



Newsletter

May - June 2009

INTERNATIONAL REGULATORY DEVELOPMENTS

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EUROPE

Council of Ministers adopts Euro VI

On 8 June 2009, the EU's Council of Ministers adopted the heavy-duty Euro VI emissions Regulation, following the first reading agreement with the European Parliament. (Details of the key requirements were given in the November-December 2008 edition of the AECC Newsletter).

The new Regulation will now be published in the Official Journal in due course. Work on the Regulation for the implementing measures (comitology) continues in working groups of the Commission's Motor Vehicles Working Group.

NGOs recommend Particle Number Limits for Euro VI

Whilst the European Commission and EU Member States discuss with stakeholders the possible particle number limits for the heavy-duty Euro VI legislation, both the International Council on Clean Transportation (ICCT) and 'green' organisation Transport & Environment (T&E) in co-operation with the European Environmental Bureau and the Health and Environment Alliance have publicly put forward their own proposals for limits.

Both have based their proposals on data gathered under the UN-ECE's Particle Measurement Programme (PMP) validation exercise. ICCT has recommended that the standard be set no higher than 5×10^{11} /kWh on the weighted world harmonized transient cycle (WHTC), while T&E and its partners conclude that a particle number standard should be set at a level of 3×10^{11} /kWh, also over the WHTC combined cycle.

T&E says that the particle number standard has to be set at a level that reflects the best available technology on the market today and that this basically means 'closed' (wall-flow) particle filters. ICCT says that their recommendation also reflects the likelihood that particulate filters will further improve on a mass reduction basis after Euro VI takes effect.

Publication of Legislation on Car CO₂, Promotion of Clean Road Transport, Roadworthiness and Fuel Quality

The Regulation setting CO₂ standards for new cars has now been published in the Official Journal as Regulation (EC) No. 443/2009. Details were given in the November-December 2008 AECC Newsletter.

The EU Directive on the promotion of clean and energy efficient road transport vehicles has also been formally published as Directive 2009/33/EC. It

requires lifetime energy and environmental impacts to be taken into account when local authorities and their public service operators purchase road transport vehicles. A summary was given in the March-April 2009 edition of the AECC Newsletter.

Directive 2009/40/EC replaces the current roadworthiness Directive (96/96/EC) and was published in the Official journal on 6 June 2009. The Directive includes periodic inspection requirements for emissions, including testing frequency. The requirements remain as CO at idle for petrol vehicles without lambda control; either λ plus CO at idle and high idle or OBD checks for petrol vehicles with lambda control; and the opacity test for diesels.

The new Fuel Quality Directive has been published in the Official Journal as 2009/30/EC. The Directive sets environmental specifications for fuels for road vehicles, and non-road mobile machinery (including inland waterway vessels when not at sea), agricultural and forestry tractors, and recreational craft when not at sea. A summary of key elements was provided in the November-December 2008 AECC Newsletter

Emissions Requirements for Inland Waterway Vessels and Marine Equipment

EU Directive 2006/87/EC which sets a variety of technical requirements for inland waterway vessels, including emissions, has been amended by Directive 2009/46/EC. This introduces a new Chapter 8a, Emissions of Gaseous and Particulate Pollutants from Diesel Engines. It applies to all engines with a rated power more than 19 kW installed in an inland waterway vessel or in machinery on board such a vessel, and requires that the engines meet the requirements of the EU's NRMM Directive 97/68/EC.

It requires that engines be inspected on installation (including installation of a replacement engine), after significant changes that have the potential to affect emissions, and periodically in service. In the case of engines with exhaust gas aftertreatment systems, checks must be carried out to establish that the aftertreatment systems are functioning properly.

A second Directive, 2009/26/EC, updates the list of testing requirements for marine equipment. Section 2 (Marine pollution prevention) covers on-board exhaust gas cleaning systems, 'other equivalent methods to reduce on-board NOx emissions', on-board NOx monitoring and recording devices and 'other technological methods to limit SOx emissions'. Type Approval requirements are the IMO's Marpol 73/78 Annex VI requirements with testing standards from related IMO Marine Environment Protection Committee (MEPC) documents.

EU Certificate of Conformity updated and now becomes mandatory

Any manufacturer holding a European Community type-approval is now obliged to issue purchasers with the European Certificate of Conformity, enabling them to register the vehicle in any Member State. It applies to all new vehicles which have been granted EC type-approval from 29 April 2009. The possession of the Certificate of Conformity will be obligatory for the registration of any new vehicle in any Member State.

The Certificate proves that a vehicle complies with all the technical provisions in force in the EU. Following an update of the 'Framework Directive' on Type Approval by Commission Regulation (EC) 385/2009, published on 13 May 2009, the certificate includes the emissions level (Euro *n*) and emissions results for each pollutant on the NEDC (light-duty) or ETC and ESC (heavy-duty) tests as appropriate plus, for light-duty vehicles, CO₂ and fuel consumption.

European Council agrees Position on the Directive on Industrial Emissions

On 25 June 2009 the EU's Environment Council reached political agreement on the revision of the IPPC (Integrated Pollution Prevention and Control) Directive. However, in this case, unlike Euro VI, they have not agreed with amendments made by the European Parliament, so the revised text will now have to return to Parliament for a second reading.

If the Council's proposal is accepted, existing power plants will have to comply with new emissions standards by 2016, but countries will be able to opt to phase the controls on existing plants between 2016 and the end of 2020. The revised Directive also envisages a more prominent role for the 'Best Available Technology (BAT)' Reference Documents, to reduce the scope for national authorities to deviate from BAT when they issue permits.

NRMM Impact Assessment published

An Impact Assessment study on options for the review of the EU's Non-Road Mobile Machinery (NRMM) Directive has been issued by the European Commission.

The report says that the introduction of emissions standards for CI engines <19 kW would provide gains for society of €650 million over the period 2008-2030. For engines >560 kW, the EU-wide environmental impact is "huge and positive": €6 400 million or €4 700 million depending on the option selected.

Two alternative proposals for stages IIIB and IV for inland waterway vessels were considered. The consultants conclude that although one provides

higher environmental gains (€3 000 million vs. €2 000 million), it also implies higher engine development costs (€2 100 million vs. €1 100 million). Options on the timing of the introduction of Stage IIIB for railway locomotives and railcar engines above and below 560 kW were examined.

