AECC

Newsletter

September - October 2011

INTERNATIONAL REGULATORY DEVELOPMENTS

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Association for Emissions Control by Catalyst AISBL

Diamant Building
Boulevard A. Reyers, 80
B-1030 Brussels
Belgium

Tel: +32 2 706 81 60
Fax: +32 2 706 81 69
info@aecc.eu
www.aecc.eu

EUROPE

Commission Proposal for Particle Number Limits for DI Petrol Vehicles

The European Commission has issued a draft proposal for amendment of the Euro 6 Regulations. The proposal covers particle number emission limits for direct injection petrol engines, as well as final OBD (On-Board Diagnostics) Threshold Limits for Euro 6. These are the key items that at present prohibit Type Approval of Euro 6 petrol vehicles. The proposal is expected to be voted on by Members States before the end of the year.

The proposal is that the particle number limit should, at this stage, apply to direct injection PI engines only, although a number standard might be applied to all PI engines at a later date. The limit proposed for DI petrol engines is 6×10^{11}/km (the same as the limit for compression ignition engines) but with a footnote allowing a 3-year derogation to 6×10^{12}/km at the request of the manufacturer. The full 6×10^{11}/km limit would thus only apply to every new M1 and N1 class I vehicle type (i.e. cars and car-derived light commercial vehicles) from 1 September 2017 and to all registrations from 1 September 2018. Nevertheless, Member States would be able to use the more stringent limit value as the basis for incentives or for access to low emissions zones. As normal the dates for vehicles of N1 classes II and III and N2 would be 1 year later.

The Commission has also made it clear that they intend to include particle number measurement in the requirements on 'real driving emissions' (RDE) currently being developed as an additional requirement for Euro 6.

The final OBD Threshold Limits (OTLs) would come into force at the same time as the particle number limits for DI petrol engines. The final OTLs for CO & HC remain the same as the interim figures, but that for PM is reduced from 25 to 12 mg/km. The NOx OTLs reduce from 150 to 90 mg/km for PI engines and from 180 to 140 mg/km for CI engines in the proposal.

Consultation on Complementary Provisions to Euro 5/6 and Euro VI

On 1 September 2011 the European Commission issued a consultation on complementary provisions to the Euro 5/6 and Euro VI Regulations.

The Commission says that in light of rapid developments in automotive technology, persistent air quality problems in urban areas, and the experience made in implementing the existing legislation, there is a constant need to keep the relevant legislation under review. The consultation therefore aims to gather views from relevant stakeholders on a bundle of six individual measures where the Commission is considering amending the existing legislation:

a) Introduce a mandate for the Commission to specify an NO_2 limit in addition to the Euro 6 limit for NOx;
b) Introduce a mandate for the Commission to account for methane as a CO_2-equivalent greenhouse gas rather than a pollutant;
c) Introduce a mandate for the Commission to tighten -7°C emission limits for CO, HC and add NOx/NO_2;
d) Change the scope of the Euro VI ammonia limits to only limit ammonia slip from SCR-equipped vehicles and so exclude gas powered heavy-duty vehicles (CNG/LPG) from that limit;
e) Remove the upper mass limit of the light-duty Euro 5/6 regulation to avoid the need for two separate approvals in borderline cases;
f) Introduce mandatory fuel consumption meters for all light-duty vehicles and extend the mandatory installation of gear shift indicators (GSI) from only passenger cars to all light-duty vehicles.

The consultation is available from DG Enterprise at http://ec.europa.eu/enterprise/sectors/automotive/documents/consultations/2011-emission-standards/index_en.htm.

Tractors Flexibility Directive published

The Directive amending the flexibility provisions for Tractors was published in the EU's Official Journal on 23 September 2011 as Directive 2011/72/EU.

The Directive affects the number of Stage IIIA tractors that a manufacturer can sell after the stricter Stage IIIB emissions limits come into force. The amendment will allow up to 40% of each manufacturer's sales, averaged over the past five years, to meet the less stringent limits. The European Commission had initially proposed increasing the existing 20% quota to 50% of sales. There is also an alternative fixed number of engines, intended to be applied by small manufacturers. The fixed figure is up to 250 of models sold by each manufacturer, depending on engine size.

Parliament agrees extra NRMM Flexibility and Narrow Tractors Stage IIIB Delay

On 25 October 2011 a plenary session of the European Parliament voted on both the narrow-track tractors and NRMM flexibility dossiers.

The proposal for a 3-year postponement of the Stage IIIB introduction date for narrow-track tractors of categories T2, T4.1 and C2 was adopted by a large majority. In the meantime Stage IIIA requirements remain applicable. The proposal asks the European Commission to report annually to the Parliament on progress in the development of technical solutions for Stage IV-compliant technology, in addition to the review to be completed by 31 December 2014.

The proposal for increased flexibility allowances for NRMM was also adopted by a large majority. This proposal increases the flexibility allowance from 20 to 37.5% of each manufacturer's sales (averaged over the past five years) during the period of Stage IIIB, or for 3 years for categories where there is no Stage IV. Alternative fixed numbers of engines correspond to the Commission's proposal (from 125 in the 130-560 kW range to 250 in the 75-130 kW range). The general flexibility provisions do not apply to Inland Waterway vessels and railcar engines. However for a period of 3 years after the start of Stage IIIB, 16 Stage IIIA locomotive engines can be placed on the market by an OEM 'for its exclusive use' plus 10 for the UK market.

Replacement engines for railcars and locomotives may be pre-Stage IIIA or Stage IIIA, provided significant technical difficulties are encountered in fitting a cleaner engine, but it must be at least of the same stage as the engine it replaces. The Commission will have to assess technical difficulties and report to the Parliament by the end of 2016.

One recital asks the Commission to consider establishing a Stage V based on Euro VI heavy-duty requirements if technically feasible, introducing a PM number limit that would apply to all CI engines, promoting retrofit based on UNECE activities, and establishing a method for periodic testing of NRMM to establish in-use compliance.

The European Council now has to confirm both texts.

Eurovignette Directive published

The revised 'Eurovignette' Directive on the charging of heavy goods vehicles for the use of infrastructure was published on 14 October 2011 as Directive 2011/76/EU. Member States will now have two years to transpose the Directive into national law.

The Directive will allow Member States to charge lorries for the noise and air pollution they cause. Tolls will vary according to factors such as distance travelled and time of road usage. Higher infrastructure charges could also be levied during peak periods to address congestion problems. Tolls, which are currently limited to the trans-European road network (TEN-T), can now be extended to cover all motorways. Vehicles less than 12 tonnes can be exempted if it is shown that the tolls would have significant adverse effects.

Vehicles complying with Euro V standards will be exempt from air pollution charges until the end of 2013. Euro VI vehicles will be exempt until the end of 2017. Hybrid and electric vehicles will be permanently exempted.

Consultation on Greenhouse Gas Emissions from Road Vehicles

The European Commission's Directorate-General for Climate Change has issued a consultation on actions to help achieve a 50-70% reduction in greenhouse gas emissions in the transport sector by 2050. The commission also wants to know whether non-CO_2 transport emissions such as methane and Black Carbon should be addressed.

