 9 billion Reals (€3.4 billion) between now and 2012 to upgrade refineries to produce low sulfur diesel.

### **Ultra-Low Sulfur Diesel for Colombia**

Colombia's government has announced that state-owned Ecopetrol has agreed to convert the entire nation's diesel supply to 50ppm sulfur by 2013. Public transport buses in Colombia's major cities will get the ultra-low-sulfur diesel fuel three years earlier, in 2010. The sulfur reduction will be phased: Bogota will get 500ppm sulfur diesel from 1 July 2008, while the rest of the country converts to 3000ppm fuel. A year later, the non-Bogota diesel sulfur level will drop to 2500ppm. When the major cities convert to 50ppm ULSD in 2010, other areas in Colombia will get 500ppm sulfur, until 2013 when the entire country switches to ULSD. Currently diesel in Bogota is at 800ppm sulfur, but 4200ppm in the rest of the country.

## **ASIA-PACIFIC**

### **New Zealand revises Emissions Standards from January 2008**

New Zealand will introduce new exhaust emissions standards for new and used car imports from 3 January 2008. All used cars will be tested before they are allowed into the country and it will be illegal to modify any new or used vehicles' equipment that could cause their emissions to worsen.

The final version of the Land Transport Vehicle Exhaust Emissions Rule 2007 incorporates some changes made after consultation with industry stakeholders. These include delaying the requirement that all used petrol vehicles meet the Japan 00/02 standard. Petrol vehicles built to the Japan 98 standard can continue to be imported into New Zealand in 2008, but the Japan 00/02 standard will be introduced from 2009. For diesels, the Japan 02/04 standard will be the new minimum standard for all used diesel imports from January 2008. The new rule also changes the requirements for new vehicles coming into the country. The current rule in some cases allowed delays of up to four years for some standards to come into force. The timeframe has been shortened by two years.

### **Vehicle Emissions in New Zealand Are Much Worse Than Thought**

A study conducted by Zero Emissions Limited, which has the only emissions testing system used throughout New Zealand, shows that the country's cars are producing more harmful emissions than is currently believed, the company says. The study involved 452 cars with petrol engines and 92 with diesel engines. The government estimated that only 10% of the vehicles would fail an emissions test but the company says their research shows that 16% of

cars with petrol engines, and 7% of diesels would not be allowed on the road in Europe or most parts of North America. The company says that the government has underestimated the problem, because they have only been looking at smoke emissions, whereas the Zero Emissions' system measures HC, CO, CO<sub>2</sub> and oxygen in the car's exhaust and calculates the air:fuel ratio (AFR).

## **New Delhi actions on Diesels**

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At a roundtable organised in New Delhi, India, by the Center for Science and Environment, Delhi's Environment Secretary said that the local government may ban diesel vehicles in the city if other measures to curb pollution do not work. He said that under the Air Pollution (Prevention and Control) Act, 1981, they had the legal powers to ban the use of any fuel in the capital. Delhi's Chief Minister has also written to the Union government to urge them to introduce Euro IV diesel fuels and emissions standards in the National Capital Region by 2008-09. The automotive and emissions control representatives at the meeting said that the industry is ready to meet the emissions standards if the right fuels are available.

A plan recently approved by the Delhi Cabinet proposes an environment tax on diesel fuel. The revenue from this will finance Delhi's clean air action plan. The city government also plans to phase-out light-duty commercial vehicles using diesel, organise pollution checks and offer financial incentives to vehicle owners interested in converting to CNG.

## **India aims to meet WHO Air Quality Standards by 2012**

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The Indian government has set an ambitious target of achieving the World Health Organization's air pollution standards in all major cities of the country by 2011-12.

The targets form part of the 11<sup>th</sup> five-year plan which was put to the National Development Council on 9 December 2007. The target comes despite data that car production in India increased by 300% between 2001 and 2006 whilst that of commercial vehicles increased by almost 400%. The government has proposed that all central programmes on outdoor pollution will be reorganised under a national Air Quality Plan. As part of the move, the air quality-monitoring network, currently consisting of 208 stations, will be expanded to 1000 stations.

