



Newsletter

November - December 2011

INTERNATIONAL REGULATORY DEVELOPMENTS

Table of Contents

EUROPE	2
CARS 21 High Level Group endorses Interim Report.....	2
Parliament Internal Market Committee votes Proposed Motorcycles Regulation.....	2
Directive on Delay to Stage IIIB & IV for Narrow-Track Tractors Published.....	2
NRMM Flexibility Directive published.....	2
Commission Decision on Air Quality Reporting and Eye on Earth Web Tool.....	3
EC adopts Energy Roadmap to 2050.....	3
Denmark announces Environmental Priorities for Upcoming EU Presidency.....	3
Workshop on Heavy-duty CO ₂ Emissions.....	4
EEA Reports on Transport Emissions and on Air Quality in Europe.....	4
Costs of not complying with Air Quality Legislation.....	4
European Commission takes Court Action against Four Member States.....	5
Commission confirms EEA Report on CO ₂ Emissions from Cars in 2010.....	5
EEA Report on Recycling Industry.....	5
Trucks Traffic Regulation within Rotterdam Harbour.....	5
Austrian Traffic Club calls for Low Emission Zones in Vienna and Graz.....	5
Spain approves Plan to improve Urban Air Quality.....	5
Trieste extends Funding for Euro 5 Vehicles.....	6
Rome initiates 'Number Plate' Bans.....	6
German Financial Incentive for retrofitting Light-duty Diesel Vehicles.....	6
DUH launches List of Retrofittable Construction Equipment.....	6
UK Parliament Report on Air Quality calls for LEZs and Retrofit Certification.....	6
London Borough introduces Fines for Buses idling over 4 Minutes.....	7
UK Consultation on Update of Emissions Data for Annual Inspections.....	7
Denmark increases Tax on NO _x Emissions from Stationary Sources.....	7
Hungary issues Rules for Heavy-duty DPF Retrofits.....	7
Switzerland announces Tax Discounts for Retrofitted Vehicles.....	7
Switzerland adopts Rules limiting CO ₂ Emissions from New Vehicles.....	7
Russia to lower Excise Duty Rates for Euro 4 and 5 Fuels.....	8
NORTH AMERICA	8
Canada adopts Tier 4 Emission Standards for Non-Road Engines.....	8
US Formally announces 2017-2025 Fuel Economy & CO ₂ Standards.....	8
Canada releases Light-duty Greenhouse Gas Proposal for 2017 Onwards.....	8
California releases Advanced Clean Cars Proposals.....	8
US-EPA finalizes 2012 Renewable Fuel Standards.....	9
CARB releases Studies on Health Effects of Fine Particles and on Biodiesel.....	9
NESCAUM Assessment of the Benefits of Low Sulfur Gasoline.....	9
Canada proposes limiting Sulfur Content in Marine Diesel Fuel.....	9
SOUTH AMERICA	9
Mexico requires Emissions Testing of Imported Cars.....	9
ASIA PACIFIC	10
China tightens Air Quality Standards.....	10
China 5 Fuels in Beijing in 2012.....	10
Hong Kong, China, targets In-use Emissions from Petrol and LPG Vehicles.....	10
South Korea revises Fuel Efficiency Rating System.....	10
New ICCT Report on Motorcycle Emissions in Asia.....	10
MIDDLE-EAST	11
Israel Air Pollution Reduction Plan.....	11
UNITED NATIONS	11
World Forum for Harmonisation of Vehicle Regulations.....	11
Gothenburg Protocol adds Black Carbon to the List of Controlled Pollutants.....	11
UNEP Report on Black Carbon and Short-lived Climate Forcers.....	11
WHO Report on Health Co-Benefits of Climate Change Mitigation in Transport.....	12
WMO Report on Greenhouse Gas Emissions in 2010.....	12
UNEP says More Action is needed on Greenhouse Gas Emissions.....	12
UN to set up Working Groups on Standards for Electric Vehicles.....	12
GENERAL	13
Project on Conversion of Older Buses to Serial Hybrids.....	13
Report on the Global and China Automotive Exhaust System Industry.....	13
RESEARCH SUMMARY	13
FORTHCOMING CONFERENCES	14

EUROPE

CARS 21 High Level Group endorses Interim Report

The meeting on 2 December 2011 of the CARS 21 High Level Group on the competitiveness and sustainable growth of the automotive industry in the EU endorsed an interim report resulting from the CARS 21 work since its re-launch in November 2010.

The interim report recommends a more "real-world driving" measurement procedure for emissions and fuel consumption as well as an appropriate methodology for evaluating the CO₂ emissions of heavy-duty vehicles. Member States should better coordinate financial incentives to enable large scale production of clean vehicles. Therefore incentives should be based on objective and commonly available performance data, the report says. The document says that to meet long-term greenhouse gas targets as well as air quality objectives, the internal combustion engine will be further improved and the development of breakthrough technologies, such as electrified propulsion, will happen. Sizeable efforts will also need to be made with the further development and distribution of alternatives to traditional diesel and gasoline fuels.

Another statement from the report is that the cumulative effects of the different pieces of legislation affecting the automotive sector should be scrutinized in order to have an overall assessment of their economic, social and environmental impacts. A real integrated approach must be fully implemented.

The CARS21 Interim Report is at http://ec.europa.eu/enterprise/sectors/automotive/files/pagesbackgrounnd/competitiveness/cars21-interim-report-2011_en.pdf.

The CARS 21 process will continue and address additional topics, including international regulatory cooperation, ITS, electro-mobility, biofuels, CO₂ from cars and vans, and CO₂ labelling for cars. The final report is expected to be adopted in spring 2012.

Parliament Internal Market Committee votes Proposed Motorcycles Regulation

On 5 December 2011, the Internal Market and Consumer Protection committee of the European Parliament voted on the European Commission proposal for a Regulation on two- or three-wheeled vehicles and quadricycles.

Rapporteur MEP van de Camp said the 9 compromise amendments covered 3 key fields: answer industry requests, reduce emissions in urban areas, and enhance safety feature requirements.

Should the IMCO proposals be accepted, the Euro 3 stage would be introduced on 1 January 2014 for two-

wheel mopeds only. The Euro 4 and Euro 5 stages for this L1Be category would be introduced 3 and 6 years later respectively (i.e. 2017 and 2020). For all other categories, the first emission stage proposed by the Commission would be deleted. Euro 4 (Euro 5 for motorcycles of L3e category) would be introduced on 1 January 2016 and Euro 5 (Euro 6 for motorcycles) on 1 January 2020. All dates listed here correspond to new types; dates for all registrations apply one year later.

All-Terrain Vehicles, Side-by-Side vehicles, enduro, and trial motorcycles are now defined and included in the Regulation. The durability requirements proposed by the Commission are confirmed for 2-wheel mopeds but those for 3-wheel mopeds and light on-road quads have been deleted in the committee report. Durability requirements for other categories have not changed.

Emissions limits for hybrid vehicles are logically related to the fossil fuel they use. Other changes proposed by the committee are increasing the upper weight limit for light quadricycles from 350 to 400 kg; the number for small series of powered cycles, 2- and 3-wheel mopeds; and the fixed number of end-of-series vehicles.

