



Newsletter

November - December 2012

INTERNATIONAL REGULATORY DEVELOPMENTS

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Important Change to the AECCE Newsletter

This will be the last edition of the AECCE Newsletter to be issued in French and German versions. From the January-February 2013 edition onwards, we shall send all users the English language version of the Newsletter. We trust you will find that this still remains useful to you – as the English version comes out a little earlier than the other versions, we hope you will find that this is of some benefit. If you do not want to receive the English version, then please send an e-mail to newsletter@aecce.eu.

EUROPE

European Council adopts the Motorcycles Regulation

At the meeting of the Council of the European Union on 7 December 2012, the new Regulation for the type-approval of motorcycles, mopeds and other L-category vehicles was adopted, following the first-reading agreement with the European Parliament.

The L-category covers powered cycles, 2- and 3-wheel mopeds, motorcycles, motorcycles with sidecars, tricycles, light and heavy on-road quad bikes, ATVs, side-by-side buggies and light and heavy 'quadrimobles' (sometimes called microcars) including separate sub-categories of tricycles and quadrimobles for passenger carrying and for commercial applications.

New motorcycles will have to comply with a Euro 4 emissions standard as from 1 January 2016 (new types) and 1 January 2017 (all existing types). For 2- and 3-wheel mopeds and light quads these dates are 1 year later. This is because part of the agreement between the Council, Parliament and Commission is that a Euro 3 stage will first be introduced for these vehicles in 2014. This will be an amendment of the existing Directive, changing the current hot-start test to a weighted cold-start one without changing the limit values. Limit values for Euro 4 are shown in Table 1.

By 31 December 2016, the Commission has to evaluate air quality and the share of pollutants produced by L-category vehicles and report to the Council and the European Parliament on the enforcement of a Euro 5 emissions standard (defined in the regulation) as from 2020. The Euro 5 limit values are shown in Table 2. These include testing on a 'revised WMTC' procedure for all categories of vehicle which has yet to be defined.

The Regulation also includes 2 stages of OBD requirements with specific threshold limits, and evaporative emissions limits. At Euro 4 the evaporative emissions requirement is a SHED test limit of 2000 mg/test THC applicable to categories L5e-A, L6e-A and L7e-A. At Euro 5, the range of

categories to which evaporative emissions limits apply is extended, the SHED test limit reduces to 1500 mg/test and for some classes permeation test limits of 1500 mg/m²/day are added for fuel tanks and 15000 mg/m²/day for fuel tubing.

Table 1: Euro 4 limit values

Vehicle category	Vehicle category name	Propulsion class	CO	THC	NOx	PM	Test cycle
			(mg / km)				
L1e-A	Powered cycle	PI / CI / Hybrid	560	100	70		ECE R47
L1e-B	2-wheel moped	PI / CI / Hybrid	1000	630	170	-	ECE R47
L2e	3-wheel moped	PI / CI / Hybrid	1900	730	170	-	ECE R47
L3e L4e L5e-A L7e-A	- 2-wheel motorcycles with and without side-car - Tricycle - Heavy on-road quad	PI / PI Hybrid, V _{max} < 130 km/h	1140	380	70	-	WMTC, stage 2
		PI / PI Hybrid, V _{max} ≥ 130 km/h	1140	170	90	-	WMTC, stage 2
		CI / CI Hybrid	1000	100	300	80	WMTC, stage 2
L5e-B	Commercial tricycle	PI / PI Hybrid	2000	550	250	-	ECE R40
		CI / CI Hybrid	1000	100	550	80	ECE R40
L6e-A L6e-B	- Light on-road quad - Light quadrimobile	PI / PI Hybrid	1900	730	170		ECE R47
		CI / CI Hybrid	1000	100	550	80	ECE R47
L7e-B L7e-C	- Heavy all terrain quad - Heavy quadrimobile	PI / PI Hybrid	2000	550	250	-	ECE R40
		CI / CI Hybrid	1000	100	550	80	ECE R40

Table 2: Euro 5 limit values

Vehicle category	Vehicle category name	Propulsion class	CO	THC	NMHC	NOx	PM	Test cycle
			(mg / km)					
L1e-A	Powered cycle	PI / CI / Hybrid	500	100	68	60	4.5 ^(a)	Revised WMTC
L1e-B - L7e	All other L-category vehicles	PI/ PI Hybrid	1000	100	68	60	4.5 ^(a)	Revised WMTC
		CI / CI Hybrid	500	100	68	90	4.5	Revised WMTC

(a) Applicable to petrol direct injection engines only

Publication of the Regulation in the EU's Official Journal is now expected in February 2013 and work continues on the Implementing and Administrative Regulations to complete the technical requirements.

New Comitology Regulation amending Non-Road Mobile Machinery Directive

On 21 December 2012, the long-awaited comitology amendment of the Non-Road Mobile Machinery (NRMM) Directive 97/68/EC was published in the Official Journal as Commission Directive 2012/46/EU.

In order to enable the type-approval of engines to NRMM Stage IV, the amending Directive updates the referenced UN procedures to those of the 03 series of amendments to Regulation 96. It also specifies how crankcase emissions are to be taken into account, adds a requirement to measure CO₂ emissions and revises how engine power is defined. It extends the temperature/pressure and altitude criteria for auxiliary emission control strategies by aligning the provisions for Stage IV more closely with those of Euro VI.

The durability test requirements for Stage IV are also revised based on Euro VI. As an alternative to using a service accumulation schedule, assigned multiplicative deterioration factors can be used:

Test cycle	CO	HC	NOx	PM
NRTC	1.3	1.3	1.15	1.05
NRSC	1.3	1.3	1.15	1.05

The new Directive also complements the provisions on NOx control introduced in Directive 2010/26/EU by introducing requirements for an operator warning system based on the corresponding provisions for Heavy-duty vehicles, combined with a 2-stage operator inducement system. Three new sections on NOx control measures for Stage IV engines are added, including a limit of 10 ppm for ammonia emissions when a reagent is used. NTE (Not-To-Exceed) test requirements are incorporated, as are procedures for measurement of crankcase emissions.

For small Spark Ignition engines, a new provision requires that type approval mark includes "(II)" to indicate that the engine meets the Stage II limits and, where appropriate, "SV" to indicate approvals under the small volume engine manufacturer derogation.

EU Member States now have 1 year to transpose the amending Directive into their national legislation.

The Directive 2012/46/EU is at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:353:0080:0127:EN:PDF>.

European Commission adopts CARS 2020 Action Plan

On 8 November 2012, European Commission Vice-President Antonio Tajani presented a Communication "CARS 2020: Action Plan for a competitive and sustainable automotive industry in Europe".

The Action Plan comprises four pillars: promoting investment in advanced technologies and innovation for clean vehicles, improving market conditions, supporting industry in accessing the global market, and promoting investment in skills and training. Each of these encompasses actions to be implemented by the Commission, Member States and regional authorities over the next years.

The first pillar, that on promoting investment in advanced technologies and innovation for clean vehicles, incorporates measures tackling CO₂, pollutant and noise emissions reduction. The second (improving market conditions), includes an improved type-approval system, better market surveillance, and streamlining financial incentives for clean vehicles. The third pillar includes intensifying the work on international harmonisation of vehicle regulations.

The Action Plan is at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52012DC0636:EN:NOT>.

Euro VI starts for New Types

Implementation of the Euro VI emissions Regulation for Heavy-duty engines began from 31 December 2012 for all new Type-Approvals.