Regarding small spark-ignition engines, the study says that Stage II compliance for tree service chainsaws and hand-held hedge trimmers is only feasible in 2014-2015, instead of 2011. The introduction of emissions standards for snowmobiles "is not a challenge", but a 15 to 40% price increase of the average snowmobile is to be foreseen. Such emissions standards would reduce environmental burden by between 1.5 and 49 million Euros over the 2008-2030 time period.

Following from this study, DG-Enterprise has now awarded a contract for a new complementary study providing a detailed assessment of the specific impacts the policy options may have on Small and Medium Enterprises.

Updated Assessment of Options for the future Tractors Directive

The European Commission has issued an updated version of a report on the Impact Assessment of new measures for the Type Approval of Tractors.

The Commission wants to replace the 24 present Directives by a basic act and a limited number of implementing (comitology) acts and to extend the EU Type Approval system to all categories. The Impact Assessment found that after 10 years, this option was likely to produce a net benefit to society of between 0.2 million and 7.8 million Euros.

Internet Consultation on Recreational Craft Directive

The European Commission has launched a public consultation on a possible approach to the revision of the Recreational Craft Directive. Questions are included on the need for further improvement of the environmental performance of recreational marine engines and the desirability of global harmonisation.

The questionnaire also asks whether there should be alleviating or mitigating measures for small and medium enterprises if the selected approach might impair their competitive position and if so what form they should take. Another section asks whether amphibious vehicles, pontoons or other categories of products should be exempted from the scope of the Directive. The consultation website is at <http://ec.europa.eu/yourvoice/ipm/forms/dispatch?form=Recreationalcraft>; the responses deadline is 19 July 2009.

European Commission Communication on Sustainable Transport

On 17 June 2009 the European Commission presented its Communication on “*A sustainable future for transport: Towards an integrated, technology-led and user friendly system*”.

The Communication says that “Air quality in European cities has significantly improved through the application of ever stricter Euro emissions standards, but more needs to be done, above all to reduce emissions in urban areas of NO_x and fine particles (PM₁₀) – the latter being particularly damaging for human health – as well ensuring that real world emissions are adequately controlled.” It notes that the European Environment Agency’s 2008 TERM Report shows that many Europeans still remain exposed to dangerously high levels of air and noise pollution. “In particular, the concentration of PM₁₀, of which transport is the second most important source, exceeds the 2005 limit value in many air quality zones. Also pollution from shipping emissions of NO_x and SO_x needs to be addressed.” The report is at http://ec.europa.eu/transport/strategies/2009_future_of_transport_en.htm

EU Greenhouse Gas Emissions fall for third consecutive Year

European Union emissions of greenhouse gases (GHG) declined for the 3rd consecutive year in 2007, according to the EU’s GHG inventory report (Technical Report No 4 / 2009) compiled by the European Environment Agency (EEA). The EU-27’s overall domestic emissions were 9.3% below 1990 levels, which equalled a drop of 1.2% or 59 million tonnes of CO₂ equivalent compared to 2006. The EU15 now stands 5% below its Kyoto Protocol base year levels. The report is available at www.eea.europa.eu/publications/european-community-greenhouse-gas-inventory-2009.

Austria agrees Emissions-based Tolls

From 1 January 2010, older, more polluting trucks will have to pay increased road tolls whilst those for cleaner trucks are reduced, under an Austrian Regulation on ‘Greening the truck toll’.

From 2010, the new MAUT tariff will be differentiated into three emissions-based groups. Trucks and buses meeting EEV and Euro VI emissions standards are in Group A and will pay 10% less. Tariff group B is for Euro IV and V trucks, which will save 4% on toll costs. Euro I, II and III trucks (group C) will pay an extra 10%. The revisions are expected to result in a 52% reduction in NO_x and 61% less particulate matter within five years.

UK Report on long-term Exposure to Air Pollution

The UK Department of Health’s Committee on the Medical Effects of Air Pollutants (COMEAP) has published a report on the effect on mortality of long-term exposure to air pollution. The report concentrates largely on the effects of particulate.

The report says that the evidence base regarding the effects of long-term exposure to air pollutants has strengthened since their 2001 report. The evidence as a whole points strongly to an association between long-term exposure to particulate air pollution and effects on mortality. The evidence points to PM_{2.5} as the most satisfactory index of particulate air pollution.

Evidence relating to the possible effects of long-term exposure to the common air pollutant gases (sulphur dioxide, nitrogen dioxide and ozone) “is less well developed and we do not make any recommendations in favour of quantifying the effects of long-term exposure to these compounds.”

Source: Ayres, Hurley et al, Long-term Exposure to Air Pollution: Effect on Mortality; COMEAP (2009), ISBN 978-0-85951-640-2, www.advisorybodies.doh.gov.uk/comeap/pdfs/finallongtermeffectsmort2009report.pdf

Belarus sets Truck Import Rates based on Emissions

A presidential edict from Belarus has set new temporary rates of import duty on trucks depending on their emissions levels.

The edict of 18 June 2009 raised the rate of import duty on new trucks powered by Euro III engines to 25% of the value and on used trucks with the same engines to 50%. At the same time the edict abolished import duty on under-one-year-old truck tractors equipped with Euro V engines and made the import duty rates on trucks equipped with Euro IV and Euro V engines equal to Russia’s. The rates will be 5% for Euro IV truck tractors and 25% for Euro IV trucks. The new import duty rates will be effective for a period of nine months.

UBA Report on fine Particulate in German Cities

Fine particulate pollution in German inner cities is still too high. In six cities - including Stuttgart and Munich the daily average limit of 50 µg/m³ has already been exceeded on more than the allowed 35 days per year. A further ten cities are approaching the limit.