The Commission is requested to conduct thorough impact assessment of implementing measures; and, within 2 years of the entry into force of the Regulation, the Commission should assess whether the 400 kg weight limit remains relevant; whether the distinction between 3- and 4-wheelers remains relevant and whether further adaptation is needed due to market developments in the area of electric vehicles.

The vote in plenary session of the European Parliament is expected mid-March 2012.

Directive on Delay to Stage IIIB & IV for Narrow-Track Tractors Published

The Directive introducing a 3-year postponement to emissions stages IIIB and IV for narrow-track tractors was published in the EU's Official Journal on 18 November 2011 as Directive 2011/87/EU. In the meantime Stage IIIA continues to be in force for narrow-track tractors of categories T2, T4.1 and C2.

The European Commission must, by 31 December 2014, consider what technology is available that is capable of meeting the Stage IV requirements and submit, where appropriate, proposals to the Council and Parliament.

NRMM Flexibility Directive published

On 23 November 2011 the Directive providing increased flexibility provisions for the NRMM emissions Directive was published in the EU's Official Journal as Directive 2011/88/EU.

The flexibility provisions allow the continued sale of a limited number of engines meeting the previous emissions level when a new level starts. The amending Directive 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 range 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 plus 10 for the UK market.

Replacement engines for railcars and locomotives may be pre-Stage IIIA or Stage IIIA if significant technical difficulties are encountered in fitting a cleaner engine. The European Commission (EC) will have to assess technical difficulties and report to the Parliament by the end of 2016.

The new Directive requires the EC, in the upcoming revision of the NRMM Directive (97/68/EC), to consider a new Stage V based on heavy-duty Euro VI standards with a particulate number limit for all CI engine categories. The Commission also has to consider the promotion of retrofit based on the work under way in UNECE, and the establishment of a method for periodic testing of NRMM emissions.

Commission Decision on Air Quality Reporting and Eye on Earth Web Tool

Commission implementing Decision 2011/850/EU was published in the Official Journal on 17 December 2011. It covers the annual reporting on ambient air quality assessment and the submission of information on plans and programmes in relation to limit values for pollutants in ambient air.

The decision establishes rules implementing the Air Quality Directive (2008/50/EC) and the Directive on arsenic, cadmium, mercury, nickel and PAHs in ambient air (2004/107/EC) with regard to Member States' obligations to report on air quality and the exchange of information concerning measurements of air quality obtained from selected stations.

'Eye on Earth', a new global service to create maps and visualise data on environmental issues was thus launched. Developed jointly by the European Environment Agency (EEA), Esri and Microsoft, it takes the form of online maps, which can be manipulated by users. People can choose to add various layers to the map to create new insights.

Official information providers such as national environmental institutions can upload data from their networks of monitoring stations. The EEA has already

uploaded large amounts of data on water, air, climate change, biodiversity and land use. Other organisations such as the United Nations Environment Programme, and the Joint Research Centre of the European Commission have also uploaded data.

Eye on Earth is at <http://network.eyearth.org>.

EC adopts Energy Roadmap to 2050

On 15 December 2011, the European Commission adopted the Communication 'Energy Roadmap 2050' as COM (2011) 885/2.

The aim of the roadmap is to achieve the low-carbon 2050 objectives while improving Europe's competitiveness and security of supply. Member States are already planning national energy policies for the future, but it is necessary to join forces in coordinating their efforts within a broader framework.

The Energy Roadmap 2050 identifies a number of elements such as technical and economic feasibility of decarbonisation; energy efficiency and renewable energy are critical (electricity will play a greater role than now; gas, oil, coal and nuclear figure in all scenarios in different proportions, allowing Member States to keep flexible options in their energy mix); early investments cost less; increase of prices need containment; and economies of scale are needed.

The Roadmap will be followed by further policy initiatives on specific energy policy areas in the coming years, starting with internal market, renewable energy and nuclear safety next year.

Denmark announces Environmental Priorities for Upcoming EU Presidency

On 1 January 2012 Denmark will take over presidency of the Council of the European Union from Poland. The four priorities set out by the Danish Government for the EU Presidency are a responsible, dynamic, green and safe Europe.

Danish Ministers for the Environment, Ida Auken, and for Climate and Energy, Martin Lidegaard, presented the environmental and energy priorities for the 6-month presidency of the Council.

In times of economic crisis, promoting green growth will be a priority for the Danish government but other environmental issues, including revision of rules on sulfur content in marine fuels will also be tackled.

The green-growth agenda will include efforts to reach a common position on the energy efficiency directive and low-carbon roadmap, and replacement of the EU's 6th Environmental Action Program. Denmark also wants climate, energy and environmental concerns tied more closely into other policy areas, including agriculture, fisheries, transport and the single market.

The Danish presidency website is at <http://eu2012.dk>.

Workshop on Heavy-duty CO₂ Emissions

The European Commission's Directorate-General for Climate Action and the International Council for Clean Transportation (ICCT) held an International Workshop on "Reducing Greenhouse Gas Emissions from Heavy-Duty Vehicles: Policy options, development, and prospects" in Brussels on 10 November 2011.

The meeting included presentations from Japan, the US and China on the approaches they are taking to measure and control heavy-duty (HD) CO₂ emissions. The European Commission reported that it intends to have an HD CO₂/fuel consumption methodology in place as a reporting tool by 2014. An Impact Assessment and internet questionnaire on the overall HD CO₂ strategy are currently under way. The motor industry called for globally harmonised measurement methods and requirements for CO₂ emissions from heavy-duty vehicles, whilst the International Road Transport Union, representing the bus, coach, truck, and taxi operators said that Euro VI "marginally" improves NO_x and there should have been more concentration on CO₂/fuel consumption.

EEA Reports on Transport Emissions and on Air Quality in Europe

Emissions of many pollutants from transport fell in 2009. But this reduction may only be a temporary effect of the economic downturn, according to the latest annual report on transport emissions from the European Environment Agency (EEA).

The report says that air quality objectives were exceeded in many areas. For NO₂ the annual limit values were exceeded at 41% of traffic monitoring stations in 2009 and the daily limit value for PM₁₀ was exceeded at 30% of traffic sites across the EU-27.

Between 1990 and 2009, demand for transport grew by approximately one third, leading to a 27% increase in greenhouse gases (GHGs) from transport in the same period. Transport was responsible for 24% of all EU GHG emissions in 2009. The share of alternative-fuelled cars on the road has grown steadily, comprising more than 5% of the fleet in 2009. Most of these were using liquefied petroleum gas (LPG), while electric vehicles made up 0.02 % of the total fleet.

EEA Report No 7/2011, "Laying the foundations for greener transport - TERM 2011: transport indicators tracking progress towards environmental targets in Europe" can be downloaded from www.eea.europa.eu/publications/foundations-for-greener-transport.

The EEA report on air quality in Europe says that although emissions of most pollutants have fallen between 1990 and 2009, in 2010 many EU countries are expected to exceed the emissions ceilings for at

least one pollutant. In addition, concentrations of ground-level ozone and particulate matter have remained stable over recent years despite efforts to improve air quality. Energy, transport and agricultural sectors are major emitters of GHGs and air pollutants.

20% of the EU urban population lives in areas where the EU air quality 24-hour limit value for PM₁₀ was exceeded in 2009. However, 80-90% of the EU urban population is exposed to levels of PM₁₀ which exceeded the more stringent World Health Organisation (WHO) air quality guidelines. Diminishing primary PM emissions from transport will tend to reduce urban PM concentrations, though. Regarding ozone, about 17% of European citizens live in areas where the EU target was exceeded in 2009 and more than 95% of the urban population was exposed to ozone exceeding WHO guidelines.