The scope of the new Regulation is slightly different from Euro V. It covers vehicles of categories M1, M2, N1 and N2 with a reference mass exceeding 2610 kg and all vehicles of categories M3 and N3. At the manufacturer's request, type approvals can be extended to incomplete vehicles below 2610 kg if all expected bodywork combinations result in a reference mass above this limit. Extensions to variants above 2380 kg are permitted providing light-duty CO₂/fuel consumption tests are conducted. The requirements cover both CI and PI engines.

All emissions limits are based on the UN World-harmonised Heavy-duty test Cycles – WHTC (Transient Cycle) and WHSC (Steady-state Cycle).

	CO	THC	NMHC	CH ₄	NO _x	NH ₃	PM mass	PM number
	mg/kWh					ppm	mg/kWh	#/kWh
Compression Ignition engines								
WHSC	1500	130	-	-	400	10	10	8.0×10 ¹¹
WHTC	4000	160	-	-	460	10	10	6.0×10 ¹¹
Positive ignition engines								
WHTC	4000	-	160	500	460	10	10	⁽¹⁾

⁽¹⁾ The current proposal (yet to be published) is for a limit of 8.0×10¹¹/kWh until 31 December 2015 (new types)/31 December 2016 (all registrations) and 6.0×10¹¹/kWh thereafter.

A PEMS (Portable Emissions Measurement System) demonstration test is also introduced at Type-Approval as well as being used for In-Service Conformity testing.

Durability requirements are 160 000 km or 5 years for M1, N1 and M2 vehicles; 300 000 km or 6 years for category N2, for N3 with a maximum technically permissible mass not exceeding 16 tonnes, for M3 Classes I, II and A, and for M3 Class B with a maximum technically permissible mass not exceeding 7.5 tonnes; and 700 000 km or 7 years for category N3 with a maximum technically permissible mass exceeding 16 tonnes, for M3 Class III and for M3 Class B with a maximum technically permissible mass exceeding 7.5 tonnes.

Euro VI will be implemented for all new registrations (not only new types) from 31 December 2013.

Directive on Marine Fuel Sulfur Content published

On 27 November 2012, Directive 2012/33/EU revising Directive 1999/32/EC on the sulfur content of marine fuels was published in the EU's Official Journal.

In line with Annex VI of the IMO's MARPOL Convention, the limits for the sulfur content of marine fuels used in designated SOx Emission Control Areas (SECAs) will be 1% until 31 December 2014 and

0.10% as from 1 January 2015. The IMO standard of 0.50% max. for the sulfur limit outside SECAs will be mandatory in EU waters by 2020. This will also be valid for passenger ships operating outside SECAs to which the current regime of 1.50% max. sulfur applies until that date.

A general cap prohibits the use of marine fuels with a sulfur content of more than 3.5% by mass within Member States' territory, with the exception of fuels used by vessels with alternative exhaust gas cleaning systems (scrubbers), operating in closed mode. The Directive also allows Member States to provide support to operators for fitment of scrubbers.

Member States have until 18 June 2014 to transpose the Directive into national law.

Changes to the Framework Directive

On 21 December 2012, an amendment to the motor vehicles 'Framework Directive' (2007/46/EC) was published in the EU's Official Journal.

Regulation (EU) No. 1229/2012 introduces limitations on the number of small-series category N1 vehicles. The number of units per year of one type of N1 vehicle to be registered, sold or put into service in the EC is now limited to 1000 vehicles, the same as for M1 types. In addition, the number of N1 vehicles that may benefit from national type-approval is restricted to 250 per year from 1 November 2016 and the limit for the number of small-series national type-approved M1 vehicles increases from 75 to 100.

EC Type-Approvals of small series granted before 1 November 2012 will cease to be valid on 31 October 2016 and must be updated to the latest requirements.

Public Consultation on the Thematic Strategy on Air Pollution

The European Commission has launched a public consultation on options for revision of the EU Thematic Strategy on Air Pollution (TSAP). The stated objective is to gather views on the TSAP review and on the possible options for a comprehensive air pollution policy package that would make further progress to reduce the negative impacts of air pollution in the longer term.

A sub-section addresses road transport and asks for several options to be ranked. These options are introducing real-world test procedures; strengthening in-service compliance; developing new, more stringent standards for after 2020; developing supplementary non-mandatory standards (e.g. for use in Low Emission Zones); introducing Heavy-duty retrofit standards; introducing mandatory road charging; and developing additional test cycle components for special purpose urban vehicles such as buses and refuse collection vehicles.

A second sub-section addresses off-road transport and NRMM. The options to be ranked in this section include extending the scope of NRMM Stage IV to additional power classes and applications, including stationary applications; introducing NRMM Stage V (aligned to Heavy-duty Euro VI); ensuring that the type-approval test reflects real-world emissions; and retrofit incentives for inland waterway vessels.

There are also sub-sections on measures to address emissions from combustion installations <50 MW and on the shipping sector.

The questionnaires are open until 4 March 2013 at http://ec.europa.eu/environment/consultations/air_pollution_en.htm.

European Environment Agency Report on Transport and Air Quality

The European Environment Agency (EEA) has issued a report on the contribution of transport to air quality.

The percentage of traffic locations that have recorded an excess of the daily limit value for PM₁₀ increased in 2010 compared to 2009. The EU-27 averaged contribution of urban and local traffic to PM₁₀ concentration is estimated to be 34%. EEA also comments that a recent report for DG Environment estimated that 68% of all Black Carbon (BC) emitted in EU-27 Member States was from vehicle exhausts, the vast majority from diesel vehicles. Concentrations of BC in urban sites can reach 3–14% of PM₁₀ levels and can be up to 8 µg/m³ at kerbside sites. BC emissions are predicted to fall in line with PM.

Road transport is identified as a particularly significant source of NO_x emissions, responsible for a third of total emissions in 2010 in Europe. In 2010, the NO₂ annual limit value was exceeded at 44% of Europe's urban traffic stations and 4% of the urban background stations. The decrease in NO_x transport emissions (27% between 2001 and 2010 in the EU-27) is considerably greater than the fall in NO₂ annual mean concentrations of approximately 8% measured at stations close to traffic in the same period. The report says that this is attributed primarily to the increased proportion of NO_x emitted directly as NO₂ from the exhaust of more modern diesel vehicles using [oxidation] catalyst systems for controlling emissions of other pollutants. "In simple terms, the 'Euro standards' for vehicle emissions have not succeeded in bringing down real NO₂ emissions to the levels set out in the legislation."

The contribution of transport to air quality; TERM 2012: transport indicators tracking progress towards environmental targets in Europe, EEA Report No. 10/2012, doi:10.2800/65113, or www.eea.europa.eu/publications/transport-and-air-quality-term-2012.

European Commission publishes Environmental Action Plan

On 29 November 2012 the European Commission put forward its proposal for the 7th Environment Action Programme (7EAP) to guide EU environment policy up to 2020. New initiatives foreseen by the Commission include extending green public procurement and adjusting chemicals legislation to cope with growing concerns over combination effects, nanomaterials and endocrine disruptors.

The plan notes that “a substantial portion of the EU's population remains exposed to levels of air pollution exceeding WHO recommended standards. Action is especially needed in areas where people, particularly sensitive or vulnerable groups of society, and ecosystems are exposed to high levels of pollutants, such as in cities or in buildings.”

The Commission webpage on the new EU Environment Action Programme to 2020 is at <http://ec.europa.eu/environment/newprg/index.htm> and the proposal is at http://ec.europa.eu/environment/newprg/pdf/7EAP_Proposal/en.pdf.