The Vice President of the German Federal Environment Agency (UBA) said that opportunities to reduce fine particulate emissions exist and now need to become a reality quickly. If environmental zones

only allowed vehicles with a green sticker (Euro 4 or better), up to 18 days per year of exceedences could be avoided. Retrofitting of Euro 3 and earlier light commercial vehicles with diesel soot filters should complement other measures. UBA pointed out other sources such as wood heaters and domestic and small business heating are also relevant. To achieve emissions reductions, there must be demanding limits for these types of heaters, as foreseen in the planned revision of the "Regulation on small and medium-sized combustion plants". A new amendment to this regulation (1. BImSchV) provides for two stages of particulate and CO limits for systems with a heat output of ≥ 4 kW. For oil and gas-fuelled systems of < 10 MW and oil fired systems of 10 to 20 MW there are CO and NO_x (measured as NO₂) limits dependant on factors such as fuel used and nominal heat output.

The current UBA background paper, "Fine particulate pollution in Germany" is available at

www.umweltbundesamt.de/uba-info-medien/mysql_medien.php?anfrage=Kennnummer&Suchwort=3565

UK submits Application for Extension to PM₁₀ Air Quality Target Date

On 24 April 2009, the UK's Environment Department (DEFRA) submitted an application to the European Commission for an extension to meet the air quality limit values for Particulate Matter (PM₁₀) in some parts of the UK. The Air Quality Directive says that PM₁₀ should not exceed a daily level of 50 $\mu\text{g}/\text{m}^3$ more than 35 times a year or an annual average of 40 $\mu\text{g}/\text{m}^3$.

DEFRA says the extension would enable current and planned measures to take effect to reduce PM₁₀ levels to EU limits by the extended deadline of 2011. "Of particular importance in delivering improvements are the EU vehicle emissions standards and other traffic related measures, such as encouraging lower emission vehicles, and regional or local measures promoting greater use of public transport and smoother traffic flows." 18 Member States have so far applied for extensions to the PM₁₀ Air Quality dates.

London Assembly recommends Low Emission Zones

The Environment Committee of the London Assembly – a group of 25 elected representatives that makes proposals to the Mayor of London and reviews the Mayor's strategies – has published a new report on their investigation into air quality in London.

The report recommends that Low Emission Zones should be introduced to target pollution hotspots from road transport, noting that a similar scheme in Berlin resulted in a 3% reduction of PM₁₀ plus 10% reduction of NO₂ in its first year. This should, it says, be

accompanied by a vehicle retrofit scheme, with financial support from Government to help replace vehicles that would not be permitted into the zone.

Source: Every breath you take: An investigation into air quality in London, Greater London Authority, May 2009; www.london.gov.uk/assembly/reports/environment/air-quality-report-200904.pdf.

Heavy Vehicle Emissions are the main Air Pollution Concern in Malta

Bus and heavy vehicle emissions head the list of air pollution concerns, according to a public consultation exercise conducted by the Malta Environment and Planning Authority. The authority is currently preparing an air quality plan outlining how the island will comply with EU limits for PM₁₀.

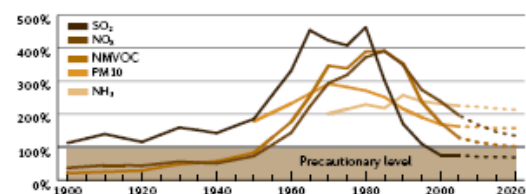
New UK Environment and Health Centre

A new Centre for Environment and Health has been launched at Imperial College London and King's College London. The new Centre will conduct epidemiological studies and analyse which pollutants people are exposed to during their daily lives. Planned initial projects include a study exploring whether London's Low Emission Zone has a beneficial effect on the health of people in Greater London.

Swiss Report on the Environment

The Swiss Federal Office for the Environment has issued a new report 'Environment Switzerland 2009' providing an overview of the present state of the environment in the country.

Air quality in Switzerland has improved greatly since the mid-1980s, the report says. Since 2000, however, the rate of progress has been slow and levels of ozone, NO₂ and particulate matter continue to give cause for concern. Further reductions will be required not only for greenhouse gases but also for air pollutants - NO_x and particulate matter (PM₁₀) - in order to meet environmental targets.



Source: FOEN



The report says that among the measures envisaged under the action plan on particulate matter is the reimbursement of mineral oil tax to licensed transport companies that equip their diesel-powered vehicles with particle filters. The report is at www.environment-switzerland.ch/UD-1006-E.

NORTH AMERICA

US EPA proposes Emissions Standards for Ocean-going Ships

On 26 June 2009 the US Environmental Protection Agency agreed a Notice of Proposed Rulemaking (NPRM) on plans to reduce emissions from ocean-going ships. The new rule follows the proposal by the US and Canada to designate most coastal waters (up to 200 nautical miles from the coast) as an Emission Control Area (ECA). The NPRM affects 'Category 3' marine diesel engines (≥ 30 litres per cylinder) installed on vessels flagged or registered in the United States. It adds two new tiers of NO_x standards and from 2015 will forbid the production and sale of marine fuel oil above 1 000 ppm sulfur for use in the waters within a US ECA and internal US waters.

The proposed Tier II standards for newly built engines would apply from 2011 and would require more efficient use of current engine technologies resulting in a 15 to 25% NO_x reduction below the current Tier I levels. The proposed long-term Tier III standards would apply beginning in 2016 and would require the use of high efficiency aftertreatment technology such as selective catalytic reduction (SCR) to achieve NO_x reductions 80% below the current levels.

(g/kWh)	Applies from	<130 rpm	130-2000 rpm	>2000 rpm
Tier I	2004	17.0	$45.0 \cdot n^{(-0.20)}$	9.8
Tier II	2011	14.4	$44.0 \cdot n^{(-0.23)}$	7.7
Tier III	2016	3.4	$9.0 \cdot n^{(-0.20)}$	2.0

Where n = maximum in-use engine speed in rpm

In addition to the NO_x emission limits, EPA is proposing standards for emissions of HC and CO from new Category 3 engines. EPA is not proposing to set a standard for PM emissions for Category 3 engines, but says that significant PM emissions benefits will be achieved through the ECA fuel sulfur requirements. EPA is, though, proposing to require engine manufacturers to measure and report PM emissions.

Information on the proposal is available at: www.epa.gov/otaq/regs/nonroad/marine/ci/420f09029.pdf.