The questionnaire asks whether standards for road vehicles should apply equally to the different technologies used to power road vehicles. In particular, the Commission wants to know which types of heavy-duty vehicles should have carbon reduction limits - for example buses, coaches or long-distance lorries - and what measures should be required to achieve these limits. ACEA, the motor manufacturer's association, has already stated its position that any legislation should not be solely based on kilometres driven, but should take into account the amount of freight or number of passengers carried, otherwise they will create a perverse incentive to put more small lorries on the road instead of fewer heavy-duty vehicles carrying more goods.

A further question asks whether the approach for regulating road vehicle greenhouse gas emissions should consider the whole life cycle. The 2013 review of the Regulation on vans, particularly the feasibility of achieving a 147 g/km CO_2 limit by 2020, is also included in the questions.

The consultation, running to 9 December 2011, is at http://ec.europa.eu/clima/consultations/0012/index_en.htm.

European Parliament Motion on non-CO_2 Greenhouse Gases

In a motion for resolution adopted on 5 September 2011, the European Parliament calls for a comprehensive European climate policy which can benefit from considering all sources of warming and all mitigation options.

It stresses that in addition to considering CO_2 emission reductions, it should place emphasis on strategies that can produce the fastest climate response. It urges immediate action towards the reduction of Black Carbon emissions as a fast-action method of halting glacial melting and calls upon the EU to promote existing technologies that drastically reduce Black Carbon emissions. It also asks for rigorous global implementation of air pollution regulations and available technologies that can reduce NOx and CO emissions, which would reduce anthropogenic tropospheric ozone.

EU CO_2 and Greenhouse Gas Emissions

On 7 October 2011, the European Commission issued its progress report on the Kyoto Protocol objectives.

In 2009, total EU-27 greenhouse gas (GHG) emissions were 17.4% lower compared to 1990 levels. Additionally, based on provisional 2010 data, emissions are 10.7% below the base-year level for the EU-15 and approximately 15.5% below for the EU-27. Under the Kyoto Protocol, the EU-15 agreed to reduce its GHG emissions by 8% by 2012 compared to base year levels. Existing and planned measures are, though, not yet sufficient to reach the EU's own 20% target for 2020.

The report includes a summary of GHG emissions trends in the main sectors. Transport is responsible for 22% of total GHG emissions. Since 1990, decreases in energy, agriculture, industrial processes and waste have been partially offset by transport sector increases (16.8% for EU-15, 20.8% for EU-27).

The report is available from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0624:FIN:EN:PDF.

Three supporting reports from the European Environment Agency (EEA) together analyse emissions levels since 1990 and look forward to the EU's greenhouse gas emission reduction target for 2020 and beyond.

Sources:

1) Approximated EU GHG inventory: early estimates for 2010, Technical report No 11/2011; www.eea.europa.eu/publications/approximated-eu-ghg-inventory-2010.

2) Greenhouse gas emission trends and projections in Europe 2011 - Tracking progress towards Kyoto and 2020 targets, EEA Report No 4/2011; www.eea.europa.eu/publications/ghg-trends-and-projections-2011.

3) Greenhouse gas emissions in Europe: a retrospective trend analysis for the period 1990-2008, EEA Report No 6/2011; www.eea.europa.eu/publications/ghg-retrospective-trend-analysis-1990-2008.

Prior to these reports, green group T&E said that the motor industry appears on track to meet the 130 g/km CO_2 target that will apply to manufacturers' entire fleets from 2015. Cars sold in Europe in 2010 emitted 4% less carbon dioxide than the previous year. T&E says that average emissions were 140 g/km in 2010, down from 145.7 g/km in 2009.

DUH calls for Improved Test Procedures and Technology-Neutral Particle Limits

The Deutsche Umwelthilfe (DUH) is calling for the introduction of emissions measurements outside the test cycle because test results show a "huge gap" between actual emissions and the official information. The organisation is also calling for particle number limits for petrol engines to be the same as for diesels.

Using the ADAC EcoTest protocols DUH and ADAC tested 2 vehicles chosen to represent the market. For one, NOx emissions on the ADAC highway cycle were 30 times the NEDC test limit whilst those for the other were, at only 8 mg/km, well below the NEDC test limit of 60 mg/km. Following the report, a German Federal Environment Ministry (BMU) spokesman commented that although significant emissions reductions have been achieved in recent years, the federal government was of the view that additional measures are necessary to further improve vehicle emissions.

DUH and Verkehrsclub Deutschland (VCD) are also campaigning for technology-neutral standards for light-duty particle number emissions. At a press conference in September the two organisations received support from the head of the Institute of Epidemiology at the Helmholtz Zentrum München, Professor Erich Wichmann. He explained that in many studies serious, often fatal, health effects are attributed to the finest and therefore extremely "respirable" particles. Wichmann concluded "If gasoline engines with direct injection exceed the emissions limits for diesel cars, their treatment from a health perspective should be as stringent as diesel vehicles. This is only logical."

The press release refers to measurements made for DUH and VCD by ADAC, which showed that modern direct injection gasoline engines emit ultrafine particle levels 30 times above the limit for diesels. DUH and VCD say that the particle number limit for direct-injection gasoline engines from 2014 should be similar to that for diesel. It must also be ensured that this limit would be met outside the standardised driving cycle.

Prof. Wichmann's presentation can be downloaded from www.duh.de/uploads/media/PK_Feinstaub_Vortrag-Wichmann_2011-09-23_web.pdf.

Switzerland publishes List of Clean NRMM Engines

On 20 September 2011, the Swiss Federal Office for the Environment (FOEN) published a new list of engines that meet the requirements of the Swiss Ordinance on Protection of Air and thus do not require retrofit particulate filters. The list complements FOEN's list of validated particulate filters that has been available on the Internet since July 2010. It is updated regularly and now lists more than 70 systems with particle filters. The lists are available in German, French, Italian and English at www.bafu.admin.ch/partikelfilterliste/index.html?lang=en.

Dutch Taxation and Subsidy Changes affecting Emissions and CO_2 Performance

The Dutch Ministry of Finance has notified the European Commission of subsidies for Euro VI heavy-duty vehicles, changes to the road tax for Euro III

trucks, changes to CO_2-based vehicle taxation, and alterations to fuel excise duties.

The subsidy scheme for emission-reducing devices in vehicles is to be amended to re-orient the scheme to encourage purchase of heavy-duty vehicles meeting the Euro VI emissions standards. The aim is to reach a level where at least 8 000 Euro VI-compliant heavy-duty vehicles are bought in 2012 and 2013 combined.

A new Road Tax surcharge class for Euro III trucks will be introduced, with Euro III trucks subject to a 20% surcharge of the Road Tax from 1 January 2013.

To continue encouraging consumers and producers to purchase and produce energy-efficient cars, the CO_2 'bracket boundaries' for the Motor Vehicle Registration Tax (BPM) will be tightened each year until at least 2015. In addition the road tax exemption for highly energy-efficient cars will be repealed so that from 2014 onwards the amount of Road Tax will depend on vehicle weight alone. Until 1 January 2014, the current CO_2 exemption limits (110 g/km for petrol vehicles, 95 g/km for diesel) will continue to apply. Passenger cars with CO_2 emissions not exceeding 50 g/km will be exempt from Road Tax up to 2016.