UK Air Pollutant Emission Projections to 2030

The UK's Department of Food, Environment and Rural Affairs has published a report on Emission Projections of Air Quality Pollutants to 2030 on the UK Air website.

Projected NO_x emission reductions between 2010 and 2030 are driven by emission changes in the transport and power sectors. Transport emissions are projected to decline by 234 kt despite an anticipated increase in vehicle usage. The decline arises principally from the penetration through the vehicle fleet of lower emitting vehicle types.

By 2020 emissions of PM₁₀ are predicted to decline by 22% compared to 2005. This includes a reduction of 12.3 kt in exhaust emissions from vehicles as a result of the implementation of emission control measures, but vehicle tyre and brake wear and road abrasion are projected to increase by 3.0 kt and 1.5 kt respectively up to 2030. Vehicle emissions controls are also predicted to result in a reduction of 11.5 kt in PM_{2.5}, contributing to an overall PM_{2.5} reduction of 30% by 2020, compared to 2005.

UK Emission Projections of Air Quality Pollutants to 2030, A Misra, N R Passant, T P Murrells, G Thistlethwaite, Y Pang, J Norris, C Walker, R A Stewart, J MacCarthy, M Pierce; Report number AEA/ENV/R/3337, [http://uk-air.defra.gov.uk/reports/cat07/1211071420_UEP43_\(2009\)_Projections_Final.pdf](http://uk-air.defra.gov.uk/reports/cat07/1211071420_UEP43_(2009)_Projections_Final.pdf).

Denmark announces Tighter PM Standards for Stoves

Denmark's Environment Minister Ida Auken has announced stricter standards for particulate matter from wood-burning stoves, which account for a large proportion of total PM emissions in the country.

The new requirements will align Danish legislation with German standards. Germany is a major market for stoves made in Denmark. Ms. Auken said she wants other European countries to follow suit and hopes similar standards will be agreed as part of current negotiations on ecodesign requirements for solid fuel boilers and stoves.

Swedish, Dutch and Estonian Actions on Low-CO₂ Vehicles

On 5 November 2012, Sweden notified the European Commission of a draft amendment to its national Road Tax Act (2006:227) to provide an incentive to purchase vehicles with low CO₂ emissions.

Passenger cars, motor-homes, light-duty lorries and light-duty buses put into service on or after 1 January 2013 will be exempt from road tax for the first five years if the vehicle meets the latest compulsory emissions requirements and does not emit an amount of CO₂ exceeding a value determined in relation to the weight of the vehicle. The calculation is based on the formula in Regulation (EC) No 443/2009 setting emission performance standards for new passenger cars. For electric cars, the maximum permissible electricity consumption will be 37 kWh/100 km. The same electricity consumption requirements and the weight-related CO₂ requirements that apply to electric cars are being introduced for plug-in hybrid electric vehicles (PHEV).

On 17 December 2012, the Netherlands notified the Commission of their draft Regulation amending the Subsidy Regulation for low-emission taxis and delivery vans. Concerned are taxis, delivery vans (with a permitted maximum weight of 3500 kg) and special vehicles run entirely on electricity, which are purchased in a municipality where the 2012 NSL (National Air Quality) Monitoring indicates an NO₂ concentration of more than 40.5 µg/cm³ on a stretch of carriageway of at least 0.5 kilometres, or in a municipality bordering such municipality.

Estonia notified the Commission of details of its revised support scheme for electric and hybrid passenger cars and small vans. A maximum of €19 000 per application covers the support for the costs of acquisition and the initial leasing payment of an electric car or plug-in hybrid, electric car charger costs, and the installation of a charger. The rate of support for an electric car is up to 50% of the

purchase price (including value added tax, VAT) per car for persons who are not subject to value added tax. For persons subject to VAT, the rate of support is up to 35% of eligible costs. In both cases the maximum is €18 000 per car.

The rates of support for plug-in hybrids depend on the vehicle's battery capacity and on the purchaser's VAT status. They range from 5 to 30%, with a maximum of €3 000 to 12 000 depending on the battery capacity.

Paper on Air Pollution in London

The Greater London Authority's Health and Environment Committee has released an 'issues paper' on air pollution in London. The paper highlights the long-term health impact of pollutants, which it says have been linked to life-shortening lung and heart conditions, breast cancer and diabetes. The paper estimates that there are over 4000 extra deaths each year in London from particulates and health costs are estimated at up to £20 billion a year.

The paper sets out a number of issues, saying that concentrations of both PM and NO₂ remain too high and further action is needed to protect the public. The report notes that retrofitting older buses with new technology could cut NO_x emissions by more than 70% and that the Committee heard that it would be a better use of Transport for London's resources to retrofit a larger number of its older more polluting buses than to procure a relatively small number of hybrids instead of conventional buses. Regarding NO₂ emissions, especially from newer diesel vehicles, the report states that the Committee could assess whether future Euro standards should regulate direct NO₂ emissions as well as overall NO_x.

The paper is at <http://www.london.gov.uk/publication/air-pollution-london-issues-paper>

New Air Quality Plan for Lombardy

The Lombardy Region of Italy has launched its new 3-year air quality plan, with 91 structural measures to further reduce pollutant emissions. Of these measures, 40 concern transport, 37 are on energy and heating, and 14 relate to agricultural activities. Transport-related measures are reported to include provision for the "detention" of Euro 3 diesel cars for 6 months of the year in critical areas, as well as the progressive replacement of Euro 0, 1, 2 and 3 vehicles (both public and private) with Euro 5 and 6, through incentives or other reward systems. There will also be support for the use of methane and LPG as vehicle fuels, electric mobility and the implementation of pilot projects with biomethane. The measures also include a region-wide ban on burning wood in stoves and fireplaces with low efficiency.

NORTH AMERICA

US-EPA finalises Stricter PM_{2.5} Limits

On 14 December 2012 the US Environmental Protection Agency (EPA) announced stricter National Air Quality Standards for PM_{2.5}. The new standards set the annual average limit to 12 µg/m³. The current standard, set in 1997, is 15 µg/m³.

EPA says that it is expected that fewer than 10 counties, out of the more than 3000 counties in the United States, will need to consider any local actions to reduce fine particle pollution in order to meet the new standard by 2020, as required by the Clean Air Act. EPA estimates that by 2030 the revised rule will prevent up to 40 000 premature deaths and that health care bills would be cut by \$4 billion to \$9 billion annually. Costs on industry to implement the rules would range from \$53 million to \$350 million, it says.

By 2030, EPA expects that standards that cut PM_{2.5} from diesel vehicles and equipment will prevent up to 40 000 premature deaths, 32 000 hospital admissions and 4.7 million days of work lost due to illness.

New York State introduces California Standards for Aftermarket Catalysts

The Department of Environmental Conservation for New York State (USA) has adopted California's aftermarket catalytic converter requirements. (In 1993 New York adopted California's light-duty vehicle standards). The requirements include a prohibition on the installation of used catalytic converters and the implementation of CARB-certified standards for new aftermarket converters, both from 1 June 2013. The requirements apply to all model year 1993 and newer on-road motor vehicles. Use of an EPA certified new aftermarket catalytic converter will still be permitted on federally certified and pre-1993 model year vehicles. Details are at www.dec.ny.gov/chemical/87411.html.

US-EPA authorises California Actions on HD-OBD

The US Environmental Protection Agency (EPA) has confirmed that the amendments to California's Heavy-duty vehicle and engine on-board diagnostic (OBD) requirements that relax the California standards for 2010-2012 model years are within the scope of the existing California waiver. The California Air Resources Board (CARB) approved the amendments in 2009. They cover issues such as revised DPF monitoring thresholds, and monitoring requirements for some types of fuel system.