US EPA proposes Stronger Air Quality Standards for NO_2

For the first time in more than 35 years, the US EPA has proposed to strengthen the nation's nitrogen dioxide air quality standard. The proposed changes reflect the latest science on the health effects of exposure to NO_2 . EPA's proposed revisions apply to the primary NO_2 standard and would establish, for the first time, a one-hour NO_2 standard at a level between 80 and 100 ppb whilst retaining the current annual average NO_2 standard of 53 ppb. It will continue the

monitoring of 'area-wide' NO_2 concentrations in cities with at least 1 million residents, but will also add a requirement for NO_2 monitoring within 50 metres of major roads in cities with at least 350 000 residents.

Details are at <http://www.epa.gov/air/nitrogenoxides>.

US Senators call for EPA to study Black Carbon and Control Technologies

Two US Senators have introduced a new bill that would direct the US Environmental Protection Agency (EPA) to study the effect that 'black carbon' has on the climate, and to recommend "effective control strategies" for reducing the emissions.

EPA did not include black carbon emissions in its 17 April 2009 finding on the risk climate change poses to human health. EPA cited uncertainty about the pollutant's contribution to global warming, but said it would address the issue at a later date. The bill calls on EPA to conduct a one-year study to examine the impact black carbon emissions have on the climate. The legislation would also require the agency to identify "cost-effective technologies, operations, and strategies with the highest potential to reduce black carbon emissions and protect public health in the United States and internationally." The bill identifies two potential areas where significant black carbon emission reductions could take place for EPA to examine: "diesel particulate filters on existing diesel on- and off-road engines" and "particulate emission reduction measures for marine vessels."

California clarifies In-Use Off-Road Regulations for Rail Vehicles

The California Air Resources Board (CARB) has clarified that certain rail vehicles such as track mobiles, rail sweepers, and wheel cranes are subject to the State's in-use off-road diesel vehicle regulation if they can be used off the rails (for example, rail vehicles which also have rubber tires) and are not already covered by the cargo handling equipment regulation. The in-use off-road vehicle regulation introduces emissions performance standards from 1 March 2010 for large fleets.

US Nation-wide Fuel Efficiency Policy

On 19 May 2009, US President Barack Obama announced a new nation-wide policy aimed at reducing greenhouse gas emissions and increasing fuel economy for all new cars and trucks sold in the United States. The target is for a fuel economy gain averaging over 5% per year and a reduction in greenhouse gas emissions of approximately 900 million tonnes. Overall, fuel efficiency will have to increase by almost 40% by 2016.

The new standards, covering model years 2012-2016, will ultimately require an average fuel economy standard of 35.5 miles per gallon (mpg) in 2016, equivalent to just over 6.6 litres/100 km. The target agreed by Congress in 2007, had previously been 35 mpg in 2020. The administration acknowledges that the improved standards will add about \$1 300 (€956) to the cost of each new vehicle. The White House estimates, however, that the changes will save 1.8 billion barrels of oil by 2016 and be equivalent to taking 177 million cars off the road in terms of reducing carbon emissions.

US EPA grants California's GHG Waiver

The US Environmental protection Agency (EPA) has announced that it is granting California's waiver request enabling the state to enforce its greenhouse gas emissions standards for new motor vehicles, beginning with the current model year. When the national programme (see above) takes effect, California has committed to allowing manufacturers who show compliance with the national programme to be deemed in compliance with state requirements.

United States files Clean Air Lawsuit against Engine Importers

The US has filed a civil complaint against 3 companies in Mississippi, alleging that they imported and sold more than 78 000 Chinese-made engines that do not meet US Federal air pollution standards. The filing marks the first federal court action enforcing the Clean Air Act's emissions standards for portable generators, water pumps, and other 'non-handheld equipment.' The US Environmental Protection Agency estimates the engines have contributed to excess emissions of more than 150 tons of hydrocarbons and NOx, and more than 5 000 tons of CO.

Developments in US States

The New York State Environmental Board has approved regulations on particulate emissions for State-owned or contracted heavy-duty diesel vehicles. They will require retrofitting or replacement of vehicles by the end of 2010. The regulations also require ultra-low sulfur diesel (ULSD) fuel to be used for both on- and off-road State vehicles.

Cook County, Illinois, the second largest county in the USA, has introduced an ordinance to reduce diesel pollution from construction equipment. Contractors must use ultra low-sulfur fuel now and then install filters to cut emissions by 50% by 2011 and 90% by 2014. State data show construction equipment is one of the biggest sources of diesel soot.

California's San Joaquin Valley Air Pollution Control District has announced a new programme to remove old, high polluting diesel trucks from the region's roads. A total of more than \$15 million (€10.7 million) is available through California's 'Voucher Incentive Program', which will purchase and destroy old diesel trucks if owners will replace them with vehicles meeting US 2007 emissions standards.

The State of Colorado has also introduced legislation to provide incentives for the replacement of older long-haul trucks. A "Green Truck Fund" will allow companies to claim for up to 25% (to a maximum of \$50 000) of the cost of buying and installing EPA verified diesel retrofit technologies or other approved equipment such as idling-reduction technologies or low-rolling resistance tyres. The law also includes a provision that could provide funds for the retirement/scrappage of pre-1990 trucks.

The California Air Resources Board has approved \$42 million (€31 million) in funding intended to accelerate the commercialisation of zero-emission and hybrid engine technologies. The funding includes \$25 million for hybrid trucks and buses, \$5 million for zero emissions and plug-in hybrid cars and motorcycles and \$3 million for zero-emission or plug-in hybrid bus demonstration projects.

US Plan for Renewable Fuels

The US Environmental Protection Agency has proposed its strategy to increasing the supply of renewable fuels to reduce dependence of foreign oil and to reduce greenhouse gas emissions by an average of 160 million tons a year when fully phased in by 2022.

Four categories of renewable fuels are created: cellulosic biofuels; biomass-based diesel; advanced biofuels; and total renewable fuel. In 2022, the proposal would require 16 billion gallons (60.5 billion litres) of cellulosic biofuels; 15 billion gallons (57 billion litres) of conventional biofuels; 4 billion gallons (15 billion litres) of advanced biofuels; and 1 billion gallons (3.8 billion litres) of biomass-based diesel.