## **Sydney moves to Retrofits, Euro 5 Diesels and Natural Gas Buses**

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State Transit, the bus operator in Sydney, Australia, says that it is retrofitting older vehicles whilst gradually switching to buses that are either powered by

compressed natural gas (CNG) or are diesels meeting Euro V emissions standards. In the next five years, State Transit will replace one-quarter of its 2000 buses. Half of the new vehicles will run on natural gas and half will be Euro V compliant diesels. Older diesel buses, of which there are about 1300, will be fitted with catalytic converters to reduce their emissions. There are already about 70 new Euro V diesel buses operating in the Sydney and Newcastle fleets as part of an A\$250 million government investment into the public-transport system. Australia does not have to officially comply with Euro V until 2010.

## **World Bank Study on the effects of Air Pollution in China**

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The World Bank's country director for China and Mongolia has warned China that its air pollution is causing more ailments and deaths, while taking up 3.8% of the nation's gross domestic product. Among the negative effects of air pollution are higher incidents of lung diseases such as cancer and respiratory problems, which leads to higher levels of absenteeism in workplaces and schools. He suggested transferring production facilities outside of city limits, using liquefied gas for heating systems instead of coal-burning stoves and promoting public transportation while curbing the use of private vehicles.

## **Hong Kong ends the Year with Record Pollution Levels**

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On 7 and 8 December 2007 Hong Kong was shrouded in the worst air pollution of the year. Pollution monitoring stations registered "very high" readings in several spots and the Environment Protection Department warned people with heart or lung problems to avoid outdoor activities. The Air Pollution Index reached very high levels at several places by mid-day after hitting 151 - the highest level this year - in the Central business district.

## **Hong Kong switching to ULSD**

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Hong Kong has passed a resolution to introduce a concessionary duty rate for Euro V diesel starting from 1 December 2007 for two years. The Hong Kong Government has committed to reviewing this duty arrangement before making Euro V diesel its statutory motor vehicle diesel requirement but the preliminary plan is to do so from 1 January 2009. The plan is also to introduce Euro V diesel vehicle emissions standards in tandem with the EU.

## AFRICA

### Ghana to develop Vehicle Emissions Standards

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The Environmental Protection Agency of Ghana is to develop standards to reduce vehicular emissions and aims to promote more environmentally-friendly fuel.

The moves were announced by the Executive Director of Ghana's EPA at a workshop sponsored by the Danish International Development Agency. He said total emissions levels in the country have increased by 16.67% per annum between 2000 and 2005 and are likely to double in the next 10 years. He expressed the hope that the country would in the future eliminate completely the use of metallic additives and also reduce the level of sulfur in fuel. The deputy Volta Regional Minister said it was important for the country to establish Ambient Air Quality Control and Monitoring, to establish vehicular emissions norms and to phase out grossly polluting vehicles.

### South African Car Makers warn of Dangers of 500ppm Sulfur Diesel

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The National Association of Automobile Manufacturers of South Africa (NAAMSA) has issued a bulletin warning drivers of late-model diesel cars not to use 500ppm sulfur diesel, but rather the 50ppm sulfur ULSD now widely available. From 2006, these two different grades of diesel were legislated by the South African Department of Minerals and Energy. NAAMSA says that particulate filter-equipped diesel vehicles should only use diesel fuel with a sulfur level not exceeding 50ppm.

NAAMSA says the 50ppm low sulfur grade is now being marketed by an increasing number of oil companies in South Africa alongside the standard (500ppm) grade. They say it remains a concern that, despite Government legislation, many filling stations still do not display legally prescribed labelling to indicate the maximum sulfur level of the diesel fuel on sale. Where no sulfur level is indicated on the fuel pump, motorists should assume that the diesel is of the standard quality and not the low sulfur 50ppm grade. To assist motorists, a list of fuel companies and filling stations supplying sub-50ppm low sulfur diesel is maintained on the NAAMSA website: [www.naamsa.co.za/unleaded/diesel.htm](http://www.naamsa.co.za/unleaded/diesel.htm).