There are also changes to excise duties for sustainably manufactured biofuels or biofuel mixtures and it is proposed to exempt natural gas-fuelled cars able to run on 'green gas' from the CO_2 limits and tariffs for diesel cars to which they are currently subject. However, the monthly Road Tax for these cars will incorporate an LPG surcharge. All Dutch filling stations will offer almost exclusively 'green gas' instead of natural gas.

Milan initiates Car Ban because of High PM Levels

Traffic was banned from Milan, Italy for 10 hours (08:00 to 18:00) on Sunday 9 October 2011 because PM_{10} pollution had exceeded permitted levels of 50 µg/m^3 for 12 consecutive days. Certain groups of high-emissions vehicles (Euro 0 cars; Euro 1, 2 and 3 cars without DPFs; mopeds, motorcycles, tricycles and four-wheeled vehicles with 2-stroke Euro 1 engines and, if diesel, Euro 0 and Euro 1) were banned for the previous three days and this continued following the total ban. Under EU rules, cities are only allowed 35 days per year in which particulate matter concentrations exceed 50 µg/m^3.

Modena Emissions Zone Restrictions for Winter 2011/2012

The Italian city of Modena has announced that its anti-pollution measures will begin approximately one month earlier than in previous years, under the agreement for regional air quality covering cities with more than 50 000 inhabitants.

The measures are divided into two phases. From 3 October 2011 to 30 March 2012, there will be restrictions on Euro 0 diesel and petrol vehicles, Euro 1 and Euro 2 diesels, Euro 0 motorcycles, and diesel goods vehicles without particulate filters. The restrictions will operate on Mondays to Fridays, from 08:30 to 18:30. There are exemptions for electric and hybrid vehicles, those fuelled by natural gas or LPG, car pools and emergency vehicles. In the second phase, from 9 January to 30 March 2012 on Thursdays' from 8:30 to 18:30 there will be a ban on all vehicles except Euro 4 and Euro 5 petrol and diesel vehicles, Euro 3 motorcycles, Euro 3 diesels with particulate filters (viewed as meeting Euro 4), and other diesels fitted with particulate filters.

Czech Deputies authorise LEZs

On 6 September 2011 the Czech Chamber of Deputies overrode the president's veto and gave municipalities the power to create Low Emissions Zones that exclude higher-emission vehicles.

Owners of the cars not covered by the ban will have to buy and display emission stamps issued by the Environment Ministry. Locals, emergency vehicles are to be exempted from the ban. Under the amendment drivers will be allowed free use of the sections of tolled motorways that create municipalities' bypasses if a smog situation is declared.

New Ranking of European Cities' Efforts to Combat Air Pollution

Berlin, Stockholm and Copenhagen are the leading cities in Europe for combating air pollution according to a new ranking of 17 European cities released by Friends of the Earth Germany in cooperation with the European Environmental Bureau. Rome, Milan and Düsseldorf came bottom showing few efforts on any of the nine air quality measures used to rank the cities. The measures were selected based on their potential to reduce emissions of particulate matter and soot from traffic and non-road pollution sources.

Berlin headed the league table as a result of its broad strategy to tackle high emitters of dangerous pollutants and reduce car use in the city. Runners-up Copenhagen and Stockholm were praised for having the best economic incentives, such as congestion charges for vehicles entering the city.

Details are at http://sootfreecities.eu.

Report on UK Air Quality

On 12 October 2011, the UK's Department for Environment, Food and Rural Affairs (Defra) published its air quality pollutant inventory for England, Scotland, Wales and Northern Ireland covering the period 1990 to 2009.

UK NOx emissions (reported as NO_2) have fallen by 60% between 1990 and 2009. The report says this is primarily a consequence of tighter European vehicle emissions standards in road transport and at coal-fired power stations, and the increased use of other fuels for power generation. PM_{10} emissions have declined by 58% over the same period. The most significant sources are domestic combustion and particulate from road transport sources (14% and 23% of UK emissions respectively in 2009). Other sources include mobile agricultural machinery which contributed up to 7% in 2009.

CO emissions show a 75% reduction over the period, largely from the increased use of three-way catalysts in cars, the report says. Non-methane volatile organic compounds (NMVOCs) also show a substantial decline (69%), primarily from the road transport and industrial sectors, due to the impact of tighter European vehicle emissions standards and fuel quality directives, as well as the impact of the Solvent Emissions Directive.

The report is available from the Defra website at http://uk-air.defra.gov.uk/reports/cat07/1110121007_DA_AQI_2009_Finalr.pdf.

A further Defra report provides data from the UK's particle measurement instruments, which includes CPC analysers at 4 sites (roadside, rural and 2 × urban background) and SMPS instruments at 3 of those sites (only 1 urban background).

The report notes a clear drop in concentrations at a London roadside site between 2007 and 2008, which continued in 2009 and 2010, with a smaller reduction at a London urban background. Ambient concentrations for particle counts and NOx in a roadside site were found to be strongly correlated to fuel emissions, especially diesel. This correlation is lost at the rural site. Number concentrations at all the three urban sites were affected by the local traffic with lower concentrations during the weekend.

Source: Beccaceci et al., CPEA 28: Airborne Particulate Concentrations and Numbers in the United Kingdom (phase 2). Annual report 2010; NPL Report No. AS 65, http://uk-air.defra.gov.uk/library/reports.php?report_id=678.

UK seeks Comments on Particulate Reduction Plan for London

The UK's Department for the Environment, Food, and Rural Affairs (Defra) is seeking comment on its plan to bring London into compliance with the European Union's air pollution daily limits for coarse particulates (PM_{10}).

Defra launched a consultation on the plan on 12 October 2011. The updated plan includes a number of measures that the London mayor published last December in his Air Quality Strategy, including Phase 3 of the Low Emission Zone (LEZ, cleaner taxis and Public Hire Vehicles (PHVs), introduction of 300 hybrid buses by the end of 2012, a Greener Vehicle Discount in the Congestion Charging scheme, encouragement of electric vehicles with 1300 publicly accessibly charging points by the end of 2013, "Cycle Superhighways", Best Practice Guidance for reducing emissions from construction and demolition processes, and the introduction of PM and NOx limits for new biomass boilers.)

The deadline for comment submissions is 6 January 2012. Details are on the Defra website at www.defra.gov.uk/consult/2011/10/12/particulate-matter-pm10.

New Airparif Study on PM Sources

On 14 September 2011, Airparif, the association for air quality monitoring in the Paris area, published a new report on PM sources.

The study allows, for the first time, quantification of the share of particles produced in Ile-de-France and in surrounding regions, as well as the main contributing activities. The study highlights that close to traffic highways such as the Paris ring road, 60% of fine particles are emitted locally, with a stable and large contribution from road traffic (44%), whereas in the Paris regional background, 70% of the measured particles come from other French or even European regions. In the 30% of particles that are locally produced, traffic and domestic heating by wood burning contribute equally. The study is available (in French) at www.airparif.asso.fr/actualite/detail/id/33.

Also, on 13 September 2011, Airparif launched its new website which includes upgraded pollution index maps, including the European index defined by the Citeair project. The rebranded website is at www.airparif.asso.fr.

New ADEME Call for Projects on Particles and their Precursors

The French Environment and Energy Management Agency ADEME is launching a call for projects under the title 'CORTEA' (Knowledge, Source Reduction and Treatment of Emissions into the Air), with a focus on substances of greatest concern to human health.