EPA has also granted a new waiver for the HD OBD amendments applicable to 2013 and later model years (also defined in 2009), which create new, more stringent, requirements.

EPA reaches Settlement over Uncertified Imports

The US Environmental Protection Agency (EPA) and the US Department of Justice have announced a settlement with two former importers of highway motorcycles, recreational vehicles, and small spark ignition engines. Between 2006 and 2011, Yuan Cheng International Group, Inc. and NST, Inc. allegedly imported and sold 17 521 vehicles and engines from China without proper EPA certifications in violation of Clean Air Act requirements.

The settlement requires the companies and senior company executives to pay a combined civil penalty of \$50 000. Both companies have ceased importing vehicles and engines and are now dissolved. In 2010, NST agreed to pay \$250 000 to the State of California to resolve similar violations concerning the illegal sale of uncertified vehicles.

Canada announces Further Greenhouse Gas Regulations for Light-duty Vehicles

On 27 November 2012, Canada's Environment Minister, Peter Kent, announced proposed regulations on Greenhouse Gas (GHG) emissions of Light-duty Vehicles for the period 2017 to 2025.

The proposed regulations are aligned with the US regulations and will establish progressively more stringent GHG emission standards for passenger vehicles and light trucks over the period from 2017 to 2025 model years, building on the regulations already in place for model years 2011 to 2016.

Ottawa plans Pilot Project to convert Hybrid Buses to Diesel

Four years after buying 177 hybrid buses, OC Transport, the public transport operator of Ottawa, Canada, is proposing a pilot programme to convert them to normal diesel buses because of higher than expected fuel consumption and the high cost of parts for maintenance. It cost more than \$7 million (€5.5 million) to replace the batteries on some hybrid buses last year. The city's budget for 2013 includes \$550 000 for a pilot project to replace the hybrid electric/diesel systems with conventional diesel engines. If that project is successful, all 177 hybrid buses will eventually be retrofitted.

California Grants for Demonstration of Zero-Emission Off-Road Equipment

On 15 December 2012 the California Air Resources Board (CARB) announced a grant solicitation for a \$1 million (€760 000) Advanced Technology Demonstration Project on zero-emission Off-Road equipment. Up to five independent projects may be

selected. The grants will be made to California-based public agencies or agencies with expertise in implementing demonstration programmes and with the requisite knowledge of off-road equipment.

The goal is to accelerate zero-emissions off-road technology into the marketplace. CARB anticipates that there are a variety of technologies currently available that, when extended into new equipment types, will meet the objectives of this solicitation - for example, hydrogen fuel-cell forklift trucks and transport refrigeration units.

CENTRAL & SOUTH AMERICA

Costa Rica to reduce Sulfur in Fuel

Earlier this year a study by the College of Chemical Engineers and Related Professionals (CIQPA) found that fuels from the Costa Rican Oil Refinery (RECOPE) had a high content of components such as MMT (manganese-based additive), benzene and lead. Other concerns indicated were the levels of sulfur, which caused the Minister of Environment and Energy to call for cleaner fuels.

Costa Rica's Ministry of Environment has now announced that the amount of sulfur in diesel and gasoline distributed in the country will decrease from 50 ppm to 15 ppm from 1 January 2013.

Colombia extends 50 ppm Sulfur Diesel Availability

Colombia's Ecopetrol has announced that from 1 January 2013 it will supply 50 ppm sulfur (Euro 4) diesel fuel throughout the country. Until now the 50 ppm sulfur fuel has been available only in Bogota, metro Medellin, and to bus systems in other Colombian cities.

ASIA PACIFIC

Australia considers adopting Heavy-duty Euro VI Standard

The Department of Infrastructure and Transport of the Australian federal government released on 25 October 2012 a discussion paper for public comment, to consider the merits of adopting more stringent (Euro VI) air pollutant emission standards for Heavy-duty vehicles from 1 January 2016.

In Australia, vehicle emissions standards are set via the Australian Design Rules (ADR) under the Motor Vehicle Standards Act 1989. The Australian Government has a policy to harmonise vehicle standards where possible with the international standards established through the United Nations. The current ADR 80/03 - Emission Control for Heavy Vehicles - adopts the Euro V standards, with equivalent US and Japanese standards accepted as

alternatives. The Federal Government now proposes implementing Euro VI standards on 1 January 2016 for new vehicles (1 January 2017 for existing models).

This government discussion paper is available at www.infrastructure.gov.au/roads/environment/adr80review.aspx and is the first step in the public consultation process. The second step will be a draft Regulatory Impact Statement (RIS) which will include a cost-benefit analysis of the possible introduction of new regulation.

New Zealand updates Emissions Rules

New Zealand's Associate Minister of Transport Simon Bridges has announced that, following public consultation, the Government has amended the country's 2007 Vehicle Exhaust Emissions Rule in line with their June 2012 proposal (see July-August 2012 AECC Newsletter). From 1 November 2013 the standards for new vehicles are raised, mirroring those agreed in Australia (which will be adopting Euro 5), with US and Japanese standards as alternatives.

For vehicles entering the fleet for the first time, the new rule also clarifies that proof of compliance with emissions standards cannot be shown by a simple emissions test - documentation must be provided by an approved body.

The new rule also extends the current standards for used vehicles beyond the end of 2012, as they would otherwise have expired. Improved standards for used vehicles were recently introduced - in early 2012 for petrol vehicles and in 2010 for diesel vehicles - and will be reviewed again in 2014. The new rule will be in place from 1 January 2013.

Delhi Government launches Checks on Polluting Vehicles

In November 2012 the Delhi (India) government launched a massive drive to detect motorists who do not have a valid Pollution Under Control (PUC) certificate for their vehicles. The drive came amid widespread concerns over a drop in air quality that has been attributed for the smog that blanketed the city for several days.

All vehicles coming from Uttar Pradesh and Haryana were to be checked at border posts so that no polluting vehicle could enter Delhi, officials said. If a motorist did not have a PUC certificate and if he was a first time offender, then a fine of Rs 1000 (€14) would be imposed while the fine amount would be Rs 2000 in case of second time offenders. Special stickers having tamper-proof holograms would be pasted on the vehicles after being checked by the enforcement squads. Besides checking PUC certificates, the enforcement teams checked pollution levels of the vehicles and impounded vehicles fitted with unauthorized CNG kits.

Indian Concerns on Diesel Vehicles

There is growing concern over rising diesel use in private vehicles in India, especially in light of the WHO report linking exposure to untreated diesel exhaust to cancer. Since 2000, PM₁₀ levels in Delhi have increased by 47% and NO_x by 57%. Diesel cars, with a market share exceeding 50%, are perceived by many as a major source of the increased emissions. Bharat IV emissions standards currently required in the National Capital Region (NCR) set a PM limit of 25 mg/km and so do not require particulate filters. Also the diesel NO_x limit is 250 mg/km (compared to the Euro 4 NO_x limit of 80 mg/km for petrol vehicles).

Indian Environment Minister Jayanthi Natarajan informed the Lok Sabha (lower house of Parliament), that the Environment Pollution (Prevention and Control) Authority (EPCA) has recommended a ban on diesel vehicles in the national capital, Delhi. "The EPCA in a report in 2012 said the benefits of CNG transition are not visible due to growth in diesel vehicles because diesel vehicles are known to emit higher smoke particles and nitrogen oxides than petrol cars," Mr Natarajan said.