## MIDDLE EAST

### Dubai tests Hybrids and introduces Euro IV Buses

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Hybrid vehicles are to be used in Dubai as taxis and public buses as part of the Government's plans to

reduce vehicle emissions levels. The Roads and Transport Authority has signed an agreement with US-based General Motors (GM) to operate at least 10 gasoline hybrid taxis from January 2008. The trial will run for one year during which time GM will provide technical training on safety and other aspects to 15 technicians and 40 taxi drivers. The Authority says that this will pave the way for hybrid public buses. 5 hybrid buses will join the Dubai Public transport fleet in 2008 and from February 2008 new buses fitted with Euro IV engines will also arrive in Dubai.

### Annual Report on Air Quality Monitoring in Israel published

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Israel's annual report on air quality monitoring for 2006 reveals a trend of improvement in pollution caused by transportation sources in Jerusalem and in the Tel Aviv metropolitan area. However, elevated ozone concentrations characterise many of Israel's internal regions, underlining the importance of further reducing hydrocarbon and nitrogen oxides emissions from vehicles, fuel stations, power plants and industry.

Some of the main findings include annual exceedances of the target standards for PM2.5 in all monitoring stations where PM2.5 is measured and for PM10 in several stations including Haifa's French Carmel neighbourhood and Tel Aviv. There was a deterioration of air quality in Haifa for ozone and respirable particles and increased ozone concentrations in other areas. The World Health Organisation's annual standard for nitrogen dioxide was exceeded in several areas.

## GENERAL

### ICCT Report on Reducing Emissions from Heavy-duty Vehicles

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ICCT - the International Council on Clean Transportation - has released a report on the development of a model regulatory programme for harmonising emissions standards and reducing emissions from Heavy-duty vehicles.

The report says that its goal is to encourage the alignment of the three major regulatory programmes (European, US and Japanese) to reduce vehicle emissions. It says that this can provide public health benefits while reducing compliance costs for manufacturers. An important mechanism for technical alignment is through the United Nations, which has finalised a global technical regulation (gtr) on the Heavy-duty emissions test procedure. The ICCT hopes that the final world-wide test procedure will be acceptable to the three major regulatory areas and so will provide developing nations with current international best practice.

Components of the ICCT proposal are the use of ultra-low sulfur diesel fuel allowing state-of-the-art emissions standards for Heavy-duty engines and vehicles, together with implementation of the gtr and in-use compliance and enforcement. The report is at: [www.theicct.org/documents/final\\_model\\_rule.pdf](http://www.theicct.org/documents/final_model_rule.pdf).

## **Lower Car Emissions may cause Childhood Asthma Rates to fall**

New research from the National University of Ireland, Galway (NUIG) suggests that the introduction of catalytic converters may have helped reduce childhood asthma rates. Researchers examined admission rates for acute asthma for children aged 1 to 14 years at University College Hospital Galway from 1985 until 2004. They also examined black smoke concentration levels measured at three different sites in Galway city for the same period. They found that the admission rates for children with asthma and the smoke levels followed the same pattern, with both rising to a peak in the mid-1990s and dropping steadily from 1995.

The authors of the study, which was presented at the annual meeting of the Irish Thoracic Society, say it shows an apparent one-year time-lag between air pollution levels and admission rates. The relationship was especially marked among pre-school children aged one to four years but the drop in hospital asthma admissions also occurred in five to 14 year-olds. The authors suggest the reduction in environmental pollution that resulted from lower emissions from cars is the reason why the number of asthma attacks in children has reduced.

## **Effects of Air Pollution on Cardiopulmonary Mortality in Vienna**

A new paper from the Institute of Environmental Health in Vienna, Austria and the Institute of Hygiene in Warsaw, Poland examines the association between air pollutants and heart disease.