Concentrations of NO₂ have declined slightly in recent years. Exceedances occurred usually at hot-spots, such as main roads. 12% of the European urban population lives in areas with urban background (non-traffic) concentrations of NO₂ exceeding EU and WHO levels. Transport is the largest contributor to NO_x emissions, accounting for 49 % of the total in 2009.

EAA Technical report No 12/2011 is at www.eea.europa.eu/publications/air-quality-in-europe-2011.

Costs of not complying with Air Quality Legislation

A consultancy report conducted for the European Commission has estimated the costs of not fully implementing current environmental targets at €50 billion per year. The consultancy focused on six areas for which DG-Environment is responsible: waste, biodiversity, water, air, chemicals and noise.

For air, the report says that the most recent data indicate exceedances of 2010 emissions limits are most significant in the case of NO_x, with more than half of Member States exceeding them in 2008. Overall, it is expected that 2010 will be 4% above the ceiling. The introduction of stricter Euro standards, though, will accelerate emissions reduction in particular when approaching 2020 as the new vehicles penetrate the market. Nevertheless, the report says that without further policy measures being taken, the Thematic Strategy's targets will not be met and there are benefit losses related to this. The lost health benefits from not achieving the aspirations set out in the Thematic Strategy amount to somewhere between €20 000 and €45 000 million. If the mean approach is applied to assess mortality, the benefit loss can be as high as €150 000 million.

The report can be downloaded from http://ec.europa.eu/environment/enveco/economics_policy/pdf/report_sept2011.pdf.

European Commission takes Court Action against Four Member States

The European Commission has announced that it is taking infringement proceedings in the European Court against several Member States.

Poland should have transposed the 2008 Air Quality Directive by June 2010. It told the Commission it was drafting a law after receiving a final warning in February 2011 but has still not done so. The Commission has asked the court to levy fines of €71 521 for each day between the date of the court judgement and full transposition of the Directive.

France and the Czech Republic also face court action over their failure to fully implement aspects of the 2009 Renewable Energy Directive regarding sustainability criteria for biofuels. Finland's failure to notify the Commission of measures taken to promote clean vehicles through public procurement is also resulting in infringement procedures.

Commission confirms EEA Report on CO₂ Emissions from Cars in 2010

The European Environment Agency (EEA) has published the 2010 update of average CO₂ emissions by car manufacturers.

Data on CO₂ emissions from passenger cars reveal that the majority of the larger car manufacturers are well on track to achieve the CO₂ emissions target for 2012 set by Regulation (EC) 443/2009. Namely, 32 manufacturers, representing almost 80% of 2010 registrations in the EU, already achieve their 2012 specific emissions targets two years in advance.

Additional efforts are needed to achieve the regulation's target for 2015 but manufacturers still have four years to reduce CO₂ emissions further and ensure compliance, the report says. From 2012, manufacturers that are not compliant with the targets must pay an 'excess emissions premium'.

EEA's report and dataset are at www.eea.europa.eu/data-and-maps/data/co2-cars-emission-1.

Also, the European Commission has adopted a decision confirming individual car manufacturers' performance in reducing CO₂ emissions in 2010. This decision is based on emissions data gathered by the EEA and verified by car manufacturers. It confirms that the average CO₂ emissions from new cars in the EU dropped by almost 4% in 2010.

EEA Report on Recycling Industry

The European Environment Agency (EEA) has published a report entitled 'Earnings, jobs and innovation: the role of recycling in a green economy' which shows that recycling benefits the environment and helps meet material demands of production.

Revenues from recycling are substantial and growing fast. From 2004 to 2008 the turnover of seven main categories of recyclables almost doubled to more than €60 billion in the EU. Overall employment related to the recycling of materials in European countries increased by 45% between 2000 and 2007.

Recycling can meet a large proportion of the economy's resources demand. However, even maximum recycling cannot cover all EU demand for resources. Recycling is particularly valuable in securing supplies of critical resources. For instance, recycling of rare metals is essential for the EU to pioneer new technologies, particularly in areas such as e-mobility, information and communication technologies and renewable energy.

EEA report No 8/2011 is available at

www.eea.europa.eu/publications/earnings-jobs-and-innovation-the.

Trucks Traffic Regulation within Rotterdam Harbour

The Netherlands notified the European Commission on 15 December 2011 that Rotterdam intends to introduce a traffic decision within the harbour.

From 1 January 2014, heavy goods vehicles above 3.5 tonnes will only be granted access to the Maasvlakte (and under-construction Maasvlakte 2) harbour area if they comply with Euro VI emissions standards or Euro V if the truck type-approval dates from before 1 January 2013.

Austrian Traffic Club calls for Low Emission Zones in Vienna and Graz

VCÖ, the Austrian traffic club, has called for the rapid introduction of environmental zones in Vienna and Graz, saying that after the Berlin LEZ introduction, diesel soot emissions reduced by half.

VCÖ says that environmental zones mean that the fleet is renewed more rapidly or old vehicles and construction equipment have to be retrofitted with particulate filters. In addition, more people use public transport, which is possible in large cities such as Graz and Vienna, where there is a dense public transport network.

Spain approves Plan to improve Urban Air Quality

The Spanish government has approved a national air quality improvement plan containing 90 measures to tackle the country's persistent exceedances of NO₂ and PM₁₀ air quality limits. There is a specific emphasis on road traffic emissions.

As the Environment Ministry had previously signalled, the plan will tighten periodic vehicle inspection requirements. Other measures to cut pollution include

introducing low emission zones in cities, ensuring cleaner road surfaces, reduced speed limits, and fiscal incentives to buy environmentally friendly vehicles. A new protocol on managing air quality measuring stations aims to prevent municipalities from artificially reducing pollution levels by eliminating certain stations.

Details of the plan are at

www.marm.es/imagenes/es/PNMCA_tcm7-181205.pdf.

Trieste extends Funding for Euro 5 Vehicles

At the suggestion of regional Vice-President Luca Ciriani, the Friuli Venezia Giulia Region of Italy (capital Trieste) is to enhance by €1 million the fund for the purchase of private motor vehicles with Euro 5 engines and which emit less than 140 g/km CO₂.

Each family will have the option to apply for a subsidy of €1000 at the time of purchase of a new car. The enhancement comes from a redistribution of existing incentives, rather than any new money. The additional funding will be recovered from the incentives to purchase hybrid cars, which has had less take-up. The original funding for Euro 5 vehicles would have supported some 3000 subsidies, but 2300 requests have already been received.

Rome initiates 'Number Plate' Bans

On 1 and 2 December 2011, ARPA, Rome's Environment Department, instituted a 'number plate' ban to help control air quality. Motor vehicles, motorcycles and mopeds were banned from the city's "green zone" between 9:00 and 13:00 and between 16:00 and 21:00 depending on whether they had odd- or even-numbered licence plates.

All Euro 0 and 1 petrol vehicles, Euro 0, 1 and 2 diesels, and Euro 0 and 1 mopeds and motorcycles, trikes and quads were banned from 07:30 to 20:30. Euro 5 vehicles, Euro 3 motorcycles, hybrids and vehicles fuelled by LPG, methane or electricity were exempted from the ban, as were emergency services, public transport and cars of disabled persons.