The Indian Supreme Court has also proposed a 'green tax' on new and existing private diesel vehicles to control pollution in the National Capital Region. The proposal results from an application from the former solicitor general and a legal advisor to the 'green bench' of the Court, Harish Salve. The "environment compensation charge" was proposed as a levy of 25% of the vehicle cost on every new diesel vehicle purchased in the NCR. The application also sought a 4% levy on the cost of all existing diesel cars and 2% on all gasoline cars being used as private vehicles. The proposal got tentative approval from the court, which awaited further consultation with government and other interested parties. However on 30 November 2012 the Minister of State for Finance said that the government is not considering any additional tax on diesel cars.

The Delhi-based non-profit Centre for Science and Environment has consistently advocated various measures to discourage use of diesel, including deregulating diesel prices, to build on the gains of transition to CNG vehicles in public transport in Delhi.

The Society of Indian Automobile Manufacturers (SIAM) said that "Diesel technology in cars and SUVs is clean and fuel-efficient. Most of the PM discharge attributed to vehicles is from old trucks that enter Delhi. They run on outdated engines". SIAM talks of an "urgent need" to modernise commercial vehicles and wants quick implementation of the Bharat Stage IV emissions standards across the country, rather than in only 20 cities.

ICCT Report on Costs and Benefits of Clean Fuels and Vehicles in India

ICCT, the International Council on Clean Transportation has published a new report on the costs and benefits of cleaner fuels and vehicles in India. The report says that investing in ultra-low-sulfur fuel and clean vehicle technologies in India will not come without costs. But the benefits, in terms of reduced healthcare costs and higher productivity, far outweigh them.

The emissions performance benefits of reducing the sulfur content of fuel come in two forms. First, it enhances the performance of existing emission control devices. Second, it permits adoption of advanced emission control technologies.

The paper is at <http://theicct.org/costs-and-benefits-cleaner-fuels-and-vehicles-india>.

China announces Plan to improve Air Quality by 2015 and extends Monitoring

On 5 December 2012 the Chinese government announced a new plan for the reduction of air pollution emissions.

The concentration of PM_{2.5}, will be cut by at least 5% by 2015 from 2010 levels in 13 major areas, according to the Ministry of Environmental Protection's plan. The levels of PM₁₀ and SO₂ will be reduced by 10%, while NO₂ will be cut by 7%, according to the plan. The 13 major areas cover 14% of the nation's geographic area and 117 cities. Those cities contribute 71% of the country's economy and account for 48% of the population. They also produce half the emissions in China of major pollutants such as SO₂ and NO₂.

For the Beijing-Tianjin-Hebei region, the Yangtze River Delta region - which includes Shanghai - and the Pearl River Delta region, the PM_{2.5} intensity will be cut by at least 6%, the ministry said.

China has also announced plans to release hourly air pollution monitoring data in 74 of its biggest cities starting on 1 January 2013. The new monitoring will include not only PM_{2.5}, but also SO₂, NO₂, ozone and CO, the Ministry of Environmental Protection said. Data will be collected from 496 monitoring stations.

Audit Commission criticises Air Quality Measures for Hong Kong SAR (China)

In a report made prior to the announcement of China's air quality improvement plan, the government's Audit Commission said that Hong Kong's air quality standards are not tough enough to protect public health, while existing measures to curb harmful emissions are ineffective, inadequate or stalled by red tape. The auditor calls for a clear roadmap and timetable to boost health protection.

In the third report on Hong Kong's efforts to clean up the air, the auditor notes that while failing to meet the objectives set in 1987, the city every year since 2006 also missed the Environmental Protection Department's target of no days with the air pollution index over the "very high" level of 100. Instead, the days with excessive pollution has risen year after year, from 74 in 2007 to 175 last year.

The report questions the effectiveness of the commercial diesel vehicle replacement schemes introduced by the department in 2000, saying that there are still more than 50 000 highly polluting vehicles on the roads, including 17 000 diesel vehicles more than 17 years old. The Transport and Housing Bureau and Environmental Protection Department both come under fire for not imposing stricter fuel standards on ocean-going and local vessels.

Responding to the report, the Environmental Protection Department said there had been real improvements in the concentrations of pollutants over the years. It pledged to review the air quality objectives every five years, with the ultimate aim of adopting the WHO guidelines. It would also reconsider introducing "disincentive schemes" to speed the early retirement of polluting vehicles. But it noted that a 2009 proposal to increase licence fees for old vehicles was not supported by lawmakers.

On 23 November 2012, in a press conference on the 2020 Pearl River Delta Region Air Pollutant Emission Reduction Plan, Hong Kong's Secretary for the Environment, Mr Wong Kam-sing, said that Hong Kong will continue the implementation of the 22 air quality improvement measures and will tighten various measures including the vehicle emissions related to heavily polluting diesel commercial vehicles.

Beijing phases out Old Vehicles to curb Pollution and takes Action on High PM_{2.5}

Beijing has stepped up efforts to phase out old, heavy-polluting motor vehicles. A total of 515 000 obsolete motor vehicles have been taken off the city's roads over the past two years, exceeding the goal of removing 400 000 such vehicles that was set in a municipal five-year development plan (2011-2015), according to the Beijing Municipal Environmental Protection Bureau.

Motor vehicles contribute to about 22.2% of the city's PM_{2.5}, and old vehicles release more pollutants, said a spokesman with the bureau, citing an analysis of the city pollution sources. Beijing is suffering from poor air quality, with this year's average PM_{2.5} level reaching 70-80 µg/m³, twice the standard of 35 µg/m³. Motor vehicles that have been in use for more than eight years account for about 20% of the city car population but create over 60% of the air pollution.

Beijing has also been working to improve the quality of its fuel supply and to roll out stricter emissions standards. According to a municipal plan on air pollution control, Beijing hopes to implement the stricter State VI emissions standard, which is equivalent to the Euro VI standard, by 2016. The Beijing municipal government will also push for the use of green vehicles in the future and expand public transport to make it account for half of all traffic.

In addition, government organisations and public institutions are being asked to reduce the number of official vehicles on the road by 30% when the daily level of PM_{2.5} exceeds 500 µg/m³, according to an emergency plan against heavy pollution that was released by the city government on 14 December 2012.

Bangkok, Thailand, considers Ways to reduce Vehicle Pollution

More than 380 000 Bangkok commuters are suffering from respiratory diseases caused by air pollution that has been associated with traffic jams, the Bangkok Metropolitan Administration (Thailand) says.

"The volume of cars in the capital has increased the existence of pollutants such as carbon monoxide, nitrogen oxide, nitrogen dioxide and tiny particles in the air," BMA Deputy Governor Dr Malinee Sukvejvorakij said.

Though the number of cars registered has risen this year, the Pollution Control Department's Director-General Wichian Jungrunreung said the quality of air in the capital was still "good" and that the number of particles smaller than 10 µm had reduced over the past two years.

To control pollution, Malinee said the BMA was considering collecting extra fees from car owners, especially those who take their vehicles downtown. In addition, she said, the BMA was planning to increase the number of 'green spots' in the capital.

Singapore introduces CO₂-based Rebate Scheme for Cars

Singapore has introduced a new Carbon Emissions-based Vehicle scheme (CEV) that will apply to all new cars, taxis and imported used cars registered from 1 January 2013. The new CEV Scheme will replace the existing Green Vehicle Rebate scheme that expires on 31 December 2012. The CEV will apply until 31 December 2014.