The authors used time series of daily TSP, PM10, PM2.5, NO<sub>2</sub>, SO<sub>2</sub>, O<sub>3</sub> and non-trauma deaths in Vienna for the period 2000–2004. They found that all three particulate measures and NO<sub>2</sub> were associated with mortality from all causes and from ischemic heart disease and Chronic Obstructive Pulmonary Disease (COPD) at all ages and in the elderly. The magnitude of the effect was largest for PM2.5 and NO<sub>2</sub>. The best predictor of mortality increase in the following 7 days was PM2.5 (for ischemic heart disease and COPD) and NO<sub>2</sub> (for other heart disease and all causes).

*Source:* Neuberger et al, Extended effects of air pollution on cardiopulmonary mortality in Vienna; Atmospheric Environment 41 (2007) 8549–8556, December 2007.

## **Satellite Monitoring of NO<sub>2</sub>**

Scientists and researchers from around the world recently gathered at The European Space Agency's Earth Observation Centre in Frascati, Italy, to discuss the contribution of satellite data in monitoring nitrogen dioxide in the atmosphere and to present the latest results of their research that includes identifying hotspots, analysing trends and monitoring the effectiveness of mitigation efforts.

Using satellite-gathered NO<sub>2</sub> data acquired from 1996 to 2006 Dr Sachin Ghude of the Indian Institute of Tropical Meteorology was able to identify the major NO<sub>2</sub> hotspots, quantify the trend over major industrial zones and identify the largest contributing regions. He said that NO<sub>x</sub> emissions over India are growing at an annual rate of 5.5% per year and the location of emissions hot spots correlates well with the location of large thermal power plants, cities and urban and industrial regions.

Yuxuan Wang of Harvard University, was able to obtain accurate near-real time measurements of the air quality over China during a traffic restriction. Between 4 and 6 November 2006, 30% of Beijing's 2.82 million private vehicles were taken off the streets to facilitate organisation for the China-African summit and to perform a trial for the 2008 Olympic Games. They saw a 40% reduction in NO<sub>x</sub> emissions.

Simon Hales from the University of Otago in New Zealand used satellite NO<sub>2</sub> data to look at seasonal patterns of heart disease in New Zealand. By using NO<sub>2</sub> satellite data and relating it to surface observations, Hales hopes to develop a model of the surface exposure levels, determine what the exposure levels mean in terms of public health implications and work out what the policy implications are for changing emissions-releasing practices, such as reducing transport from motor vehicles.

## **Study finds “Diesels Better for Society than Hybrids”**

A cost-benefit analysis by the RAND Corporation finds that advanced diesel engines provide a slight edge over gasoline-electric hybrids and both have a significant benefit over vehicles running on 85% ethanol (E85). The researchers examined the costs and benefits to consumers and to society of hybrids and of "flex-fuel" vehicles that can run on E85. The researchers say that whilst it is assumed that the hybrid vehicle will save more fuel than the advanced diesel, the overall advantage goes to the diesel because of its lower technology costs and better performance, such as increased torque. The study found that the high cost and resource-intensive means of producing and transporting E85 makes it less

beneficial to society than using conventional gasoline. The operating cost of an E85 vehicle is also higher than a similar gasoline vehicle because E85 provides less energy.

Source: Keefe, Griffin & Graham, The Benefits and Costs of New Fuels and Engines for Cars and Light Trucks; RAND Corporation, [http://www.rand.org/pubs/working\\_papers/WR537/](http://www.rand.org/pubs/working_papers/WR537/)

## Report says Ships contribute to Thousands of Deaths

A report to be published in *Environmental Science & Technology* claims that up to 60 000 people living in coastal communities along major shipping routes died from lung and heart complaints as a result of high sulfate emissions from ships in 2002. The report says that the number could rise to 82000 by 2012.