German Financial Incentive for retrofitting Light-duty Diesel Vehicles

On 6 December 2011, Germany notified the European Commission of a new national directive to fund retrofit of particulate reduction systems in Diesel passenger cars and light commercial vehicles. The level of funding available will be €330 and may only be awarded once per vehicle.

To be eligible for funding in 2012, a passenger car must be retrofitted with a particle filter so that it complies with one of the particulate reduction levels PM 01 or PM 0 to PM 4 as defined in the road traffic

licensing regulation StVZO. Similarly, particulate reduction classes PMK 01 or PMK 0 to PMK 4 apply to light-duty commercial vehicles.

DUH launches List of Retrofittable Construction Equipment

German environmental organisation Deutsche Umwelthilfe (DUH) has released a database that will allow purchasers and operators to examine which construction machines are offered with a diesel particulate filter. DUH says the database will also allow professional associations and unions to demand more safety on site by the use of DPFs.

DUH says that diesel-powered construction equipment is responsible for a quarter of inner city Black Carbon emissions, but strict requirements for the use of soot filters have previously only been available for use in tunnels or enclosed spaces. The age of the machines and the nature of their use are the two main reasons for high emissions of ultrafine particles by construction equipment. Despite relatively small numbers, their use in the same place over many hours gives a high health risk for residents and site workers, DUH says. Investigations by the Helmholtz Institute in Munich have shown that construction workers, compared with the normal population, have twice as high a cancer risk. For this reason DUH is calling for the mandatory use of particulate reduction systems, in Germany, based on the Swiss model.

To underscore the feasibility of this requirement, DUH has created the website www.russfrei-bauen.de that includes the database of retrofittable equipment.

UK Parliament Report on Air Quality calls for LEZs and Retrofit Certification

The UK Parliament's Environmental Audit Committee report on air quality, published on 14 November 2011, says that the government has "failed to get to grips" with air pollution.

The new report says that "over the past year the evidence of the damage caused by air pollution has grown stronger. But the UK is still failing to meet European targets for safe air pollution limits across many parts of the country...40 out of the UK's 43 assessment zones are failing to meet EU targets and poor air quality is now found to be shortening the lives of up to 200 000 people by an average of 2 years."

The report calls for the government to put improving air quality into the business plan for the environment department (Defra), to set up a ministerial group to oversee delivery of a new cross-government air quality strategy, and "as a matter of urgency" to establish a national framework of low emissions zones (LEZ) supported by a national certification scheme of retrofit technologies.

The Environmental Audit Committee report is at www.publications.parliament.uk/pa/cm201012/cmselect/cme/nvaud/1024/102402.htm.

London Borough introduces Fines for Buses idling over 4 Minutes

To help improve air quality, the local authority in the London Borough of Camden, UK, is fining bus companies who leave engines idling unnecessarily at bus stands and coach parking bays. Engines left running for more than four minutes will result in a fine of up to £80 (€90). Air quality at some locations in Camden is in breach of EU standards and national objectives. Enforcement has been introduced to tackle the problem because signs asking drivers to switch off their engines were being ignored.

UK Consultation on Update of Emissions Data for Annual Inspections

The UK Department for Transport has launched a consultation on the update of its booklet on In-Service Exhaust Emission Standards for Road Vehicles.

The booklet contains the manufacturer-supplied data for CO, HC and λ at idle/high idle to be used in the annual roadworthiness inspections.

The consultation and the data sets are available at www.dft.gov.uk/consultations/dft-2011-33.

Denmark increases Tax on NOx Emissions from Stationary Sources

On 15 December 2011, Denmark notified the European Commission of the amendment of its national law on taxation on NOx emissions from combustion in stationary plants.

The tax on nitrogen oxides from combustion in stationary plants will be increased approximately 5-fold, either on measured emissions or energy products for combustion; the NOx tax on energy products used for transportation will also increase. Requirements for corporate measurements will be extended so that more companies are required to measure emissions. The proposal will reduce NOx emissions from stationary plants in Denmark by approximately one third, the notification says.

Furthermore, there are amendments to the energy tax law on petroleum products and the tax on natural gas and town gas. Energy taxes on motor fuels will decrease in the transport sector so that the overall taxation of fuel for cars remains the same.

Hungary issues Rules for Heavy-duty DPF Retrofits

Hungary has notified the European Commission of rules for retrofit particulate filters for heavy-duty vehicles, particularly coaches.

The notification says that the development of detailed rules is required for retrofitting particle filters because several large cities in a number of European countries have established Low Emission Zones (LEZ). In Germany, the requirements related to retrofitted filters are laid out in Appendix XXVII to the Straßenverkehrs-Zulassungs-Ordnung (StVZO). The Hungarian system is based on this since there is a major objective of allowing domestic vehicles (primarily tourist buses) to enter German LEZs. LEZs are expected to be established in large Hungarian cities in the near future and therefore certificates for the retrofitting of particle filters will be required in Hungary as well.

The requirements will be implemented through a National Development Minister's Decree on the modification of the KöHÉM Decree No. 5/1990 (IV. 12.) on technical inspections of road transport vehicles and KöHÉM Decree No 6/1990 (IV. 12.) on technical requirements for placing into, and maintaining in circulation of road transport vehicles.

Switzerland announces Tax Discounts for Retrofitted Vehicles

Switzerland has announced that Euro II and Euro III vehicles equipped with a particulate filter will receive a 10% discount on the levy on heavy goods vehicles (HVF) from 1 January 2012. To receive the discount, the vehicles must reach at least the Euro IV PM limit. This discount will apply from the beginning of 2012 and will also be valid for Euro 2 and Euro 3 light-duty vehicles with attached trailers that are subject to the tax.

From 1 January 2012 retrofitted Euro II vehicles (and Euro 2 with trailer) will pay 2.76 cents per tonne-km (0.0226 €/t.km) instead of the normal price of 3.07 cents/t.km. Retrofitted Euro III vehicles (and Euro 3 with trailer) will pay 2.39 cents/t.km instead of the normal 2.66 cents/t.km for that class.

Switzerland also started negotiations with the EU on a 10% discount for Euro VI vehicles.

Switzerland adopts Rules limiting CO₂ Emissions from New Vehicles

On 16 December 2011, the Swiss Federal Council adopted an ordinance setting out new CO₂ emission limits for passenger vehicles and imposing an "incentive tax" on vehicles that do not comply.

The new norms establish a target limit of 130 g CO₂/km starting in 2015, identical to the limit fixed by the EU. To encourage compliance, Switzerland will impose an "incentive tax" starting 1 July 2012. The tax will be 140 Swiss francs (€115) per vehicle for each gram of emissions in excess of the calculated limit, with lower rates for the first three grams in excess of the limit. Receipts from the tax will be redistributed to

the population in general through a reduction in health insurance premiums, the Swiss government said.

Russia to lower Excise Duty Rates for Euro 4 and 5 Fuels

Russia's State Duma, the country's lower house of parliament, has approved amendments to the country's tax code that will lower excise tax rates for Euro 4 and Euro 5 petrol and increase the rates for lower-quality gasoline starting in July 2012, according to a draft published on 18 November 2011 on the Duma's website.