Rebates from the scheme will be based on emissions bands determined by the Land Transport Authority (LTA) and will be used to offset the Additional Registration Fee (ARF) payable. To qualify for the rebates, the vehicles must have CO₂ emissions of ≤ 160 g/km. For taxis, the CEV rebate and registration

surcharge are 50% higher because taxis have higher mileage in use than cars.

In addition, cars with CO₂ emissions ≥ 211 g/km will incur a registration surcharge of between S\$5 000 and S\$20 000 (approx. €3000 to €12 500). The surcharges will take effect six months later, from 1 July 2013, to give consumers and the motor industry more time to adjust.

Non Euro 5-compliant diesel models will not be eligible the rebates, even if they fall within the emission bands for rebates, because of their significantly higher particulate emissions. However, if they fall within the surcharge bands (for vehicles over 211 g/km), the CEV surcharge will still apply.

MIDDLE EAST

Saudi Arabia raises Cleaner Diesel Output

The start-up of three refineries that are designed to produce ultra-low sulfur diesel that meets European environmental standards will nearly double Saudi Arabian diesel fuel output, some of which will be exported to Europe or Asia.

Saudi Aramco's Jubail joint venture with Total, the first of the three refineries due to open over the next five years, will refine Saudi heavy crude into fuels ranging from gasoil, including diesel, to gasoline and petroleum coke for domestic consumption and export. Jubail alone is expected to increase Saudi cleaner diesel production capacity by around 176 000 barrels per day (bpd) once it is fully operational.

UNITED NATIONS

World Forum for the Harmonization of Vehicle Regulations

WP.29, the UN's World Forum for the Harmonization of Vehicle Regulations, met in Geneva from 13 to 16 November 2012. 6 draft amendments to existing UN Regulations were adopted:

- emissions measurement requirements for heavy-duty dual-fuel vehicles (Regulation 49);
- redefinition of bi-fuel vehicles to permit some simultaneous use of gas and petrol plus alignment of Regulation 83 with the EU Euro 6 legislation;
- alignment of Regulation 85 on the measurement of net power to correspond to Regulation 83;
- the introduction of transitional provisions to Regulation 96 for some T-category vehicles;
- transitional provisions to solve discrepancies between light-duty Regulations 83 and 101;
- introduction into Regulation 115 (LPG and CNG retrofit) of requirements corresponding to Regulations 83 and 101.

Regarding the 1998 UN Agreement, 2 amendments to global technical regulations (gtr) were adopted by the

Contracting Parties, respectively to gtr No. 4 on the Worldwide harmonized Heavy-Duty Certification procedure (WHDC) and to gtr No. 5 on Worldwide harmonized Heavy-Duty On-Board Diagnostic systems (OBD).

GENERAL

AECC Technical Seminar on Emissions from Non-Road Mobile Machinery

On 27 November 2012, AECC held a Technical Seminar on Emissions from Non-Road Mobile Machinery in Brussels. More than 80 people attended the seminar, including 8 from the European Commission and 18 from EU Member States.

After an introduction by AECC's Executive Director, Dirk Bosteels, Mr. Thomas Verheye - Head of the European Commission's Industrial Emissions, Air Quality, and Noise Unit in DG-Environment - spoke on 'NRMM Emissions in the Context of the Upcoming Review of the EU Air Quality Policy Framework'. The final draft baseline data for review of the Thematic Strategy on Air Pollution will be available in March 2013. Actions under consideration for emissions abatement include the revision of the NEC (National Emissions Ceilings) Directive, Euro 6 (including real-world emissions) and SULEV incentives, small scale combustion installations (<50 MW) and Non-Road Mobile Machinery (NRMM) emissions.

Mr. Verheye was followed by Mr. Philippe Jean, Head of the Sustainable Mobility and Automotive Industry Unit of the European Commission's DG-Enterprise & Industry who spoke on the subject of the Future Stages IV & V Legislation for NRMM. He commented that the European Council and Parliament have already asked the Commission to address the issue of diesel particles in the revision of the NRMM Directive. For Mr Jean, potential elements include extending the scope of the NRMM Directive to additional power classes and applications such as stationary engines, SI engines >19 kW, and snowmobile engines, adding In-Service Conformity provisions, introducing Stage IV for CI engines of 19-37 kW and for inland waterway vessels, and considering Euro VI limit values as a point of orientation for a future Stage V.

Dr. Magnus Lindgren of the Swedish Transport Administration then discussed the use of low aromatics, low sulfur fuel to reduce emissions but noted that the use of DPFs reduces both particulate and PAH emissions. He commented that the next step should be a particle number limit for NRMM. In the following presentation, Mr. Jos Dings of Transport & Environment pointed out that it is now recognised that Black Carbon (BC) has a significant short-term radiative forcing effect and said that about 25% of BC

comes from diesels. Use of DPFs will reduce BC from diesel vehicles, but not, under current legislation, for NRMM. T&E wants to see the Euro VI particle number standard as the basis for new NRMM limits.

Prof. Dr. Peter Hoet of KU Leuven discussed both short- and long-term effects of particles on health, including concerns on susceptible populations and recent evidence that the hazards are increased with freshly emitted particles. Mr. Hinrich Helms of the Institut für Energie und Umweltforschung (IFEU) spoke on 'Mobile Machinery and Urban Air Quality - Impacts and Measures'. He said that although particle emissions from NRMM will decrease in the future, this will be to a lesser extent than from road transport - emissions from small equipment may even increase.

Dr. Martin Schiess from the Swiss Federal Office for the Environment opened his presentation by saying that if water is polluted, you can drink bottled water. You cannot do the same for air! He described the Swiss Ordinance on construction equipment and its requirements, which includes particle number limits. Dr. Alois Krasenbrink of the European Commission's Joint Research Centre (DG-JRC) then described the development of the PMP Protocol for Particle Number and improved Particulate Mass measurement. Dr. Raimund Müller of Emitec presented the results of the AECC NRMM Test Programme which was conducted at Ricardo in 2009-2010. It demonstrated the potential to meet Euro VI-like limits and showed the applicability of PMP for measurement of NRMM emissions. Dr. Richard O'Sullivan of Johnson Matthey presented the challenges and opportunities for NRMM Retrofit in Europe, noting that the market is currently for only 2000 to 3000 units per year, compared to about 500 000 original equipment engines. Dr. Holger Lochmann of Stihl (on behalf of Euromot) showed the variety of technologies that have been developed to meet Stage II emissions limits for small SI engines and the final presentation was from Mr. Gerhard Rickert of BASF Catalysts who presented the results of AECC's recently-completed test programme on small hand-held equipment. Tests were conducted on two 4-Stroke and four 2-Stroke machines. Measurements included regulated emissions, particulate mass and particle number.

All presentations can be downloaded from www.aecc.eu/en/Publications/NRMM_Technical_Seminar.html.

2012 ICCT Pocketbook on European Vehicle Market Statistics

ICCT (the International Council on Clean Transportation) has published its 2012 edition of the pocketbook on European Vehicle Market Statistics. It offers a statistical portrait of passenger car and van fleets in Europe from 2001 to 2011.

As in the 2011 edition, the emphasis is on vehicle technologies and emissions of greenhouse gases and other air pollutants. The vast majority of Europe's new cars remain powered by gasoline or diesel motors. Diesel cars account for 55% of all new registrations, gasoline cars for 44%; all other technologies – hybrids, electrics, and natural gas and ethanol-fuelled vehicles – combine to make up the remaining 1%.