The American researchers took estimated ship emissions of particulate and other pollutants, including sulfate and nitrogen oxides. Using global circulation models, they mapped out how emissions would drift over land. After adding in regional data such as population density, they pinpointed areas with a higher likelihood of deaths from cardiopulmonary and lung cancer that are attributable to exposure to emissions. People living in port cities like Hong Kong, Shanghai and Shenzhen were likely to be hit the hardest as most of the pollution occurred within 250 miles of their coasts, said the researchers.

The study's authors say that while air pollution from diesel trucks and buses has been reduced by more than 90% over the last few decades, emissions from ocean-going ships - which use the same diesel engine technology but very high sulfur fuel - have risen virtually unchecked.

## Scientist says rising Temperatures are likely to Elevate Ground-Level Ozone

Global warming is likely to elevate levels of ground-level ozone, according to atmospheric chemist Daniel Jacob, Professor of atmospheric chemistry at Harvard University. Jacob told a meeting of the Ozone Transport Commission (a multi-state organization that advises the US Environmental Protection Agency on interstate ozone transport) that with an overall temperature increase of 3°C the probability of areas exceeding the US Federal air quality standard for ozone doubles, in the absence of measures to reduce ozone-forming emissions. In the Midwest, warming is likely to cause a 10ppb increase in ozone levels from what they would otherwise be in the year 2050, Jacob said.

## FORTHCOMING CONFERENCES

### Cars and CO<sub>2</sub>: Matching Automotive Challenges with Integrated Policy

23 January 2008, Brussels, Belgium

Details at [www.automotiveforum.eu](http://www.automotiveforum.eu)

*An initiative of FEBIAC, the Belgian Automobile Federation, with the support of ACEA, during the 86th European Motor Show Brussels. It will contribute to the debate on the issue of Cars & CO<sub>2</sub>.*

### 6. International CTI Forum Exhaust Systems

28-31 January 2008, Nürtingen, Germany

*Developments on aftertreatment for diesel and SI engines, SCR, DPF, catalyst systems, sensors, in-engine measures and emissions legislation.*

### Towards a Sustainable Automotive Industry: Meeting the Fuel and Engine Technology Challenge

29 January 2008, London, UK

*This briefing will provide an opportunity to discuss the latest developments in fuel and engine technologies. Delegates will consider how the industry should take the optimum technologies forward into mainstream vehicle design to meet emissions targets and secure a sustainable and competitive automotive industry.*

### 5<sup>th</sup> International Exhaust Gas and Particulate Emissions Forum

19-20 February 2008, Ludwigsburg, Germany

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

*Discussions will revolve around efficient strategies for CO<sub>2</sub> reduction and measures relating to particulate pollution and European NO<sub>2</sub> guidelines applicable from 2010. Alongside concepts for diesel vehicles, there will be particular interest in measures applied to stratified charge spark ignition engines, hybrids and alternative fuel usage.*

### Einführung in die On-Board Diagnose (OBD) für Otto- und Dieselmotorenfahrzeuge

20-21 February 2008, Essen, Germany

Details at [www.hdt-essen.de](http://www.hdt-essen.de)

### GreenPort 2008 and EcoPorts 2008: Sustainable Policy and Practice in Ports, Cities and the Logistics Chain

27-28 February 2008, Amsterdam, Netherlands

### Nachrüstung von Partikelfiltern / Retrofit Particle Filters

5-6 March 2008, Frankfurt/Main, Germany

Details at <http://www.euroforum.de/data/pdf/p1102549.pdf>

## 14th Annual Fuels & Lubes Asia Conference

5-7 March 2008, Seoul, South Korea

Details at <http://www.flasia.info/seoul/program.asp>

## Diesel Emissions Conference in Asia

11-12 March 2008, Shanghai, China

Details at [www.integer-research.com/conference](http://www.integer-research.com/conference)

*The panel of 20 expert speakers has direct experience of the many important issues that affect the diesel emissions market: governmental and international regulations, powertrain development, aftertreatment technology and fuel quality.*