CORTEA aims to bring out R&D projects whose results will support the implementation of the actions of the second National Health and Environment plan (PNSE2). It also aims to promote technological research and innovation support for businesses to develop more sustainable practices. The substances considered in this call for projects are fine particles ($PM_{2.5}$ and nanoparticles), nanoparticles from manufactured nanomaterials, NOx, NH_3 and SOx, either directly or as precursors of particles, and toxic

substances such as mercury, chlorinated solvents and VOCs, including BTEX and formaldehyde.

Subsidies up to €200 000 are available, covering between 25 and 100% of the project eligible costs. The deadline for submission of projects is 24 January 2012. More details (in French) are available at: www2.ademe.fr/servlet/getDoc?cid=96&m=3&id=79450&p1=1.

Bulgarian City of Plovdiv sued over Particulate Air Pollution

A group of business people is taking court action against the municipality of Plovdiv, Bulgaria, saying that the city's air pollution has been found to be among the worst of any city in Europe.

Lawyer Mikail Ekmidjiev said that for the past 10 years, Plovdiv's strategies against air pollution existed only on paper. The city had no heavy polluting industry, yet had serious air pollution. The explanation was a "black oil lobby" that prevented the city being "gasified", Ekmidjiev was quoted as saying. The plaintiffs seek action by the municipality. They said that laboratory tests had found that for 200 days of the year, fine dust particles exceeded acceptable levels. The municipality responded that in the past six months, it had made significant progress against air pollution. It said that the main source of poor air quality was the coal burnt for winter heating.

Norway to allow Congestion Charging

The Norwegian government has announced that in October 2011 it is to introduce rules allowing congestion charging in cities. The measure is intended to help cut greenhouse gas and air pollutant emissions, and ease traffic problems.

Accompanying guidance published by the Norwegian pollution control agency Klif and other government bodies on 23 September 2011 provides detailed recommendations to local authorities on the various measures they can take to tackle poor air quality. The cities of Oslo and Bergen both suffered severe air quality problems over the winter, Environment Minister Erik Solheim said in a statement. However, it is up to local authorities to decide whether to introduce charging schemes.

The guidance (in Norwegian) is available from www.klif.no/publikasjoner/2842/ta2842.pdf.

Norwegian Institute criticises Proposed NOx Tax for New Cars

The Norwegian Government has proposed in the state budget a separate NOx component in the one-time fee for new cars to improve local air quality. However, the Norwegian Institute of Transport Economics (TØI) says that the fee is based on type-approval numbers, which in practice prove to be quite different from the actual emissions in urban traffic.

TØI says that in practice, it appears that NOx emissions can be 3-4 times higher than that obtained in the type approval, particularly in urban driving. TØI believes environmental tax changes for CO_2 and NOx is a step in the right direction, but in practice so small that it will not have any particular effect on people's car purchase, and certainly not to the extent that it will have a significant effect on local air pollution. According to calculations by the Ministry of Finance, the most popular diesel vehicles will be up to 6 000 kroner (€750) more expensive.

Air Pollutant Emissions from Shipping

According to *Acid News*, air pollutant emissions from international shipping continue to rise, while those from land-based sources in Europe keep on slowly shrinking.

Since 1980, total European emissions of SO_2 - the most significant acidifying pollutant and an important precursor to secondary $PM_{2.5}$ - from land-based emission sources have fallen by more than 80%. Emissions of NOx and ammonia have dropped by 35% and 39%, respectively and non-methane volatile organic compounds (VOCs) have more than halved since 1980. Between 2000 and 2009 it is estimated that emissions of $PM_{2.5}$ from land-based sources have fallen by a quarter.

Emissions from international shipping in European waters on the other hand show a steady increase. Since 1980, ship emissions of SO_2 have gone up by 41% and those of NOx by 61%. For 2009 it was estimated that ship emissions were responsible for 10% or more of the total depositions of both sulfur and oxidized nitrogen compounds in more than half of the EU's 27 member countries. In some countries, such as Denmark, Sweden, Norway, the Netherlands, Ireland, Portugal and the United Kingdom, ship emissions already make up approximately one fifth or more of total pollutant depositions.

Finnish and Swedish concerns on Marine Sulfur Reduction

Finland is calling for easier terms in a proposed EU Directive aimed at reducing the sulfur content of fuels used by ships at sea. The EU wants the sulfur content of fuel used in the Baltic Sea and the North Sea Sulfur Emission Control Areas (SECAs) to be reduced to 0.1% in 2015. According to *Helsingin Sanomat* the Finnish government has decided to ask the EU for some flexibility in the scheduling of the implementation, by up to a decade, because of the cost to the Finnish export industry.

Meanwhile in Sweden, two cabinet ministers have written in a national newspaper that the country should oppose the limit on the grounds that it is not achievable. Environment Minister Andreas Carlgren has publicly opposed the call.

Sweden announces Rebate System for Low CO_2 Cars

The Swedish Government will invest SEK 200 million (€22.2 million) in a "super-green car" rebate over the next three years. A super-green car is defined as a passenger car that meets the latest EU exhaust requirements and emits a maximum of 50 g/km CO_2. The premium will be available to private individuals, car pools, the public sector and companies, including taxi and car rental companies. It is scheduled to be introduced on 1 January 2012.

Swiss National Air Pollution Monitoring for 2010

The Swiss Federal Office for the Environment (FOEN) has published a new report analysing the state of the air in Switzerland in 2010, based on measurements recorded by stations of the National Air Pollution Monitoring (NABEL) network.

For 2010, the immissions situation can be characterized as follows: the limit values for NO_2, PM_{10} and ozone have been exceeded, whilst those for SO_2, CO and heavy metals have been observed everywhere. The pollution load of the air has improved significantly over the past 20 years.

The report is available at www.bafu.admin.ch/publikationen/publikation/01620.

Russian Oil Company moves to Euro 4 and Euro 5 Fuels

Russia's Slavneft oil company has announced that its Slavneft-Yanos unit plans to stop producing fuels below Euro 4 standards from January 2012. In 2012, Slavneft-Yanos expects to produce 2.44 million tonnes of petrol meeting the Euro 4 standard and more than 4 million tonnes of diesel fuel, 2.8 million of which are expected to meet Euro 5 standards.

NORTH AMERICA

California amends Truck Refrigeration Unit Regulation

On 21 October 2011, the California Air Resources Board (CARB) adopted amendments to the Airborne Toxic Control Measure for in-use diesel-fuelled Transport Refrigeration Units (TRUs), TRU Generator Sets and facilities where TRUs operate. The Regulation was developed in 2004 to reduce diesel particulate matter from TRUs and also applies to diesel generators used to provide electricity for refrigeration units.

The existing regulation requires in-use TRUs to reduce their PM emissions by at least 85% with a compliance schedule based on a seven-year operational life for the equipment. The amendments extend the deadlines for older engines to meet the Ultra-Low TRU performance standard (ULETRU) if they comply with the Low TRU performance standard (LTRU) by certain dates:

Table ES-3: ULETRU Extension for MY 2003 and Older TRU Engines That Met LETRU Deadline

Engine MY	Deadline LETRU Met By	ULETRU Deadline	
		Original	New
2001 & Older	12-31-2009	12-31-2015	12-31-2016[1]
2002	12-31-2009	12-31-2016	12-31-2017
2003	12-31-2010	12-31-2017	12-31-2018

1. MY 2001 and older engines may qualify for a total extension of two years if they met LETRU by the original December 31, 2008, deadline. In this case, the new ULETRU deadline would be December 31, 2017.