According to ICCT, the Euro standards for passenger cars are one of the true success stories in the field of environmental regulations. Under these standards, limits on CO, hydrocarbons, NO_x, and particulate matter have been progressively tightened, with the latest iteration (Euro 6) setting limits that range from 68% (gasoline carbon monoxide) to 96% (diesel particulates) lower than those established under Euro 1 in 1992. Such success has not fully translated into improvement in emissions as measured outside a vehicle testing laboratory, however. This is particularly true for NO_x emissions from diesel cars. The consequence of that disparity is persistent air quality problems, especially in urban areas.

The ICCT pocketbook is available at http://theicct.org/sites/default/files/publications/Pocketbook_2012_opt.pdf.

ICCT Study on Costs for Low Sulfur Fuels

ICCT has also released a technical and economic analysis of the transition to ultra-low sulfur fuels in Brazil, China, India, and Mexico. The document reports a study of the refining capability requirements, corresponding capital investment requirements and per-litre refining costs to transition to ultra-low sulfur gasoline and diesel, as well as the achievement of certain other improvements in gasoline and diesel fuel quality, in India, Mexico, Brazil and China.

The study is available at www.theicct.org/technical-and-economic-analysis-transition-ultra-low-sulfur-fuels-brazil-china-india-and-mexico.

ICCT Global Transportation Energy and Climate Roadmap

ICCT has issued a further new report evaluating the historical and potential impact of transportation policies on worldwide oil consumption and greenhouse gas emissions.

The report finds that policies adopted and formally announced since 2000 will reduce global oil consumption by 14% and global economy-wide GHG emissions by 7% below the International Energy Agency's projected 2030 levels. Spreading advanced regulatory standards and cost-effective technologies throughout major markets, coupled with shifts to low-carbon modes, could more than double those reductions, stabilizing global transportation emissions

by 2020. Nevertheless, the report makes it clear that the transportation sector is not on a path to achieve the 50 to 85% reduction by 2050 (from 2000 levels) that is necessary to constrain the global temperature increase to 2°C.

The report is available from <http://theicct.org/global-transportation-energy-and-climate-roadmap>.

Assessment of Global Air Quality under a 'Business as Usual' Scenario.

An article in DG-Environment's 'Science for Environmental Policy' bulletin says that global air quality will worsen significantly under 'business as usual' (BaU) human activity.

The report is based on a paper* by several organisations, including DG-JRC, that presents a possible future of world air quality for 2005, 2010, 2025 and 2050 if no further emissions controls beyond those that were in place in 2005 are implemented and assuming that existing pollution trends continue. The study focused on PM_{2.5}, NO₂, SO₂, ozone and CO. Naturally-occurring emissions were kept constant.

Despite some uncertainties associated with modelling air quality, the results suggest that, by 2050, China and Northern India, and the Middle East in particular, will be hotspots of pollution where large populations will be negatively affected by worsening air quality. Air pollution will continue to increase over North-eastern USA and Central and Eastern Europe, but not nearly as strongly as in Asia. Air quality will decrease significantly over the Middle East and North Africa through a combination of emissions from human activities and natural causes, mainly desert dust pollution.

* **Effects of business-as-usual anthropogenic emissions on air quality**, A.Pozzer, P.Zimmermann, U.M.Doering et al.; *Atmospheric Chemistry and Physics* (2012) 12 pp.6915–6937, [doi:10.5194/acp-12-6915-2012](https://doi.org/10.5194/acp-12-6915-2012).

RESEARCH SUMMARY

Major Research Paper on Outdoor Air Pollution shows Higher Particulate Risk

A new systematic analysis of all major global health risks has found that outdoor air pollution in the form of fine particles is a much more significant public health risk than previously known – contributing annually to over 3.2 million premature deaths worldwide and over 74 million years of healthy life lost. It now ranks among the top global health risk burdens. Because exposure to air pollution affects cardiovascular disease and other leading causes of disease and death worldwide, the global burden of disease due to air pollution is substantial.

The analysis – the *2010 Global Burden of Disease (GBD 2010)* – was published on 15 December 2012 in

a special issue of medical journal The Lancet. It involved 486 experts from 50 countries and was led by the University of Washington's Institute for Health Metrics and Evaluation. The study applied consistent methods to the largest global database ever assembled to estimate risks of premature mortality and contributions to global health burden from a wide variety of risks: smoking, diet, alcohol, HIV AIDS, household and outdoor air pollution, and many more. For the first time it places outdoor air pollution among the top 10 risks worldwide and among the top five or six risks in the developing countries of Asia. It also documents that household air pollution from the burning of solid fuels is responsible for a substantial burden of disease in low and middle income countries.

This new analysis identifies especially high risk levels in the developing countries of Asia where air pollution levels are the highest in the world. Overall GBD 2010 estimates over 2.1 million premature deaths and 52 million years of healthy life lost in 2010 due to ambient fine particle air pollution, two-thirds of the burden worldwide. Among other risk factors studied in the GBD, outdoor air pollution ranked 4th in mortality and health burden in East Asia (China and North-Korea) where it contributed to 1.2 million deaths in 2010, and 6th in South Asia (including India, Pakistan, Bangladesh and Sri Lanka) where it contributed to 712 000 deaths in 2010. The analysis found that reducing the burden of disease due to air pollution in Asia will require substantial decreases in the high levels of air pollution in those regions.

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This is one of a number of papers on GBD 2010 that are available at www.thelancet.com; search on GBD 2010.

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FORTHCOMING CONFERENCES

SAE 2013 Emissions Control for Light Duty Automotive Vehicles Symposium

16-17 January 2013, Detroit, Michigan, USA

Details at www.sae.org/events/emissions

This event offers participants the opportunity to share experiences on emissions control in both diesel and gasoline light-duty vehicles in regard to the upcoming combination of tighter CAFE standards, CO₂ and criteria emissions regulations.

Motorcycling Matters! ACEM Annual Conference

22 January 2013, Brussels, Belgium

Details at <http://acem.eu/index.php/events/conferences/123-9th-acem-conference>

The ACEM Annual Conference provides the opportunity to have an overview of the motorcycle sector, and engage policymakers, stakeholders and company managers in productive discussions.

CTI Conference Exhaust Systems

22-23 January 2013, Stuttgart, Germany

Details at www.exhaustsystems-forum.com

The main topics include the CO₂ reduction of gasoline and diesel engines, development steps of low pressure EGR, commercial vehicle concept of high-performance SCR systems, exhaust gas aftertreatment of off-highway applications, and model-based optimization of SCR systems.

Understanding the Health Effects of Air Pollution: Recent Advances to Inform EU Policies

30-31 January 2013, Brussels, Belgium

Details at www.healtheffects.org/Workshops/Brussels2013/brussels2013-agenda.htm.

This conference is jointly organised by the European Commission, the World Health Organization Regional Office for Europe, and the Health Effects Institute. The three main workshop goals are to describe the approaches to evaluating evidence for setting environmental limit values; to present the latest findings on the health effects of air pollution; and to summarize uncertainties in the current scientific evidence, and identify key areas for further research.

5th International Conference on Prospects for the Development and Use of CNG in Transport

19-20 February 2013, Prague, Czech Republic

Details at www.cgoa.cz/en/natural_gas_in_transport/activities_of_cga.ep.

The conference focusses largely on distribution/filling stations, but includes papers on experience with CNG vehicles in the town of Tábor, the current status of NGVs in Japan, an NGV report from UN-ECE, and a VW perspective on NG vehicles.