## Verbrennungsmotoren: Fahrzeugabgasemissionen

11-12 March 2008, Essen, Germany

Details at [www.hdt-essen.de](http://www.hdt-essen.de)

## 6<sup>th</sup> International Symposium of Fuels and Lubricants

9-12 March 2008, New Delhi, India

*Conference topics will include emissions regulations and control technologies, fuel additives and biofuels.*

## 3<sup>rd</sup> International Conference & Exhibition on Ecological Vehicles and Renewable Energies

27-30 March 2008, Monte-Carlo, Monaco

Details at <http://www.conference.evermonaco.com/>

*EVER'08 is intended to be a forum of specialists coming from both universities and industries, involved in R&D projects in the area of ecologic vehicles and of renewable energies.*

## Emission Relevant Sensors

31 March-2 April 2008, Frankfurt-Oberursel, Germany

*The first day of this forum from the Car Training Institute will be an introductory seminar "basic knowledge in emission sensor technology".*

## Alternative Energies for the Automotive Industry

2-3 April 2008, Poitiers, France

Details at

<http://www.sia.fr/files/evenement/onglet/1934/Call%20for%20Papers%20AEA.pdf>

## 2008 SAE World Congress

14-17 April 2008, Detroit, Michigan, USA

## Transport Research Arena 2008

21-24 April 2008, Ljubljana, Slovenia

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

*The event is organised jointly by the Conference of European Directors of Roads, the European Commission and the European Road Transport Research Advisory Council.*

## i-SUP 2008 Innovation for Sustainable Production 2008

22-25 April 2008, Bruges, Belgium

Details at <http://www.i-sup2008.org/>

*Conference sessions include production and application of nanomaterials, urban growth and air pollution, and methods for toxicity screening.*

## 29<sup>th</sup> International Vienna Motor Symposium

24-25 April 2008, Vienna, Austria

*The latest results in worldwide engine and powertrain development, future legislation and emissions control.*

## Vehicle Inspections "Win/Win Approaches"

6-8 May 2008, Porto, Portugal

*The conference is organised by CITA, the worldwide association of organisations involved in vehicle roadworthiness inspections. Workshops will cover key environmental, operational and strategic topics.*

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

28-29 May 2008, Rouen, France

Details at: [http://www.sia.fr/evenement\\_detail\\_diesel\\_engines\\_moteur\\_diesel\\_bienvenue\\_920.htm](http://www.sia.fr/evenement_detail_diesel_engines_moteur_diesel_bienvenue_920.htm)

*Topics to be addressed include diesel combustion and new combustion processes, injection systems, pollution control, engine design and performance, and specific features of industrial engines.*

## International Congress of Heavy Vehicles, Roadtrains and Urban Transport

28-31 May 2008, Minsk, Belarus

Details at <http://www.fisita.com/events/diary?id=327>

*The congress is organised by Academic Automotive Association under FISITA patronage, and by the support of the Government of the Republic of Belarus, the Belarusian National Technical University, and the Belarusian automotive industry.*

## 4<sup>th</sup> Emission Control 2008

29-30 May 2008, Dresden, Germany

*The main emphasis of this conference will be on measures to reduce emissions and energy and heat management. The emissions topics will include engine internal methods, alternative combustion, new technologies of aftertreatment, and exhaust emissions test methods and equipment.*

## World Powertrain

10-11 June 2008, Vaals, Netherlands

Details at [http://www.gpc-icpem.org/pdfs/vaals\\_gpc.pdf](http://www.gpc-icpem.org/pdfs/vaals_gpc.pdf)

*The programme covers advanced engine design and performance, advanced powerplants and vehicles, and emissions and enabling technology.*

## **Diesel Emissions Europe 08**

11-12 June 2008, Brussels, Belgium

Details at <http://www.integer-research.com/Products/Services/?ServiceID=182&ckIndustryID=3>

*One of the main themes of the conference will be the commercial impact of the latest emissions standards on diesel truck manufacturers and emissions control equipment suppliers. The conference will combine strategy presentations with case studies and panel discussions.*