The draft also says that from the same date, the amendments also introduce separate excise tax rates for Euro 4 and Euro 5 gasoline, which under the current legislation are unified. The same approach is being applied to setting excise tax rates on diesel.

NORTH AMERICA

Canada adopts Tier 4 Emission Standards for Non-Road Engines

Environment Canada approved amendments to the country's Off-Road Compression-Ignition Engine Emission Regulations on 17 November 2011.

The amendments align Canadian emission standards with the US Environmental Protection Agency's Tier 4 standards for non-road engines which come into force on 16 January 2012.

The approved regulatory text was published in the Canada Gazette, Part II on 7 December 2011 and is at www.gazette.gc.ca/rp-pr/p2/2011/2011-12-07/pdf/g2-14525.pdf.

US Formally announces 2017-2025 Fuel Economy & CO₂ Standards

On 16 November 2011 the US Environmental Protection Agency (EPA) and Department of Transportation (DOT) formally unveiled their joint proposal to set stronger fuel economy and greenhouse gas pollution standards for model year 2017-2025 passenger cars and light trucks.

The proposed programme for 2017-2025 is expected to require increases in fuel efficiency equivalent to achieving 54.5 mpg (4.3 l/100km). The announcement says that "a wide range of technologies are currently available to meet the new standards, including advanced gasoline engines, vehicle weight reduction, lower tyre rolling resistance, improvements in aerodynamics, diesel engines, more efficient accessories, and improvements in air conditioning systems. The standards should also spur manufacturers to explore electric technologies such as start/stop, hybrids, plug-in hybrids, and electric vehicles."

The proposal uses footprint-based fuel economy and CO₂ targets, with the latter ranging from 131 g/mile (81.8 g/km) for a compact car to 252 g/mile (157.5 g/km) for a large pick-up truck. The requirements include methane and N₂O emissions (as do the 2012-2016 standards).

Further details are at www.nhtsa.gov/fuel-economy.

Canada releases Light-duty Greenhouse Gas Proposal for 2017 Onwards

Canada's Environment Minister has also released a consultation document on regulations to limit greenhouse gas emissions from passenger cars and light trucks for model years 2017 and beyond.

The proposal is harmonised with that of the US (see above) in line with the Minister's announcement made in October 2010. The proposed regulations are intended to be developed for pre-publication in the Canada Gazette, Part I, in autumn 2012 and a 60-day consultation period will follow.

California releases Advanced Clean Cars Proposals

On 7 December 2011 the California Air Resources Board (CARB) released the formal proposals for their Advanced Clean Cars programme. The programme combines the control of smog, soot-causing pollutants and greenhouse gas emissions into a single package of requirements for model years 2015 to 2025.

For pollutant emissions, CARB proposes several amendments to strengthen the Low Emissions Vehicle (LEV) programme. The major elements of this proposed LEV III programme are confirmed as:

- A reduction in the fleet-average emissions of new passenger cars, light-duty trucks and medium-duty passenger vehicles to SULEV levels by 2025.
- Combined NMOG + NO_x standards. These will decline in stages for all vehicle categories by 2030.
- More stringent PM standards.
- An increase in durability to 150 000 miles.
- More stringent evaporative emission standards.

California will also use the US EPA's approach for greenhouse gas emissions (see above) and adopt separate standards for CO₂, CH₄, and N₂O. The CH₄ and N₂O standards will reflect the same stringency as the original California GHG standards.

A summary is available at:

www.arb.ca.gov/msprog/clean_cars/acc%20summary-final.pdf.

CARB has also announced a public hearing to be conducted on 26 January 2012 to consider those LEV III amendments. Details are at:

www.arb.ca.gov/regact/2012/leviiighg2012/levnotice.pdf.

US-EPA finalizes 2012 Renewable Fuel Standards

On 27 December 2011, the US Environmental Protection Agency (EPA) finalized the 2012 standards for four fuel categories that are part of the agency's Renewable Fuel Standard program (RFS2).

The Energy Independence and Security Act (EISA) of 2007 established the RFS2 program and the annual renewable fuel volume targets, which steadily increase to an overall level of 36 billion gallons in 2022. To achieve these volumes, EPA calculates a percentage-based standard for the following year. Based on the standard, each refiner and importer determines the minimum volume of renewable fuel that it must ensure is used in its transportation fuel.

The final 2012 overall volumes and standards are:

- biomass-based diesel (1.0 billion gallons; 0.91%)
- advanced biofuels (2.0 billion gallons; 1.21%)
- cellulosic biofuels (8.65 million gallons; 0.006%)
- total renewable fuels (15.2 billion gallons; 9.23%)

CARB releases Studies on Health Effects of Fine Particles and on Biodiesel

Three new studies released by the California Air Resources Board (CARB) show that exposure to airborne fine-particulate matter significantly elevates the risk for premature deaths from heart disease in older adults and elevates incidence of strokes among post-menopausal women.

CARB commissioned the studies to further investigate the connection between fine particulate pollution and public health impacts in California.

Two of the studies by Jerrett of Berkley University and Lipsett of the CARB Department of Health Services respectively demonstrate a relationship between long-term PM_{2.5} exposure and cardiovascular effects, such as heart attacks and strokes. The third study by Tablin of UC Davis investigated how inhaled PM_{2.5} could contribute to heart attacks and strokes.

The three studies are available from CARB website at www.arb.ca.gov/research/apr/past/06-332.pdf, www.arb.ca.gov/research/apr/past/06-336.pdf, and www.arb.ca.gov/research/apr/past/07-337.pdf.

CARB has also published a comprehensive emissions study comparing biodiesel and renewable diesel fuels that was conducted to help develop California legislative initiatives that promote increased alternative fuels use. The study covers NOx impacts on heavy-duty and non-road engines and addresses health impacts and unregulated emissions.

The CARB report is available from www.arb.ca.gov/fuels/diesel/aldiesel/20111013_CARB%20Final%20Biodiesel%20Report.pdf.

NESCAUM Assessment of the Benefits of Low Sulfur Gasoline

NESCAUM, the US Northeast States for Coordinated Air Use Management, has issued a White Paper assessing lower sulfur limits benefits for US gasoline.

The report assesses the costs and air quality benefits of lowering gasoline sulfur content to an average of 10 ppm as part of the EPA's Tier 3 rulemaking for cars and light-duty trucks. It concludes that lowering the sulfur content of gasoline allows pollution control equipment on cars and trucks to operate more effectively and can significantly reduce NOx and other emissions from gasoline-powered vehicles. The emissions reductions from the in-use fleet would be achieved concurrent with the introduction of the cleaner fuel, without the need for fleet turnover. The combined reductions from Tier 3 vehicle emission standards and fuel sulfur requirements could be a significant component in achieving the needed reduction of levels of air pollutants known to have adverse public health and environmental impacts.

The White Paper is available from www.nescaum.org.

Canada proposes limiting Sulfur Content in Marine Diesel Fuel

Environment Canada proposed on 2 December 2011 amendments to Canada's Sulfur in Diesel Fuel Regulations that would significantly reduce sulfur emissions from vessels operating in Canada's territorial waters, while harmonizing Canadian standards with those of the USA.

The proposed amendments would require large ships of more than 400 gross metric tons to burn diesel fuel with a maximum sulfur content of 1000 ppm. Compliance may be achieved through use of low-sulfur marine fuel or approaches that produce equivalent results, including emissions control technologies or alternative fuels.