Amongst other administrative changes there is an exemption for TRUs used by mobile catering companies that feed emergency responders, such as firefighters suppressing wildfires. They also require original equipment manufacturers and engine rebuilders to provide supplemental engine emissions labels and registration information documents.

For details see the CARB webpage on TRUs at www.arb.ca.gov/diesel/tru/tru.htm.

US-EPA Projects on Black Carbon and Clean Diesel

The US Environmental Protection Agency (EPA) has awarded more than $6.6 million (€4.7 million) in grants to 8 universities for Black Carbon research.

EPA's Science to Achieve Results (STAR) programme awarded nine grants to support research to study the role and effects of Black Carbon. The research will analyse the impacts of Black Carbon on air and water quality, investigate the behaviour of Black Carbon aerosols in the atmosphere, and develop tools such as computer models to look at Black Carbon deposits on snow. The research will also examine the aging of Black Carbon in the atmosphere. More information on the Black Carbon research projects is at www.epa.gov/ncer/blackcarbon.

EPA has also announced a Request for Proposals for a $1 million, 4-year project to help assess and reduce diesel sources of Black Carbon in the Russian Arctic. The project includes the development of an emissions inventory of Black Carbon sources in the Russian Arctic and Nordic countries followed by demonstration projects on diesel emissions reduction, covering on- and off-road and marine sources. See www.epa.gov/international/grants/Arctic-Black-Carbon-ModifiedRFP.pdf .

In a further round of project awards, EPA has given $50 million (€35 million) for clean diesel projects that will replace, retrofit or repower more than 8000 older

school buses, trucks, locomotives, vessels, and other diesel powered machines. Every US state will receive funding for clean diesel projects through direct state allocations. For the first time, Puerto Rico, Guam, the US Virgin Islands, American Samoa, and the Commonwealth of the Northern Mariana Islands can now receive direct state allocation funds.

Model Rules for Reduction of NOx from Gas Compressor Engines

On 26 August 2011, the US Ozone Transport Commission (OTC) released a first draft of their model rule on NOx emissions from pipeline compressor engines fuelled by natural gas. The model rule is a recommendation provided to OTC States that choose to regulate NOx from these engines. States have the flexibility to modify the rule to suit their needs.

The rule covers natural gas-fuelled spark ignition or combustion turbine compressor engines used for pipeline transportation or for powering compressors used for the underground storage of natural gas. It covers engines ≥200 hp (149 kW) that were in operation prior to 31 December 2007. Newer engines would need to meet the US Environmental Protection Agency's New Source Performance Standards.

The model NOx emission limits are shown in the table below. They are framed in terms of having to meet either a limit in g/BHP-hr (for IC engines; parts per million on a dry volume basis – ppmvd – for turbines) or a percentage reduction from uncontrolled, whichever emissions rate is greater.

Internal Combustion (IC) engines	Power (hp)	NOx (g/BHP-hour)	NOx reduction
2-stroke lean-burn	≥200 to <500	3.0	80%
	≥500 to <2000	2.0	80%
	≥2000	1.5	80%
4-stroke lean-burn	≥200 to <500	2.0	80%
	≥500 to <2000	2.0	80%
	≥2000	1.5	80%
4-stroke rich-burn	≥200 to <500	2.0	90%
	≥500 to <2000	1.5	90%
	≥2000	1.0	90%
Combustion turbines	**Power (hp)**	**NOx ppmvd @ 15% O_2**	**NOx reduction**
All	<4000	50	80%
	≥4000	25	80%

OTC has also released an updated model rule on anti-idling requirements for non-road equipment.

CARB initiates Study on Emissions Reduction Benefits of Hybrid NRMM

Scientists at the University of California, Riverside's Centre for Environmental Research and Technology have received a $2-million contract for a study of hybrid construction vehicles. The two-year project, which is being funded by the California Air Resources Board, will allow researchers to evaluate the emission reduction benefits of two commercially available hybrid construction vehicles: a Caterpillar bulldozer and a Komatsu hydraulic excavator.

Half of the funding will be used as an incentive voucher to get 20 to 30 hybrid construction vehicles in use. The other half will fund testing of six vehicles. Behaviour of those vehicles will be characterised on a second-by-second basis during in-use operations at construction sites using Portable Emission Measurement Systems (PEMS). Researchers will design standardised tasks, such as lifting a heavy object. The performance of the hybrid vehicle will then be compared to that of conventional diesel vehicles.

US files Lawsuit over Uncertified Recreational Vehicles

On 29 September 2011, the United States, on behalf of the US Environmental Protection Agency (EPA), filed a civil complaint against MotorScience, Inc. for allegedly causing the importation of more than 24 000 uncertified recreational vehicles that do not comply with the Clean Air Act's requirements.

The complaint alleges that the engine certification services consulting firm located in California, used false or incomplete information to obtain Clean Air Act certificates of conformity for four of its clients, which allowed the importation and sale of the vehicles. EPA previously voided 12 certificates submitted by the company on behalf of the four clients.

US-EPA seeks Scientific Input on Near-Road NO_2 Monitoring Network

The US Environmental Protection Agency (EPA) has asked its Clean Air Scientific Advisory Committee (CASAC) for help in establishing a near-road emissions monitoring network for implementation of the agency's new 1-hour national ambient air quality standard (NAAQS) for NO_2 of 100 ppb.

EPA does not anticipate the network being in place before the start of 2013, and does not expect to be able to use the monitoring data obtained from it to designate areas either in attainment or non-attainment with the new NAAQS until 2016 or 2017. EPA asked CASAC's air monitoring and methods subcommittee for help in refining its technical assistance document that outlines a plan for the network. Questions include considering the right balance of factors in determining where to locate near-road monitors.

California finalises 'Cap and Trade' Scheme for Industrial CO_2 Emissions

The California Air Resources Board (CARB) has adopted a further element of the state's climate change plan in the final 'cap-and-trade' regulation.

The regulation will cover 360 businesses representing 600 plants and is divided into two phases: the first, beginning in 2013, will include all major industrial sources along with electricity utilities; the second, starting in 2015, brings in distributors of transportation fuels, natural gas and other fuels. Companies are not given a specific limit on their greenhouse gas emissions but must supply a sufficient number of allowances (each the equivalent of one ton of CO_2) to cover their annual emissions. The total number of allowances issued in the state declines each year, requiring companies to find the most cost-effective and efficient approaches to reducing their emissions. By 2020 the state will reach the equivalent of the 1990 level of greenhouse emissions - a 15% reduction compared to what the emissions would be in 2020 without any programmes in place.

SOUTH AMERICA

Chile introduces Ultra-Low Sulfur Diesel

ENAP, the Chilean state-owned petroleum company, started commercial production of ultra-low sulfur diesel (ULSD) in August 2011. Chilean Grade A1 diesel of maximum 15 ppm sulfur is required in Santiago from September 2011 and is the only on-road diesel fuel legally available to the public in the Santiago Metropolitan Region. The maximum sulfur limit of Grade A1 diesel had been 50 ppm since July 2004. The rest of the country is using Grade B diesel, which went to a 50 ppm sulfur limit on January 2010.