## **Benefits and Risks of Inhaled Engineered Nanoparticles**

11-14 June 2008, Hannover, Germany

Details at [www.inis-symposium.com](http://www.inis-symposium.com)

*The symposium will cover the main areas of current concern and active research in the context of inhaled engineered nanoparticles, including physico-chemical characteristics, measuring methods, bioavailability and potential sources of human exposure.*

## **MinNOx: 2<sup>nd</sup> International IAV Conference on NOx Aftertreatment**

19-20 June 2008, Berlin, Germany

*Topics covered will include NOx aftertreatment solutions for Diesel cars, gasoline DI cars and Heavy-duty applications, engine measures to reduce NOx emissions, OBD, catalyst and component development, urea infrastructure, and health effects.*

## **ETH Conference on Combustion-generated Nanoparticles**

23-25 June 2008, Zurich, Switzerland

## **SAE International 2008 Powertrains, Fuels and Lubricants Congress**

23-25 June 2008, Shanghai, China

Details at: <http://www.sae.org/events/pf/>

*Offers of papers are being solicited in the following technology areas: Advanced Power Systems, Combustion and Fuels, Control and Calibration, Exhaust Aftertreatment and Emissions, Lubricants and Powertrain Systems.*

## **5th International Conference on Environmental Catalysis**

31 August - 3 September 2008, Belfast, N. Ireland

Details at [www.centacat.qub.ac.uk/5icec](http://www.centacat.qub.ac.uk/5icec)

*Sessions cover automotive emissions control, catalysis for the production of clean fuels, catalysis for sustainable energy conversion and greener process intensification.*

## **SAE Small Engine Technology Conference**

10-12 September 2008 (to be confirmed), USA

Details at <http://www.sae.org/events/set/>

## **20<sup>th</sup> International AVL Conference "Engine & Environment"**

11-12 September 2008, Graz, Austria

*The theme for this year's conference is "120g CO<sub>2</sub>/km – what about driving fun and costs? Engine & Environment 2008 will invite authorities from industry, academia and the political world to discuss solutions and strategies.*

## **FISITA 2008 World Automotive Congress**

14-19 September 2008, Munich, Germany

Details at [www.fisita2008.com](http://www.fisita2008.com)

*The topic area on future powertrain solutions includes strategies for future ultra-low exhaust emissions limits and strategies and engines for future fuels. The simulation and testing topic includes harmonisation of international legislation.*

## **SIMEA: Automotive Engineering International Symposium**

17-18 September 2008 (to be confirmed), Brazil

## **7th International Motorcycle Conference: 'Safety – Environment – Future'**

6-7 October 2008, Cologne, Germany

Details at [http://www.ifz.de/download/Konferenz\\_Koeln/2008/First\\_Call%20-%20English.pdf](http://www.ifz.de/download/Konferenz_Koeln/2008/First_Call%20-%20English.pdf)

*Environmental aspects to be covered are motorcycle emissions, standards and measurement procedures.*

## **International conference 'Environment & Transport in different contexts'**

27-28 October 2008, Ghardaia, Algeria

Details at <http://www.inrets.fr/services/manif/ghardaia-oct08/index-EN.html>

*The conference deals with the environment issues related to transport in different areas with a particular focus on the Southern countries. The main topics to be dealt with are transportation systems and environmental impacts, evaluation methodology, control technology and transportation policy.*

## **Better Air Quality 2008**

12-14 November 2008, Bangkok, Thailand

Details at <http://www.baq2008.org/>

*The BAQ 2008 theme is "Air Quality and Climate Change: Scaling up win-win solutions in Asia." This theme is directly related to the recommendation of the Intergovernmental Panel on Climate Change to integrate air quality management (AQM) and climate change mitigation strategies.*

## **4<sup>th</sup> Environmentally Friendly Vehicles Conference**

Provisionally 23-24 November 2009, New Delhi, India