Each year EPA calculates a percentage-based standard that refiners, importers and blenders of gasoline and diesel must ensure is used in transportation fuel to meet these requirements. In addition, some renewable fuels will now have to achieve greenhouse gas emissions reductions relative to gasoline and diesel fuel. The thresholds for new categories would be 20% less greenhouse gas emissions for renewable fuels produced from new facilities, 50% less for biomass-based diesel and advanced biofuels, and 60% less for cellulosic biofuels. EPA also will conduct peer-reviews on the lifecycle analysis of the four categories of fuel.

SOUTH AMERICA

São Paulo sues Oil Company and Truck Makers over Emissions

The São Paulo state prosecutor's office has filed a civil lawsuit against the state oil company Petrobras over the high-sulfur diesel the company supplies, asking the court to require Petrobras to provide 50 ppm max. sulfur diesel fuel in line with the limits set by Brazil's National Environmental Council (CONAMA) in 2002. The lawsuit also targets the country's eight truck and bus manufacturers and five engine makers, asking the court to require them to build diesel engines and vehicles that can use the low-sulfur diesel to meet the CONAMA emissions limits, which initially were set to take effect on 1 January 2009.

Petrobras generally produces diesel for buses and trucks that has a sulfur content of 2000 ppm, but in Brazil's 14 largest cities where air pollution levels are at their highest, the company provides fuel with a sulfur content of 500 ppm. It also provides the cities of São Paulo and Rio de Janeiro with low-sulfur, S-50 diesel for buses, but not other trucks, and not throughout the entire state of São Paulo.

Brazil to increase Biodiesel Requirement

Starting in July 2009, Brazil's National Energy Policy Council (CNPE) will require all diesel fuel in the country to contain 4% biofuel (B4 biodiesel), an increase from the 3% biofuel content now required. Making B4 mandatory in July is an intermediate step toward requiring B5 by 2010.

Brazil's Environment Minister says he lacks Support

Brazil's Environment Minister Carlos Minc has complained that he lacks government support to carry out his agenda, exactly one year after his predecessor resigned for the same reason. Mr. Minc, co-founder of the Green Party, told President Luiz Inacio Lula da Silva that pressure from legislators, farmers and even colleagues in government had gone too far. He cited opposition from the agriculture and transportation ministries.

AFRICA

Oil Company calls for Delay to South African 'Euro 4' Fuel

A South African oil company has called for a 5 year delay in implementing the 'Euro 4' fuel specifications expected to be imposed by 2012 because the cost of the refinery changes would be difficult to recoup.

Speaking at a South African National Energy Association conference, a Sasol representative said that local cities were not as congested as European cities, so there should not be a rush to introduce clean fuel standards. Motor industry representatives countered that not implementing Euro 4 standards would threaten investments in local vehicle manufacturing, cut fuel efficiency and increase pollution, and advanced vehicles could not be introduced in South Africa.

ASIA PACIFIC

World Bank helps Bangladesh control Air Pollution

On 13 May 2009 the World Bank approved a credit of \$62.2 million (€119 million) to help Bangladesh to control urban air pollution through cutting emissions in key polluting sectors such as transport. The level of air pollutants in the capital Dhaka and other major cities has steadily increased in recent years, with an annual average well exceeding World Health Organisation (WHO) guidelines. "This project will not only help cut pollution and its health impacts and costs but also generate other benefits including better mobility in the case of transport and reduced energy consumption in the case of small industries," according to a World Bank statement.

Shanghai to introduce China IV Emissions Standards

The local government in Shanghai, preparing for the World Expo next year, has announced that all new cars, buses and vehicles used for cleaning and mail services must meet the 'China IV standard' for vehicle emissions - equivalent to Euro IV emissions standards - from 1 November 2009. In addition, all new motorcycles must comply with the China III standard from 1 July 2009. Improved fuels with 50 ppm maximum sulfur to match these requirements will be available from October 2009.

Light-duty diesel powered vehicles (medium trucks) and long-distance vans are currently exempt from the new rules because most cities and provinces outside Shanghai do not yet offer the new fuel, but the China IV vehicle standards are scheduled to be introduced all across China by 2010. Shanghai also plans to extend its ban on heavy-polluting vehicles to further cut emissions. Under the plan, vehicles that do not meet China I emissions standards will no longer be allowed to travel within the Middle Ring Road. Those vehicles are now banned within the Inner Ring Road area between 7 am and 8 pm.

The municipal environmental protection bureau's statistics showed that about 66% of the nitrogen

oxide, 90% of the volatile organic compounds and 26% of particulate matter in the city's downtown area come from vehicle exhaust.

Standards for Motorcycle and Moped Emissions

On 11 June 2009, China's Ministry of Environmental protection announced that, following consultation, it has decided to adjust the implementation plan of the three standards on pollutant emissions from motorcycles and mopeds.

The three standards are GB 14622-2007 covering China stage III running mode emissions from motorcycles; GB 18176-2007 covering China stage III running mode emissions from mopeds; and GB 20998-2007 on evaporative emissions from motorcycles and mopeds. All motorcycles and mopeds must meet the China III standard from 1 July 2010, while the China III standard is available for three-wheeled motorcycles and three-wheeled mopeds from 1 July 2011.

China Adopts Euro III Equivalent Fuels Nationwide

On 18 May 2009, China's State Council announced the "Petrochemical Industry Restructuring and Revitalization Plan". The announcement mandates nationwide China III quality gasoline motor fuel (150 ppm sulfur) by 2009 and nationwide China III quality diesel motor fuel (350 ppm sulfur) by 2010. The announcement also says that any fuels not meeting these standards may not be sold into the marketplace after the implementation dates.

Fuel	Standard #	Sulfur Content	Type	Nationwide Implementation Date
Gasoline				
China II	GB 17930-2006	500 ppm	mandatory	06/12/2006
China III	GB 17930-2006	150 ppm	mandatory	31/12/2009
Diesel				
China I*	GB 252-2000	2000 ppm	mandatory	1/1/2002
China II*	GB/T 19147-2003	500 ppm	voluntary	1/10/2003
China III*	announced by State Council; awaiting final approval from SAC	350 ppm	mandatory	2010; no date fixed

* The terms China I / II / III are not officially used in the standards to describe diesel fuel grades.