ASIA PACIFIC

Australia to review Air Pollutant Standards

Australia's federal and state Environment Ministers have agreed to develop a national clean air plan. Their decision coincided with their release of a review of the Ambient Air Quality National Environment Protection Measure (NEPM) by the National Environment Protection Council that recommended tighter air pollution standards.

The Ambient Air Quality NEPM, which came into force in 1998, sets standards for PM_{10}, ozone, SO_2, NO_2, CO and lead, as well as an advisory reporting standard for fine particles ($PM_{2.5}$). The council found that the existing standards "are not meeting the requirement for adequate protection of human health."

Air quality in Australian cities is generally "good by international standards," the review found. However, recent epidemiological studies indicate that exposures below the standards still represent a "statistically significant and measurable health risk to the Australian population." The Council said the existing NEPM standards for CO and NO_2 should be revised because health effects have been observed in Australian cities at levels "well below" the existing standards. Similarly, the standard for lead should be reduced and the standard for ozone should be revised, the review said.

The review also said the standards should include an exposure reduction framework, noting that EU approaches provide "an appropriate model" for this.

Australia plans Mandatory Car CO_2 Standards

The Australian government has released a discussion paper on the proposed introduction of mandatory standards to reduce CO_2 emissions from new passenger vehicles from 2015.

The government said cars and other light vehicles contribute around 55 million tonnes of CO_2 equivalent each year, or about 10.1% of Australia's estimated total with cars and light vehicles accounting for about 64% of Australia's transport emissions. The average level of CO_2 emissions of the new light vehicle fleet in 2010 was about 213 g/km, according to the discussion paper with light commercials averaging 250 g/km.

China sets Pollutant Emissions and Energy Intensity Targets for 2011-2015

China's State Council has assigned targets for reducing energy intensity and pollutant emissions for all provinces, autonomous regions, and major municipalities. The Ministry of Industry and Information Technology (MIIT) posted the information on the targets covered by the 2011-2015 12th Five-Year Plan on its website on 7 September 2011.

The targets call for a nationwide reduction of airborne SO_2 by 8% and airborne NOx by 10% from 2010 levels. Higher targets have been set for more prosperous and developed areas in eastern China, while some underdeveloped areas in western China have low targets or will be allowed to increase pollutant emissions compared to 2010 levels. The target for reducing energy intensity, or consumption per unit of production, is 16% overall.

The Ministry of Environmental Protection said that new standards on air quality will include regulations on the monitoring of $PM_{2.5}$, which is not currently included in determining the air pollution index (API). At present the API is derived from measurements of SO_2, NO_2, PM_{10}, CO and ozone.

China to raise Subsidy Threshold for Low-Consumption Vehicles

From October 2011 China raised the threshold for subsidies to automakers for low fuel-consumption vehicles. From 1 October cars weighing 1205 to 1320 kg must have average fuel consumption of at

least 6.3 l/100 km to qualify for state subsidies of 3000 yuan (€335) per vehicle, according to a statement posted by the Ministry of Finance on its website. The new rule replaced the existing criterion of 6.9 l/100 km that has been in place since June 2010. Under the new rules, the Finance Ministry also reduced 16 vehicle weight categories to 7 classes. All qualifying automobiles must have 1.6-litre engines or smaller.

China to tighten Limits for Emissions from Thermal Power Plants

China's Ministry of Environmental Protection says in a report on its website that emissions allowances for SO_2, NOx and soot from thermal power plants will be reduced. The new standards will take effect from 1 January 2012 and may involve about 260 billion yuan (€29 billion) in new investments for power companies by 2015 to meet key requirements.

ICCT Report: "Developing a World Class Technology Pathways Program in China"

A new International Council for Clean Transportation (ICCT) report is entitled "Developing a World Class Technology Pathways Program in China: International Practices for Vehicle Emission Standards".

The report says that "it is clear that strong policies for both new and in-use vehicles will be required in key regions and nationwide over the next 5 years…China V (assuming that the Euro 5/V limit values are adopted) will result in NOx reductions and very modest PM reductions. The China VI (again, assuming Euro 6/VI limits are adopted) standard is expected to force the best available control technologies for both light- and heavy-duty vehicles, resulting in substantial NOx and PM reductions. The benefits of swift China VI adoption and a strong overall vehicle emission control program include protecting public health and the climate by avoiding significant NOx and PM emissions and establishing the base technology for fuel efficiency improvement." Potential technologies for light- and heavy-duty emissions control are discussed, together with the need for low-sulfur (<50 ppm) fuel.
The ICCT report is available at
www.theicct.org/pubs/ICCT_ChinaTechPathways_oct11.pdf.

Vietnam announces Dates for Fuel Quality Changes

Following from the announcement of introduction dates for tighter emissions standards in Vietnam (see July-August 2011 AECC Newsletter), the timetable for introduction of matching fuel standards has now been announced.

The country will adopt tighter Euro 3- and Euro 4- (50 ppm sulfur) equivalent motor fuel specifications from 2016, moving to Euro 5-equivalent (10 ppm S) specifications in 2021, according to a Directive by Prime Minister Nguyen Tan Dung. Both dates are one year ahead of the nationwide adoption of tighter vehicle emissions starting 1 January 2017, and 1 January 2022.

EURASIA

Azerbaijan considers Improved Fuel Standards

The Y. Mammadaliyev Institute of Petrochemical Processes has presented new national petrol standards for Azerbaijan corresponding to the Euro 3, Euro 4 and Euro 5 fuel standards.

The new standards were presented to the Health Ministry, Environment and Natural Resources Ministry, Emergency Situations Ministry, as well as SOCAR, which is the sole petrol producer in the country. These bodies will have to consider them and submit conclusions for the new standards to be agreed for submission to the State Committee on Standardization, Metrology and Patents by late 2011.

SOCAR's refinery will begin Euro 3 diesel fuel production from 2012 and increase the quality of petrol to Euro 3 standard in 2013. At present, fuel produced by SOCAR complies with Euro 2 levels.

AFRICA

South Africa publishes New Fuel Specification Proposal

On 17 October 2011 the South African Department of Energy published new draft amendments to the Petroleum Products Act of 1977 that sets specifications and standards for petrol and diesel.

Under the new amendments, 93 and 95 RON unleaded petrol would be permitted throughout the country in both metal-free and metal-containing (lead replacement) forms. They must conform to South African National Standard (SANS) 1598 and have a maximum aromatics content of 35% v/v and maximum benzene content of 1% v/v. Metal based additives, could only be used in the metal-containing unleaded petrol, where the maximum metals content is to be either 36 mg/litre Mn, 10 mg/litre K, or 14 mg/litre P.

The basic diesel grades would be low sulfur diesel (max. 10 mg/kg S) meeting SANS 342, with not more than 5% v/v biodiesel, but there would also be B10, B20, B30 and B50 fuels meeting the same specifications except for biodiesel content (maximum 10, 20, 30 or 50% respectively) and 100% biodiesel (B100). All biodiesel has to meet SANS 1935.

Detail is also provided on the labelling to be displayed at petrol stations. The label backgrounds are to be

green for metal-free unleaded petrol, red for metal-containing unleaded petrol and black for diesel.