The amendments would also reduce the allowable sulfur limit in fuels for use in diesel locomotives and smaller ships to 15 ppm as of 1 June 2014. Diesel for small stationary engines would be limited to 15 ppm from 1 June 2012 and that for large stationary engines would be limited to 1000 ppm as of 1 June 2014.

SOUTH AMERICA

Mexico requires Emissions Testing of Imported Cars

A Mexican federal law took effect on 22 November 2011 that requires all vehicles being exported from the USA to Mexico to have an emissions test in the US and an emissions test in Mexico, according to the Mexican environmental protection agency.

The new requirement will help improve air quality in the Imperial and Mexicali valleys.

ASIA PACIFIC

China tightens Air Quality Standards

The Ministry of Environmental Protection started gauging public opinion on revised air quality standards following widespread calls for the government to provide more information on pollution. The new standards will, for the first time, include PM_{2.5}, a major cause of haze harmful to health, the ministry said.

Along with the new standards, the country's existing Air Pollution Index will also be upgraded into the Air Quality Index. This will follow international practices to include ozone and CO levels as well as PM_{2.5}. Tighter rules will also be set for some pollutants already monitored, such as NO_x and PM₁₀. The average yearly ceiling for PM_{2.5} concentrations is set at 35 µg/m³ while the daily limit is set at 75.

The World Health Organization's (WHO) guidelines indicate that a yearly average of PM_{2.5} below 10 µg/m³ is deemed safe, while the daily average should not be above 25 µg/m³. But the WHO also published recommendations for developing countries to gradually improve their air quality. China's new standards are in line with the first step targets.

The ministry plans to adopt the new standards nationally by 2016, but key regions will be subject to the new standards earlier. It is expected that Beijing-Tianjin-Hebei, Yangtze River Delta and the Pearl River Delta will adopt the standards during the 12th Five Year Plan ending in 2015.

China 5 Fuels in Beijing in 2012

According to *China Daily*, the Beijing Municipal Environmental Protection Bureau plans to introduce the National 5 emission standard for transportation fuels in Beijing in 2012. This standard is equivalent to the Euro 5 standard, with maximum sulfur content in gasoline and diesel down to 10 ppm.

Most cities in China follow the National 3 emission standard for gasoline and diesel, except for Beijing, Shanghai and Guangzhou, which adopted the National 4 standard - broadly equivalent to Euro 4 emissions standards - from March 2008, September 2009 and July 2010, respectively. Earlier plans were to introduce National 5 standard by 2015-2016.

Most of domestic refineries are now capable of producing gasoline and diesel that meet National 4 standards, while Sinopec and Petrochina have already started producing National 5 fuels, according to the Ministry of Environmental Protection.

Hong Kong, China, targets In-use Emissions from Petrol and LPG Vehicles

The Environmental Protection Department (EPD) of Hong Kong has announced proposals to strengthen the control of excessive exhaust emissions from in-use vehicles using petrol and liquefied petroleum gas.

EPD says that high NO₂ levels at the roadside are the main cause of the Air Pollution Index reaching from time to time the "very high" level. Actions already in place are subsidies for franchised bus companies to retrofit Euro II and Euro III buses with SCR, grants for the replacement of Euro II diesel commercial vehicles, and working on regional air quality issues.

However, poorly maintained petrol and LPG vehicles are a major source of NO_x. Taxi and light bus emissions account for 39% of NO_x and 55% of HCs in Hong Kong. Because of their high mileage, about 80% of taxis and about 45% of light buses have excessive emissions and require repair, so the government has earmarked HK\$150 million (€13.8 million) to replace LPG taxi and light bus catalytic converters.

The proposals also said mobile equipment will be set up at roadside locations by 2013 to identify petrol and LPG vehicles with excessive emissions. Owners will be required to repair these vehicles and put them through a test at a vehicle emissions testing centre.

South Korea revises Fuel Efficiency Rating System

A new system for measuring the fuel efficiency of cars is to be introduced in South Korea starting in 2012.

The Ministry of Knowledge Economy says that the new system will apply to all passenger cars and 3.5-tonne or smaller trucks newly registered from 2012 and to existing vehicles starting in 2013. Fuel economy labels will reflect fuel efficiency recorded both under highway and city driving conditions. The new system will use the US system, which includes a highway cycle, a cold temperature operation test, a high acceleration test, and an air conditioning test in addition to the city driving cycle, to better approximate actual fuel economy performance. Fuel economy levels, measured in five grades, will be revised so that Grade 1, which is currently for cars with fuel economy >15 km/litre of fuel, is to be raised to >16 km/l. Grade 1 cars will then account for only 7% of all vehicles produced in the country, down from the current 30%.

New ICCT Report on Motorcycle Emissions in Asia

The International Council on Clean Transportation (ICCT) has released a new report on emissions from two- and three-wheel motorcycles in Asia.

The large share of two- and three-wheelers in Asian countries poses significant challenges to air quality, public health and road safety. Emissions standards and technologies that have been applied for decades to control pollution from passenger cars have not fully migrated to 2- and 3-wheelers. Fuel economy standards have not been implemented in most countries and regions for this mode of transportation. Robust regulatory programmes, such as compliance and enforcement programmes, in-use control, OBD and evaporative controls that guarantee optimum performance have been employed only sparsely and most Asian regions lack such safeguards.

The ICCT report identifies the most effective technologies for CO₂, emissions and safety measures and maps the status of regulatory programmes for two- and three-wheelers in Asian countries. It also provides policy recommendations for emissions reduction, fuel economy standards and safety.

The ICCT report is at www.theicct.org/sustainable-management-two-and-three-wheelers-asia.

MIDDLE-EAST

Israel Air Pollution Reduction Plan

Israel's first proposed program to reduce air pollution was released on 11 December 2011. The plan would achieve a double-digit reduction in ozone, micro-particles, and nitrogen oxides in the air, according to the Ministry of Environmental Protection. Without the program, Israel would not meet the objectives of its Clean Air Act, and pollution-induced illness would cost the Israeli economy about 8 billion shekels (€1.6 billion) within a decade, the ministry projected.

The new program largely focuses on transportation, including a switch to cleaner buses, with a pilot program to introduce buses powered by liquefied petroleum gas (LPG); limits on car leasing; scrapping of old vehicles for cash; and changes in public sector car allowances. The program also proposes to lower rates on toll roads for multi-passenger vehicles and public transportation, require public transportation companies to purchase less polluting vehicles, and implement graded tax rates on fuels based on a pollution index.

UNITED NATIONS

World Forum for Harmonisation of Vehicle Regulations

The UN World Forum for Harmonisation of Vehicle Regulations (WP29) met in Geneva from 15 to 18 November 2011. Participants were advised that the UNECE Agreements are being revised and reformed. The term 'UN Regulation' is now replacing the previous annotation 'UNECE Regulation'.

Three new proposals were agreed:

- Supplement 5 to the 05 series of Regulation No. 49 (heavy-duty emissions) which brings the Regulation into line with Euro VI.
- An 03 series of amendments to Regulation No. 96 (NRMM & Tractor emissions), which introduces Stages IIIB and IV from the EU Directive.
- An 01 series of amendments to Regulation No.120 (net power for NMRR & Tractors) aligning the Regulation 96 and the NRMM emissions gtr.