China's State of the Environment Report for 2008

China has made progress on reducing pollution and strengthening environmental policies, but rural pollution is increasing and air quality in some cities is still a major problem, the government said in its State of the Environment Report for 2008. Out of 579 cities that track air quality, 72.8% reached a Grade I or II

level of air quality, based on a scale with Grade I being best and Grade III the lowest air quality level. Overall, 13.3% of cities had better air quality in 2008 than in 2007.

Sinopec begins Production of Euro V Diesel for Export

On 24 May 2009 a branch of China Petroleum & Chemical Corporation (Sinopec), in the city of Zhenhai, Zhejiang Province, rolled out its first 10 000 tons of vehicular diesel oil in line with the Euro V emissions standards, having 10 ppm maximum sulfur.

INTERNATIONAL

Task Force on reducing Arctic Soot

The eight-member Arctic Council, meeting in Norway, has agreed to set up a Task Force to examine ways to cut down on soot that is darkening ice around the North Pole and hastening a thaw resulting from global warming. The task force would recommend further immediate actions that can be taken and report back on progress at a next meeting in 2011.

Soot darkens ice and allows it to soak up more heat, accelerating climate change. "New research shows that these common pollutants have contributed almost as much to temperature rises in the Arctic over the past century as carbon dioxide emissions", said Norwegian Foreign Minister Jonas Gahr Stoere. Technology to clean up soot emissions was described as "cheap and easily available".

New Website on UN-ECE WP.29 Activities

A new independent website intended to summarise the activities of the UN's World Forum for Harmonisation of Vehicle Regulations (WP.29) has been launched. The site, www.globalautoregs.com has been put together by a consultant, primarily to help US companies and associations stay more informed about the UN activities in Geneva, but may well provide useful summaries of developments. It includes a section giving the status of current and future rules.

RESEARCH

Health Effects of Emissions

Mutagenic Activity of Nitro-compounds in PM_{2.5}

In this study, an in-vitro bioassay - able to predict the mutagenic/carcinogenic activity of environmental mixtures - was conducted on PM_{2.5} organic extracts to define the burden of nitro-compounds.

Source: Traversi et al, Mutagenic properties of PM_{2.5} urban pollution in the Northern Italy: The nitro-compounds contribution; *Environment International*, doi: [10.1016/j.envint.2009.03.010](https://doi.org/10.1016/j.envint.2009.03.010).

Mechanisms for the Effects of Diesel Particulate

A new paper investigates the mechanisms underlying the relationship between airway and systemic inflammation and pial cerebral venular thrombosis. The authors conclude that in mice, pulmonary exposure to diesel particulate causes oxidative stress responsible, at least partially, for the pulmonary and systemic inflammation and thrombotic events.

Source: Nemmar et al, Pulmonary Exposure to Diesel Particles Promotes Cerebral Microvessel Thrombosis: Protective Effect of a cysteine prodrug L-2-oxothiazolidine-4-carboxylic acid; *Toxicology*, doi:10.1016/j.tox.2009.06.017.

Links between PM_{2.5} and Cardio-Vascular Disease

A new paper explores the association between PM_{2.5} and hospital emergency room (ER) visits in Beijing, China for cardiovascular disease. The associations for 10 µg/m³ increases in levels of PM_{2.5}, SO₂, or NO₂ and hospital ER visits for cardiovascular diseases were statistically significant.

Source: Yuming Guo, Yuping Jia, Xiaochuan Pan, Liqun Liu and H.-Erich Wichmann, The association between fine particulate air pollution and hospital emergency room visits for cardiovascular diseases in Beijing, China, *Science of the Total Environment*, doi: 10.1016/j.scitotenv.2009.05.022.

Effect of Exposure to CO in People with Metabolic Syndrome

A new paper investigates the effects of CO on cardiac autonomic function and explores the relationship between CO exposure and specific components of metabolic syndrome. The results suggest, say the authors, that CO may trigger changes in cardiac autonomic function, and that subjects at high risk for heart disease may be more susceptible to CO effects.

Source: Jin-Young Min et al, Exposure to environmental carbon monoxide may have a greater negative effect on cardiac autonomic function in people with metabolic syndrome; *Science of the Total Environment*, doi: 10.1016/j.scitotenv.2009.05.028.

Air Quality and Ambient Measurements

Comparison of Air Pollutant Emissions in 3 Megacities

Ambient measurements of hydrocarbons, CO and NO_x from Beijing, Mexico City, and Tokyo are compared with similar measurements from US cities in the mid-1980s and the early 2000s. The authors say that commonalities suggest that vehicular emissions controls will be efficient and, ultimately, cost effective in most emerging mega-cities.

Source: Parrish et al, Comparison of Air Pollutant Emissions among Mega-Cities; *Atmospheric Environment*, doi:10.1016/j.atmosenv.2009.06.024.

Air Pollution extends further than previously thought

During the hours before sunrise, highway air pollution extends much further than previously thought. Air pollutants from Interstate 10 in Santa Monica, California extend as far as 2.5 km, based on recent

measurements. This is 10 times greater than previously measured daytime pollutant impacts. The pollutant concentrations measured were higher than even those during daytime traffic congestion peaks.

Source: Hu et al, A wide area of air pollutant impact downwind of a freeway during pre-sunrise hours; *Atmospheric Environment*, Volume 43, Issue 16, May 2009, Pages 2541-2549.

Pollution Levels near Roads

NO₂ and NH₃ concentrations were measured across a Special Area for Conservation in southern England. Paired measurements revealed differences between ground and tree canopy levels. The authors say the study demonstrates that local traffic emissions contribute substantially to the exceedance of critical levels and critical loads, and suggests that on-site monitoring is needed for sites close to roads.

Source: Gadsdon and Power, Quantifying local traffic contributions to NO₂ and NH₃ concentrations in natural habitats; *Environmental Pollution*, doi: 10.1016/j.envpol.2009.04.010.