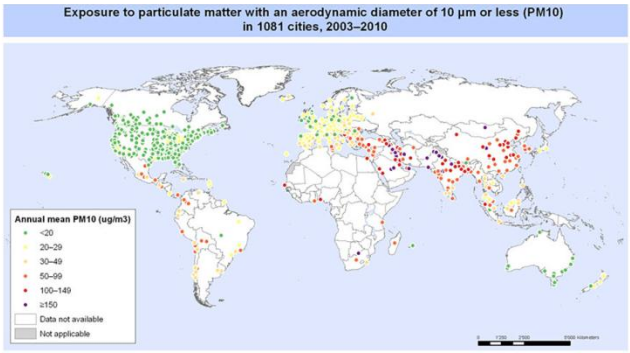
The draft is open for comment until 15 December 2011 and is in Volume 556 N° 34681 of the South African Government Gazette, available from www.energy.gov.za.

UNITED NATIONS

WHO Data Compilation on PM_{10}

In many cities air pollution is reaching levels that threaten people's health according to a compilation of air quality data released on 26 September 2011 by the World Health Organisation (WHO).

WHO estimates more than 2 million people die every year from breathing in PM_{10}, particles which can penetrate into the lungs and may enter the bloodstream, can cause heart disease, lung cancer, asthma, and acute lower respiratory infections.



The great majority of urban populations have an average annual exposure to PM_{10} particles in excess of the WHO Air Quality guideline recommended maximum level of 20 µg/m^3. The data shows average PM_{10} in some cities has reached up to 300 µg/m^3.

WHO is calling for greater awareness of health risks caused by urban air pollution, implementation of effective policies and close monitoring of the situation in cities. A reduction from an average of 70 µg/m^3 of PM_{10} to an annual average of 20 µg/m^3 is expected to yield a 15% reduction in mortality.

The WHO database is available from www.who.int/phe/health_topics/outdoorair/databases/OAP_database_8_2011.xls.

UNEP to recommend Measures on Black Carbon

Measures to address Black Carbon and other short-lived climate forcers (SLCFs) would bring multiple environmental benefits and should be centre stage at next year's Rio+20 summit, UNEP chief Achim Steiner said at a Ministerial meeting in Mexico on 13 September 2011. Mr. Steiner said UNEP would publish a report setting out possible measures to reduce levels of Black Carbon, ground level ozone and methane. This could form the basis of an international action plan agreed in Rio, he said. Addressing these short-lived climate forcers would help keep global warming below 2°C while improving air quality and health, and stimulating green growth, he said.

GENERAL

Announcements on Euro VI Engines

Daimler has announced that the new Mercedes-Benz Actros meets the Euro VI emissions limits. Compared to the previous Actros, the new model consumes 6 to 7% less fuel in the Euro V variant, and 3 to 4% less fuel in the Euro VI variant. The company also showed a new Euro VI coach at the 'Busworld' exhibition in Belgium together with a Euro VI OM471 engine.

MAN also had two Euro VI engines on display at Busworld – the D0836LOH and the D2676LOH, which will use EGR+SCRT to achieve the emissions levels. A complete MAN SCR+CRT system was also shown.

Meanwhile Iveco says that Euro VI fuel efficiency requirements have led to "a fully patented SCR control system that allows unprecedented reduction efficiencies to be achieved. The result is the "SCR Only" (no EGR) technology for medium- and heavy-duty engines…The modest engine-out PM emissions are brought to the necessary levels using a full-flow Diesel Particulate Filter that will achieve continuous regeneration due to the high exhaust NOx levels and the high gas temperature. Forced filter regeneration will not be necessary under normal circumstances."

RESEARCH SUMMARY

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FORTHCOMING CONFERENCES

SAE 2011 Small Engine Technology Conference

8-10 November 2011, Sapporo, Japan

Details at www.setc-jsae.com

The conference will cover products such as ATVs, motorcycles, generators and agricultural/gardening equipment, focussing on combustion engines but also covering hybrids and electric drive.

Includes AECC/TU Graz paper "A demonstration of the emission behaviour of 50 cm³ mopeds in Europe including unregulated components and particulate matter".

ECT 2011 – After Treatment Technologies 2013 & beyond

9-10 November 2011, New Delhi, India

Details at http://cleanairinitiative.org/portal/sites/default/files/ECT_2011_-_Final_Announcement_Brochure_1.pdf

Includes AECC presentation on emissions control technologies.

6th International MTZ Conference Heavy-Duty, On- and Off-Highway Engines

15-16 November 2011, Kiel, Germany

Details at www.atzlive.de/index.php;do=show/sid=2408990694e7c69b2557a2579388545/site=atz/lng=en/alloc=333/id=430

The conference will focus on such topics as fuel injection, combustion processes, concepts for emissions reduction inside and outside the engine and energy management. It will present the state of the art and future developments in heavy-duty diesel and gas engines for a wide range of applications.

Tomorrow starts with Chemistry Expo

21-23 November 2011, Brussels, Belgium

Cefic will be welcoming industry partners, decision-makers, academics and students from around Europe to an interactive exhibition to explore the latest achievements of chemistry and tomorrow's next great breakthroughs, and reflect on the way we live, the way we move, and the way we use our most precious natural resources. Includes a display provided by AECC.

Internal Combustion Engines: Performance, Fuel Economy and Emissions

29-30 November 2011, London, UK

Details at http://events.imeche.org/EventView.aspx?code=c1328

The conference will look 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.

2011 Conference of Polis & the European Economic and Social Committee: Innovation in transport for sustainable cities and regions.

29-30 November 2011, Brussels, Belgium

Details at www.polisnetwork.eu/publicevents/68/61/Polis-Annual-General-Assembly-and-Annual-Conference

Topic areas include traffic efficiency and mobility; economic and social dimension of transport; and environment and health, including clean vehicles, electro-mobility and active transport for health.

The Spark Ignition Engine of the Future

30 November-1 December 2011, Strasbourg, France

Details at www.sia.fr/evenement_detail_the_spark_ignition_engine_call_for_1085.htm

This conference is intended to provide the opportunity for both technical experts and executives from the automotive industry, the oil industry, external analysts, 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 main challenges of mobility, CO_2 emissions and hybridization.

Includes AECC/TU Graz paper "Regulated and non-regulated emissions of selected state-of-the-art European mopeds".

ACEA Transport Policy Conference 2011

1 December 2011 (14.00-18.00), Brussels, Belgium

This year's topic is "Can efficiency take the lead in transport policy?". Industry CEOs and EU policy makers will debate the key elements of the White Paper on transport policy and assess the role of road transport in the drive for 'greener', safer and more efficient transport in Europe.

Joint EESC-EC Conference on the White Paper on Transport: Civil Society Viewpoint

5 December 2011, Brussels, Belgium

Details will be at www.eesc.europa.eu/?i=portal.en.home

The Conference will be centred on two sessions focusing on the viewpoints of users and stakeholders.