A new annex on fuel quality standards to the Consolidated Resolution on the Construction of Vehicles was also adopted.

Gothenburg Protocol adds Black Carbon to the List of Controlled Pollutants

The Executive Body of the Convention on Long-range Transboundary Air Pollution has agreed to add particulate matter, including black carbon, to the convention's Gothenburg protocol, which seeks to end acidification, eutrophication, and ground-level ozone.

Meeting in Geneva in December 2011, the panel also debated stricter limits on pollutants already included in the protocol: SO₂, NO_x, VOCs, and NH₃. Specific limits were not agreed on, however and no specific limit was set for particulate matter.

The European Union, Russia, and the United States are among the 26 parties to the protocol. The Eastern Europe, Caucasus, and Central Asian countries are moving toward accession to the protocol.

UNEP Report on Black Carbon and Short-lived Climate Forcers

A report from the UN Environment Programme (UNEP) says that a package of 16 measures could, if fully implemented across the globe, deliver near-term climate protection of about 0.5°C by 2040. One of the measures recommended is fitting particle traps to diesel engines.

The measures, outlined in a new report compiled by UNEP and funded by the Government of Sweden, target short-lived climate forcers - black carbon, CH₄ and tropospheric ozone. The report estimates that about half of the black carbon and methane emissions can be reduced through measures that result in cost savings over the investment lifetime.

Black Carbon is a major cause of premature deaths, the report says. It is also likely to heat up the atmosphere and, when deposited onto ice caps and glaciers, can accelerate melting.

Fast action on these short-lived climate forcers could significantly cut the rate of warming in the Arctic and reduce projected warming in 2040 by 0.7°C. The report outlines national actions that can assist in fast-

tracking efforts to reduce short-lived climate forcers, including tax incentives, regulation, public education and subsidies or loans. The report emphasizes though that fast action on short-lived climate forcers will not be able to keep global temperature rise under 2°C by the end of the century, unless governments decisively act on the principle greenhouse gas, carbon dioxide.

The UNEP report is at www.unep.org/pdf/Near_Term_Climate_Protection_&_Air_Benefits.pdf.

WHO Report on Health Co-Benefits of Climate Change Mitigation in Transport

A new report from the World Health Organization (WHO), called 'Health co-benefits of climate change mitigation - Transport sector', reviews over 300 studies on health outcomes from different types of land transport systems in a 'scoping exercise' designed to identify those mitigation measures associated with specific health co-benefits or risks.

Certain climate mitigation measures can also create risks for health, Dr Carlos Dora of WHO's Department of Public Health and Environment noted. One key finding of the report was that making diesel vehicles a central feature of climate mitigation could generate new health risks from air pollution exposures.

While diesel vehicles are often more fuel-efficient, they also emit comparatively higher levels of small particulates than conventional gasoline engines. Higher ambient concentrations of fine particles have been linked to comparatively higher rates of premature mortality in many epidemiological studies and WHO Air Quality Guidelines recommend values for average small particles concentrations that are far lower than those common in many developing cities.

The WHO report is available at www.who.int/hia/examples/trspt_comms/transport_sector_health_co-benefits_climate_change_mitigation/en.

WMO Report on Greenhouse Gas Emissions in 2010

Concentrations of the three main greenhouse gases (GHG) blamed for global warming reached record levels in 2010 and will linger in the atmosphere for decades, even if the world stops emissions output today, the UN World Meteorological Organization (WMO) said in its annual Greenhouse Gas Bulletin published on 21 November 2011.

The WMO measured the overall amount of GHG in the atmosphere, based on monitoring stations in more than 50 countries. The measurements included natural emissions and absorption processes as well as emissions caused by human activity. The WMO said GHG concentrations in the atmosphere increased by 1.4% last year from 2009 and 29% since 1990, mainly driven by fossil fuel use and agriculture. Three

of the most active gases, CO₂, CH₄ and N₂O, were more prevalent in the atmosphere in 2010 than at any time since the industrial revolution. CO₂ rose by 2.3 ppm to 389 ppm in 2010 from 2009, higher than the 1990s average (1.5 ppm) and the past decade (2 ppm). Methane has been growing in the past five years after levelling off between 2000 and 2006, for reasons that are not fully understood. N₂O's main human source is the use of nitrogen-based fertilizers.

The report is at www.wmo.int/pages/mediacentre/press_releases/documents/GHGbulletin.pdf.

UNEP says More Action is needed on Greenhouse Gas Emissions

The gap between global Greenhouse Gas emissions reduction pledges and the level of reductions needed to limit temperature rise to two degrees has grown, the UN's Environment Programme (UNEP) said on 23 November 2011.

In a report released ahead of the UN climate talks in Durban, UNEP recommends a more rapid switch to renewable energy, greater effort to improve energy efficiency and new measures to tackle international shipping and aviation emissions.

Last year, the gap between the voluntary emissions reduction pledges that countries made at the 2009 climate summit in Copenhagen and the level needed to achieve the agreed 2°C objective was 5 to 9 Gt of CO₂ equivalent. In 2011, this gap had risen to 6-11 Gt CO₂ equivalent, according to the UNEP report.

The UNEP report "Bridging the Emissions Gap" is at http://www.unep.org/publications/contents/pub_details_search.asp?ID=6227

UN to set up Working Groups on Standards for Electric Vehicles

On 17 November 2011 the EU, USA and Japan announced an International agreement on rules to speed up introduction of electric vehicles.

Under the proposed cooperating agreement, two informal working groups on electric vehicles will be set up under the 1998 UN Agreement on Global Technical Regulations (gtr). The working groups are open to all countries that are contracting parties to the relevant UN Agreement, including India and China.

The first group will address the safety aspects of electric vehicles and their components, including the battery. The second group will focus on environmental aspects of regulations applied to electric vehicles. The aim of both groups is to exchange information on current and future regulatory initiatives in this field, to avoid unnecessary differences between regulatory approaches and, where possible, develop common requirements in the form of a gtr.

GENERAL

Project on Conversion of Older Buses to Serial Hybrids

A project for the conversion of old buses with internal combustion engines into serial hybrids has been awarded the 2011 'Premio all'Innovazione' (Prize for Innovation) by Legambiente, the Italian environmental association.

Hybus, developed by Pininfarina in partnership with GTT (Transportation Company of Turin) and partially financed by the Piedmont Region, was selected for its contribution to the reduction of pollution, consumption and noise; reduction of waste and of natural resources consumption thanks to the concept of revamping obsolete buses; and to the economic advantage for Companies and Public Administrations. The system is said to cost 60% less compared to a new hybrid bus and to have a lower operating cost than a diesel.

With Hybus, Pininfarina proposes the conversion of buses powered by Euro 0, I or II engines into serial hybrids. The original engine is replaced with a Euro V 1.3 litre 69 kW Fiat Multi-jet Diesel power unit directly coupled to the electric generator. The demonstration prototype uses a 1994 Euro I Iveco 490 bus.

Report on the Global and China Automotive Exhaust System Industry

'Research in China' has published a study on the automotive exhaust system and emissions control system industry. The report covers global and Chinese automobile markets and exhaust systems technologies, markets and manufacturers.

The report is available from www.researchinchina.com.