PM in Trains and Cars

For air-conditioned rail coaches, mean concentrations of PM₁₀, PM_{2.5} and PM₁ measured during peak journey times fell by more than half for the same size fractions, on the same route, during the off-peak journeys. In non-air-conditioned coaches, PM₁₀ concentrations up to 95 µg/m³ were observed during both peak and off-peak journeys. There was no statistically significant difference between particulate matter levels for morning and evening car journeys.

Source: Zaheer Ahmad Nasir and Ian Colbeck, Particulate air pollution in transport micro-environments; *J. Environ. Monit.*, 2009, 11, 1140 - 1146, doi: 10.1039/b821824b.

Association of PAHs and Aliphatics with Particle Size

Size-segregated samples of urban particulate matter were collected in Thessaloniki, northern Greece, during winter and summer of 2007-2008, to study the size distribution of organic compounds such as polycyclic aromatic hydrocarbons (PAHs) and aliphatic hydrocarbons. Particulate matter displayed a bimodal distribution and all organic compounds were found to be accumulated in the particle size fraction <0.95 µm, particularly in the cold season.

Source: Chrysikou and Samara, Seasonal variation of the size distribution of urban particulate matter and associated organic pollutants in the ambient air; *Atmospheric Environment*, doi: 10.1016/j.atmosenv.2009.06.033.

Emissions Measurement Studies

Particle Emissions of Advanced Vehicles

Using the PMP particulate measurement methods, the oil industry research organisation Concawe has tested four vehicles: two advanced technology light-duty diesel vehicles and two gasoline direct-injection (GDI) vehicles. The particle number emissions from the two GDI cars were about the same order of magnitude as

those from the DPF-equipped diesel vehicle. Particle number results showed no apparent dependence on fuel properties even with significant variations in fuel sulfur level and other properties.

Source: www.concawe.org/Content/Default.asp?PageID=31 (Concawe report 02/09).

Oxidative Potential of PM from Retrofitted Vehicles

Results from chassis dyno tests of vehicles with six retrofitted technologies compared to a "baseline" vehicle, without any control device suggest that the semi-volatile fraction of particles is more oxidative in nature than refractory particles.

Source: S. Biswas, et al., Oxidative Potential of Semi-Volatile and Non Volatile Particulate Matter (PM) from Heavy-Duty Vehicles Retrofitted with Emission Control Technologies, *Environ. Sci. Technol.*, 2009, 43 (10), [doi 10.1021/es9000592](https://doi.org/10.1021/es9000592).

Study on Use of Methanol and DOC with Diesel

A study from Hong Kong Polytechnic University and Tianjin University investigated the combined application of 'fumigation methanol' and a diesel oxidation catalyst for reducing emissions of an in-use diesel engine. The fumigation method results in a significant increase in HC, CO, and NO₂ emissions, but a decrease in NO_x, smoke opacity and particulate mass. The total number of particles decreases.

Source: Zhang et al, Emission reduction from diesel engine using fumigation methanol and diesel oxidation catalyst; *Science of the Total Environment*, [doi: 10.1016/j.scitotenv.2009.04.036](https://doi.org/10.1016/j.scitotenv.2009.04.036).

Particulate Emissions from Commercial Shipping

The characterisation of particulate emissions from commercial vessels suggests the emission of small nucleation mode particles that subsequently coagulate/condense onto larger black carbon particles and organic matter.

Source: Lack, D. A., et al. (2009), Particulate emissions from commercial shipping: Chemical, physical, and optical properties, *J. Geophys.*, [doi:10.1029/2008JD011300](https://doi.org/10.1029/2008JD011300).

Interaction of Emissions and Climate Change

Linking Air Pollution with Climate

A preliminary analysis of aerosol levels across the world for the period 1973-2007 demonstrates a steady global increase in aerosols throughout this period. Asia has seen particularly large increases, which have accelerated in the last decade. In Europe, where air quality regulations have addressed the direct emission of particles and of secondary particle precursors, there has been a decrease in aerosols. Better understanding of the role of aerosols has, say the researchers, implications for coherent policies which address the effects of both climate change and air pollution on human health and the environment.

Source: Wang, K., Dickinson, R.E. and Liang, S. (2009). Clear Sky Visibility Has Decreased over Land Globally from 1973 to 2007. *Science*. 323: 1468-1470.

Effect of Particulate on Global Warming

A Norwegian study says that assessment of one of the climate-change-related effects of particulate, light-reflection by airborne particles, has underestimated a fast build-up of black airborne soot, which has the opposite effect by soaking up heat. The effect is thus slowing global warming less than previously thought.

Source: Gunnar Myhre, Consistency Between Satellite-Derived and Modeled Estimates of the Direct Aerosol Effect; *Science*, [doi: 10.1126/science.1174461](https://doi.org/10.1126/science.1174461).

FORTHCOMING CONFERENCES

EU Regulation and Sustainability in the European Automotive Sector: Challenges and Solutions

9 July 2009, Brussels, Belgium

Details at <http://automotivereform.eu>

The conference will highlight the latest developments and policy initiatives at different levels of government and will conclude with important recommendations for future actions.

FISITA World Automotive Summit

15-16 July 2009, Frankfurt, Germany

Details at www.fisita-summit.com

A mix of presentations and workshop sessions will look into the potential gains from advances in fuels & fuel efficiency, electrification and traffic management whilst considering the effects of major economic and demographic changes.

42nd IUPAC Congress: Chemistry Solutions

2-7 August 2009, Glasgow, Scotland

Details at www.rsc.org/ConferencesAndEvents/RSCConferences/IUPAC2009/index.asp

Symposia topics include catalysis for a sustainable future, biofuels, chemistry addressing climate change, and chemistry and the hydrogen economy.

Directions in Engine-Efficiency and Emissions Research (DEER)

3-6 August 2009, Dearborn, Michigan, USA

Details at www1.eere.energy.gov/vehiclesandfuels/resources/conferences/deer/

At DEER 2009, the US Dept. of Energy will showcase its co-operatively funded R&D with its partners, and other national and international organisations. DEER fosters the exchange of information and best practices through presentations and posters from new and on-going engine R&D and networking with industry colleagues.