Training Course: Internal Combustion Engine Fundamentals

6-7 December 2011, Shoreham-by-Sea, UK

Details at www.ricardo.com/en-gb/What-we-do/Technical-Support/Training-and-Seminars

Towards the 2013 Revision of the Ambient Air Quality Directive – Issues and Solutions

12-13 December 2011, London, UK

Details at www.aamg-rsc.org

The conference will be introduced by internationally recognised experts to set the scene at the national and European level. It will bring together leading

scientists and policy makers, and will provide a broad and up-to-date survey of the measurement, regulatory and scientific issues, including policy implications, health effects and future perspectives.

10th International CTI Forum "Exhaust Systems"

23-26 January 2012, Stuttgart, Germany

Details will be at www.exhaustsystems-forum.com

ACEM (Motorcycle Industry Association) Annual Conference

24 January 2012, Brussels, Belgium

Diesel Emissions Conference Russia 2012

6-8 February 2012, St. Petersburg, Russia

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

Presentations will include overviews of the Russian commercial vehicle market, the diesel fuel market and diesel emissions legislation in Russia together with government plans for future vehicular emissions reduction.

7th International AVL Exhaust Gas and Particulate Emissions Forum

6-7 March 2012, Ludwigsburg, Germany

Details at www.forum-emissions.com/index.html

Main topics are the reduction of particulate emissions of GDI engines, the development of NOx after-treatment systems and the specific requirements and possible solutions for electrical drives. The application of the whole system and the experiences with "In Use Compliance of HD appliance" are further topics as well as the status of emission sensor systems and On Board Diagnostics (OBD). Traditionally the measurement technology is in the focus of the Forum.

13th European Fuels Conference

13-16 March 2012, Paris, France

Details at www.wraconferences.com/european-fuels-conference-13th-annual-meeting-2012/s4/a205

The agenda includes alternative fuels for light- and heavy-duty vehicles and shipping, gas scrubbing technology as an alternative to low sulfur marine fuels refinery developments to increase diesel share.

Fuel Systems for IC Engines

14-15 March 2012, London, UK

Details at www.imeche.org/events/c1342

This conference will focus on the latest technology for state-of-the-art system design, characterisation, measurement, and modelling, addressing all technological aspects of diesel and gasoline fuel injection systems. This will range from fundamental fuel spray theory, component design, to effects on engine performance, fuel economy and emissions.

Diesel Emissions Conference & AdBlue® Forum Asia 2012

27-29 March 2012, Beijing, China

Details will be at www.integer-research.com/conferences/dec-asia

The conference will facilitate focused discussion on the future diesel emissions market in Asia. Technology discussions will include NOx & PM reduction technologies such as SCR, EGR, DOC and DPF, and CO_2 reduction technologies such as hybrid systems and bio-fuels.

9th Green Ship Technology Conference

27-29 March 2012, Copenhagen, Denmark

Details at www.informaglobalevents.com/event/greenshiptechnology

Transport Research Arena Conference

23-26 April 2012, Athens, Greece

Details at www.traconference.eu

The conference brings together academia and industry from Europe and the rest of the world to present research (theoretical and applied) on pressing problems of the transport.

SAE 2012 World Congress

24-26 April 2012, Detroit, Michigan, USA

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

5th AVL Large Engine Techdays

9-10 May 2012, Graz, Austria,

Details at www.avl.com/large-engines-techdays

The 5th AVL Large Engine TechDays will be dedicated to "emissions". The technical sessions will provide an information exchange platform, focusing on major key topics including aftertreatment and EGR, gas and dual-fuelling, and likely emissions steps for 2020.

Key Developments in the Port and Maritime Sector

21-22 May 2012, Antwerp, Belgium

Details at http://webh01.ua.ac.be/sig2/wctrs/html/activities.html

Deadline for Abstracts: 15 December 2011

The Special Interest Group 2 (Ports and Maritime) of the World Conference on Transport Research Society (WCTRS), will host this conference. It will be held at the Department of Transport and Regional Economics at the University of Antwerp, Belgium. Topics include environmental issues, maritime engineering and legal issues.

Diesel Emissions Conference & AdBlue® Forum Europe 2012

29-31 May 2012, Germany

Details will be at www.integer-research.com/conferences/dec-europe/2012

Government lead discussions will include updates on Euro VI legislation for heavy-duty vehicles (2013) and passenger cars (2014), and stage IV (2014) for non-road vehicles. Technology discussions with provide insight into the latest developments in CO_2 technologies, such as alternative fuels, bio-diesel and hybrid systems, and NOx technologies including SCR, EGR, DOC & DPF.

SIA International Conference: Diesel Powertrain

6-7 June 2012, Rouen, France

Details at www.sia.fr/evenement_detail_diesel_powertrain_topics_to_1107.htm

Topics to be addressed include future Diesel powertrains, future emissions regulations including Euro 7 and WLTP, advanced combustion systems, thermal management, exhaust after-treatments, engine design, development & simulations, engine and vehicle tests, and fuels and lubricants.

4th MinNOx Conference

12-13 June 2012, Berlin, Germany

Details at www.iav.com/termine/iav-tagung/4-tagung-minnox

Deadline for abstracts is 27 January 2012

The conference will provide an in-depth discussion of the current state-of-the-art, new technologies and applications as well as innovative ideas and concepts for cutting NOx-emissions on the basis of exhaust gas aftertreatment. Attention will also focus on harnessing synergies to cut fuel consumption by introducing NOx-reducing technologies.

16th ETH Conference on Combustion Generated Nanoparticles

24-27 June 2012 (Tentative), Zürich, Switzerland

Diesel Emissions Conference & ARLA 32 Forum Brazil 2012

26-28 June 2012, Brazil

Details at www.integer-research.com/conferences/dec-brazil

Over 40 presentations and panel discussions, the conference will discuss the latest developments in PROCONVE P7 diesel emissions legislation, and latest NOx reduction technologies for heavy-duty, non-road and passenger vehicles, including SCR, EGR, DOC and DPF. The conference will also discuss developments in CO_2 reduction technologies, including hybrid systems and bio-fuels.

9th International Congress on Catalysis and Automotive Pollution Control (CAPoC9)

29-31 August 2012, Brussels, Belgium

Details at http://capoc.ulb.ac.be

Deadline for abstracts 30 November 2011

All topics related to applications and requirements of catalysis in automotive (including cars, light- and heavy-duty vehicles) emissions control will be considered.

SAE 2012 Heavy Duty Diesel Emissions Control Symposium

11-12 September 2012, Gothenburg, Sweden

Details at www.sae.org/events/hddec

This event provides upcoming regulatory actions, state-of-the-art technical information and first hand experiences relating to heavy-duty diesel emission control strategies, engine and aftertreatment systems and integration and the future direction of the industry.

Diesel Emissions Conference India 2012

18-19 September 2012, India

Details will be at www.integer-research.com/conferences/dec-india/2012

Diesel Emissions Conference USA 2012

16-18 October 2012, USA

Details will be at www.integer-research.com/conferences/dec-usa/2012

34th FISITA World Automotive Congress

27-30 November 2012, Beijing, China

Details at www.fisita2012.com

Deadline for abstracts is 30 November 2011

The congress will focus on solutions for sustainable mobility in all areas of passenger car, truck and bus transportation. Emphasis will be placed on the development of future powertrain systems, advanced internal combustion engines, energy efficient transmissions & drivelines as well as vehicle design, electronics, safety solutions, NVH and manufacturing.

Symposium on International Automotive Technology (SIAT 2013)

16-19 January 2013, India