2nd Diesel Emissions Conference Russia & CIS 2013

27-28 February 2013, St. Petersburg, Russia

Details at www.integer-research.com/dec-russia-2013

The conference will cover both on-road heavy-duty and NRMM emissions, together with the challenges for AdBlue[®] in the Russian market, and alternatives to diesel.

EU Science: Global Challenges, Global Collaboration Conference

4 March 2013, Brussels, Belgium

Details at www.globalsciencecollaboration.org

The aim of the conference is to encourage worldwide collaboration in science and to explore how Horizon 2020 can enable an effective scientific response to global challenges. Building of partnerships is highly encouraged with the view to increase international participation in Horizon 2020.

Diesel Emissions Conference & AdBlue® Forum Asia 2013

12-14 March 2013, Beijing, China

Details at www.integer-research.com/dec-asia-2013

The conference will examine the region's current and future legislation and the latest in advanced emissions reduction technologies for the on-road, non-road and AdBlue industries. It will examine the proposed enforcement measures for China IV, the progress in fuel quality and supply and the latest emissions reduction technologies to achieve China V.

10th annual Green Ship Technology Conference

12-14 March 2013, Hamburg, Germany

Also 15 March 2013: **Retrofitting Challenge Seminar**

Details at

www.informamaritimeevents.com/event/greenshiptechnology

The conference includes roundtable discussions on managing Tier III requirements; on-board data measurement and analysis; and developments in onshore power, as well as workshop sessions on energy efficiency, aftertreatment technology, and commercial strategies for managing green ship technology.

Carbone suie: au croisement des enjeux climat et qualité de l'air (Carbon soot: at the intersection of climate issues and air quality)

21 March 2013, Paris, France

Details at www.citepa.org/fr/inventaires-etudes-et-formationen/538-jouet-2013

Under the aegis of the Ministry of ecology, sustainable development and energy, French and international leading stakeholders from the research world, French and European administration and industry, will develop a complete state of play of this emerging theme on local and global issues.

15th VDA Technical Congress 2013

21-22 March 2013, Munich, Germany

Details at www.vda.de/en/veranstaltungen/kongresse/technik/tk_2013/index.html

The theme of this year's congress is Environment, Energy and Electric mobility, Vehicle Safety and Electronics.

BAUMA 2013 (International Construction Equipment Exhibition)

15-21 April 2013, Munich, Germany

Details at www.bauma.de/en

SAE 2013 World Congress

16-18 April 2013, Detroit, Michigan, USA

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

34th International Vienna Motorsymposium

25-26 April 2013, Vienna, Austria

Details at www.oevk.at

The latest innovations in engine development, future legislation, new engines and fuels, components, electronics and drivetrains will be presented.

4th EFCA International Symposium on Ultrafine Particles

16-17 May 2013, Brussels, Belgium

Details to be at www.efca.net

The symposium is organised with the Karlsruhe Institute of Technology, GUS and the Confederation of European Environmental Engineering Societies (CEEES). It will reflect the most recent scientific progress in the field and aims to contribute to the dialogue with policymakers in Europe.

7th AVL International Commercial Powertrain Conference

22-23 May 2013, Graz, Austria

Details at www.avl.com/icpc

The conference covers commercial vehicles, agricultural tractors and non-road vehicles, and industrial machinery.

2013 JSAE Annual Spring Congress & Exposition

22-24 May 2013, Yokohama, Japan

Details at www.jsae.or.jp/2013haru/index_e.html

The 2013 JSAE Annual Spring Congress brings together world automotive engineers to report their latest research achievements.

5th BIVEC-GIBET Transport Research Day

30-31 May 2013, Walferdange, Luxembourg

Details at www.bivec.eu or bivec@uni.lu

Abstracts from young researchers at Benelux Universities are due by 31 January 2013.

This conference is organised by the Benelux Interuniversity Association of Transport researchers (www.bivec.eu and www.gibet.eu).

Natural Gas Vehicles (NGV) 2013

11-13 June 2013, Gothenburg, Sweden

17th ETH Conference on Combustion Generated Nanoparticles

23-26 June 2013, Zürich, Switzerland

Details at www.lav.ethz.ch/nanoparticle_conf

The conference provides an interdisciplinary forum for expert discussion in the field of combustion-generated nanoparticles, technical aspects as well as environmental impact, health effects and legislation.

Tropospheric Aerosol - Formation, Transformation, Fate and Impacts

22-24 July 2013, Leeds, UK

Details at www.rsc.org/ConferencesAndEvents/RSCConferences/FD165

This discussion aims to explore (i) the synthesis of emerging knowledge of the atmospheric aerosol systems, (ii) assessment of the validity and usefulness of existing frameworks and (iii) the development of robust aerosol system descriptions on scales ranging from the interpretation of laboratory.

International Conference on Remote Sensing, Environment and Transportation Engineering (RSETE2013)

26-28 July 2013, Nanjing, China

Details at www.rsete2013.org

Abstract deadline 20 March 2013

The main topics are remote sensing; energy, environment and sustainable development; environmental pollution and protection; and transportation engineering.

25th International AVL Conference "Engine & Environment" 2013

5-6 September 2013, Graz, Austria

Details at www.avl.com/engine-environment-2013

MODEGAT III: 3rd International Symposium on Modelling of Exhaust Gas Aftertreatment

8-10 September 2013, Bad Herrenalb/Karlsruhe, Germany

Details at www.modegat.org

The symposium purpose is to support the exchange of state-of-the-art and novel modelling and simulation techniques, fundamental mechanistic studies, experimental model validation and technical applications of modelling and simulation among researchers, scientists, and engineers from industry and academia.

ICE 2013 - 11th International Conference on Engines & Vehicles

15-19 September 2013, Capri, Naples, Italy

Details at www.sae-na.it

Abstracts due by 15 January 2013

The topics of the conference will be fuel injection and combustion processes, powertrain technology, alternative and advanced power systems, exhaust aftertreatment and emissions, fuels and lubricants, and air handling, intake, and exhaust.

22nd Aachen Colloquium

7-9 October 2013, Aachen, Germany

Details at www.aachen-colloquium.com

Deadline for abstracts is 15 February 2013

The congress provides 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 are presented on the ika test track.

SAE Small Engine Technology Conference

8-10 October 2013, Taipei, Taiwan

Details at www.setc-jsae.com

The conference programme will aim to cover new energy sources such as hybrid and electric drives, fuel cells and solar cells as well as components such as transmissions and drivetrains and fuel supply systems, fuels and lubricants, together with environmental impacts, emissions, aftertreatment and life cycle & recyclability.

2013 ASME Internal Combustion Engine Division Fall Technical Conference

13-16 October 2013, Dearborn, Michigan, USA

Details at www.asmeconferences.org/ICEF2013

Abstracts due by 25 January 2013

Conference tracks are large bore engines; fuels; advanced combustion; emissions control systems; instrumentation, controls, and hybrids; numerical simulation; and engine design, lubrication, and applications.

Busworld 2013

18-23 October 2013, Kortrijk, Belgium

Details will be at www.busworld.org

Internal Combustion Engines: Performance, Fuel Economy and Emissions

27-28 November 2013, London, UK

Details at www.imeche.org/events/C1370

Abstract deadline 1 February 2013

This conference from the Institution of Mechanical Engineers provides a forum for IC engine experts looking closely at developments for personal transport applications, though many of the drivers of change apply to light- and heavy- duty, on and off-highway, transport and other sectors.

8th International Exhaust Gas and Particulates Forum

1-2 April 2014, Ludwigsburg, Germany

Details to be at www.abgas-partikel-forum.com/index.html