Grundlagenwissen Verbrennungsmotoren

26-27 August 2009, Frankfurt am Main, Germany

Details at www.vdi-wissensforum.de

World Hydrogen Technologies Convention 2009

26-28 August 2009, New Delhi, India

Details at www.whtc2009.org

A biennial congress of the International Association for Hydrogen Energy, WHTC-2009 is being hosted by IndianOil and SIAM (Society of Indian Automobile Manufacturers), in association with the Indian Institute of Technology, Delhi and Banaras Hindu University.

AVL Congress Engine and Environment

10-11 September 2009, Graz, Austria

Details at www.avl.com/conferences

Issues addressed will include powertrain electrification, combustion engines as main propulsion or emergency power supply, and new concepts for combustion engines as range extenders.

9th International Conference on Engines and Vehicles (ICE2009)

13-18 September 2009, Capri, Naples, Italy

Details at www.sae-na.it/iceconf.html

Conference topics include fuel injection and combustion processes, alternative fuel power systems, powertrain technology, and exhaust aftertreatment and emissions.

MODEGAT – International Symposium on Modelling of Exhaust-Gas Aftertreatment

14-15 September 2009, Karlsruhe, Germany

Details at modegat.itcp.uni-karlsruhe.de

This is the first symposium in Europe that specifically focuses on modelling and numerical simulation in automobile exhaust-gas aftertreatment.

CANCELLED SAE Heavy-duty Diesel Emissions Control Symposium

15-17 September 2009, Gothenburg, Sweden

“Soots”

16 September 2009, Chester, UK

Details at www.combustion.org.uk/events.html

18th Aachen Colloquium ‘Automobile and Engine Technology’

5-7 October 2009, Aachen, Germany

Details at www.aachener-kolloquium.de

The congress will provide a wide range of technical presentations addressing current challenges of the vehicle and powertrain industry. Programme-related test vehicles, prototypes and aggregates from participating companies and institutions will be presented on the ika test track.

SAE 2009 Commercial Vehicle Engineering Congress and Exhibition

6-7 October 2009, Rosemont, Illinois, USA

Details at www.sae.org/events/cve

AVL Roadshow: Abgasmesstechnik

7 October 2009, Fürth, Germany

14 October 2009, Hannover, Germany

Details at www.avl-abgasmesstechnik.de

Busworld 2009

16-21 October 2009, Kortrijk, Belgium

Details at www.busworld.org

Automotive Near Zero Emission Vehicle Technologies 2009 Conference

22 October 2009, Novi, Michigan, USA

Details at www.itbgroup.com/conferences_NZEV.htm

This event will provide a forum for understanding developments to meet future exhaust emissions regulations and CO₂/fuel economy requirements. It will focus on alternative powertrain technologies such as hybrids and electric vehicles together with developments in exhaust aftertreatment systems.

APAC 15 – Asia-Pacific Automotive Engineering Conference

26-28 October 2009, Hanoi, Vietnam

Details at www.vsaе.org.vn

Biofuels 2009

27-29 October 2009, Budapest, Hungary

Details at www.wraconferences.com/2/4/articles/57.php

15th Small Engine Technology Conference

3-5 November 2009, Penang, Malaysia

Details at www.setc2009.com

The conference will have presentations relating to small power sources and applications such as motorcycles, scooters, marine, agricultural and garden equipment, ATVs and portable generators.

7th FAD Conference: The challenge – exhaust aftertreatment for diesel engines

4-5 November 2009, Dresden, Germany

Details at www.fad-diesel.de

Ricardo: Use of Biofuels by OEMs

5 November 2009, Shoreham-by-Sea, UK

This seminar will discuss the different types of biofuel and the problems OEMs are experiencing with the use of this fuel.

Emission Control Technologies to Improve Ambient Air Quality – Path Forward for India (ECT – 2009)

6-7 November 2009, New Delhi, India

This special conference will provide a timely opportunity for India-based and Worldwide Automotive Industry Stakeholders, Analysts and Policymakers to discuss the current issues facing the industry in the field of Vehicular Emissions Controls. Through two panel sessions and interactive presentations, delegates will consider the key challenges that lay ahead which will define and shape the success and sustainability of the automotive industry in India over the next ten years and beyond.

Reduction of Vehicles Particulates Emission – Experiences and Challenges

18-19 November 2009, Cracow, Poland

Details at www.inig.pl/DEXFIL/index.asp?P=1&L=E

Planned thematic sessions cover the role of alternative fuels in PM reduction; exhaust aftertreatment systems - technical solutions and future requirements; PM filtration systems for biofuels and alternative fuels application; the development of DPF regeneration methods; and field experiences.

Grundlagen der Abgasnachbehandlung im Verbrennungsmotor

1-2 December 2009, Köln, Germany

Details at www.vdi-wissensforum.de

The Spark Ignition Engine of the Future

2-3 December 2009, Strasbourg, France

Details at www.sia.fr/files/evenement/onglet/2260/callforpaperSPARKIGNITIONpdf.pdf

This new SIA international Conference is intended to provide the opportunity for experts from OEMs and their suppliers, the oil industry, research laboratories and universities to exchange their points of view and information on the potential of the future spark ignition engine to respond to the combined low CO₂ and electrification challenges of the future.

Air Quality – The Major Challenges

9-10 December 2009, London, UK

Details at

<http://rsc-aamg.org/Pages/Meetings/MAA2009.html>

Deadline for abstracts: 20 July 2009

The conference will focus on issues around compliance with air quality legislation generally and around specific cases such as airports and shipping. It will cover how technology and regulation should be adapting to address the challenges of the future. The conference will be introduced by internationally recognised experts to set the scene at the national and European level and will provide a broad and up-to-date survey of regulatory and scientific issues, including health effects and future perspectives.

6th International Exhaust Gas and Particulate Emissions Forum

9-10 March 2010, Ludwigsburg, Germany

SAE 2010 World Congress

12-15 April 2010, Detroit, Michigan, USA

Details at www.sae.org/congress/techprogram/cfp.htm

33rd FISITA World Automotive Congress

30 May - 4 June 2010, Budapest, Hungary

Details at www.fisita2010.com

Top experts from the automotive community around the world will review the latest technical breakthroughs and innovations and show the world that our future mobility depends on engineers.