RESEARCH SUMMARY

Effects of Emissions & Pollution

Diabetes Sufferers Susceptibility to Air Pollution

Hampel et al., Acute air pollution effects on heart rate variability are modified by SNPs involved in cardiac rhythm in individuals with diabetes or impaired glucose tolerance; *Environmental Research* (in press), doi: [10.1016/j.envres.2011.10.007](https://doi.org/10.1016/j.envres.2011.10.007).

NOx and Respiratory Infections in Infants

Ghosh et al., Ambient nitrogen oxides exposure and early childhood respiratory illnesses; *Environment International* (Feb. 2012) 39 (1) pp. 96-102, doi: [10.1016/j.envint.2011.10.001](https://doi.org/10.1016/j.envint.2011.10.001).

Air Pollution and Health

Solomon, Wexler and Sioutas, Special Issue of Atmospheric Environment for Air Pollution and Health: Bridging the Gap from Sources-to-Health Outcomes; *Atmospheric Environment* (Dec. 2011) 45 (40) pp.7537-7539, doi: [10.1016/j.atmosenv.2011.10.050](https://doi.org/10.1016/j.atmosenv.2011.10.050).

Review of Effects of PM on Cardiovascular System

Nelin, Joseph, Gorr and Wold, Direct and indirect effects of PM on the cardiovascular system; *Toxicology Letters* (2012) 208 (3) pp.293-299, doi: [10.1016/j.toxlet.2011.11.008](https://doi.org/10.1016/j.toxlet.2011.11.008).

Traffic-related Pollution and Preterm Birth

Wilhelm et al., Traffic-related air toxics and preterm birth: a population-based case-control study in Los Angeles county, California; *Environmental Health* (2011) 10 (89) pp.1-12, doi: [10.1186/1476-069X-10-89](https://doi.org/10.1186/1476-069X-10-89).

Exposure to Neighborhood Traffic Pollution increases Respiratory Symptoms in Children

Cakmak, Mahmud, Grgicak-Mannion and Dales, The influence of neighborhood traffic density on the respiratory health of elementary schoolchildren; *Environment International* (Feb. 2012) 39 (1) pp.128-132, doi: [10.1016/j.envint.2011.10.006](https://doi.org/10.1016/j.envint.2011.10.006).

Valuing the Health Risks of Particulate Air Pollution

Desheng Huang, Jianhua Xu and Shiqiu Zhang, Valuing the health risks of particulate air pollution in the Pearl River Delta, China; *Environmental Science & Policy* (Jan. 2012) 15, (1) pp.38-47, doi: [10.1016/j.envsci.2011.09.007](https://doi.org/10.1016/j.envsci.2011.09.007).

Interactions between Particulate Air Pollution, Smoking and Childhood Asthma

Baccarelli and Kaufman, Ambient Particulate Air Pollution, Environmental Tobacco Smoking, and Childhood Asthma: Interactions and Biological Mechanisms, *American Journal of respiratory and Critical Care Medicine*, 2011, Vol. 184 No 12, pp.1325-1327, doi: [10.1164/rccm.201109-1695ED](https://doi.org/10.1164/rccm.201109-1695ED).

Air Quality, Sources and Exposure

Air Quality Monitoring Stations in Europe

Joly and Peuch, Objective classification of air quality monitoring sites over Europe, *Atmospheric Environment* (2011) 11 025, doi: [10.1016/j.atmosenv.2011.11.025](https://doi.org/10.1016/j.atmosenv.2011.11.025).

London Low Emission Zone Baseline Study

Kelly et al., The London Low Emission Zone Baseline Study, *Health Effects Institute Research Report No 163* (2011), <http://pubs.healtheffects.org/view.php?id=366>.

Seasonal Variations of EC/OC in Athens

Grivas, Cheristanidis, and Chaloulakou, Elemental and organic carbon in the urban environment of Athens. Seasonal and diurnal variations and estimates of secondary organic carbon, *Science of the Total Environment* (2011) 10 058, doi: [10.1016/j.scitotenv.2011.10.058](https://doi.org/10.1016/j.scitotenv.2011.10.058).

Vehicle Emissions contribute more to PM_{2.5} at Roadside than in the Urban Areas

Shaojie Song et al, Chemical characteristics of size-resolved PM_{2.5} at a roadside environment in Beijing, China; *Environmental Pollution* (Feb. 2012) 161 pp.215-221, doi: [10.1016/j.envpol.2011.10.014](https://doi.org/10.1016/j.envpol.2011.10.014).

Higher Weekend VOC/NOx Ratios increase Ozone

Seguel, Morales and Leiva, Ozone weekend effect in Santiago, Chile; *Environmental Pollution* (2012) 162 pp.72-79, doi: [10.1016/j.envpol.2011.10.019](https://doi.org/10.1016/j.envpol.2011.10.019).

Emissions Measurements

Particle Numbers with Biodiesel and DOC+DPF

Li-Hao Young et al, Effects of biodiesel, engine load and diesel particulate filter on nonvolatile particle number size distributions in heavy-duty diesel engine exhaust; *Journal of Hazardous Materials*, (2012) 199-200 pp.282-289, doi: [10.1016/j.jhazmat.2011.11.014](https://doi.org/10.1016/j.jhazmat.2011.11.014).

Physicochemical Properties of Pt in LNTs

Wang, Kim, Kwak, Wang, Szanyi and Peden, Effect of reductive treatments on Pt behavior and NOx storage in lean NOx trap

catalysts; *Catalysis Today* (2011) 75 (1) pp.78-82, [doi:10.1016/j.cattod.2011.03.032](https://doi.org/10.1016/j.cattod.2011.03.032).

PAH and N-PAH Emissions from a DPF Diesel

Carrara and Niessner, Impact of a NO₂-regenerated diesel particulate filter on PAH and NPAH emissions from an EURO IV heavy duty engine; *Journal of Environmental Monitoring* (2011) 13 pp.3373-3379, [doi: 10.1039/C1EM10573F](https://doi.org/10.1039/C1EM10573F).

Natural Gas Composition Effect on Light-duty Vehicles Operation

Karavalakis, Durbin, Villela, and Miller, Air pollutant emissions of light-duty vehicles operating on various natural gas compositions, *Journal of Natural Gas Science and Engineering* (2012) Vol.4 pp. 8-16, [doi: 10.1016/j.jngse.2011.08.005](https://doi.org/10.1016/j.jngse.2011.08.005).

Fuels Blend and Advanced Calibration to meet Euro 5 without DPF

Magand et al., Use of Ethanol/Diesel Blend and Advanced Calibration Methods to Satisfy Euro 5 Emission Standards without DPF, *Oil & Gas Science and Technology – Rev. IFP Energies Nouvelles*, Vol. 66 (2011), No. 5, pp. 855-875, [doi: 10.2516/ogst/20111136](https://doi.org/10.2516/ogst/20111136).

Pollutant Formation, Catalysis, Filtration

Pressure Drop Distribution and Pore Structure Properties in Wall-Flow DPFs

Payri, Broatch, Serrano, and Piqueras, Experimental–theoretical methodology for determination of inertial pressure drop distribution and pore structure properties in wall-flow diesel particulate filters (DPFs), *Journal of Energy* (2011) 36 12, pp.6731-6744, [doi: 10.1016/j.energy.2011.10.033](https://doi.org/10.1016/j.energy.2011.10.033).

Vanadium Characterization in Diesel PM Emissions

Shafer et al, Chemical Speciation of Vanadium in Particulate Matter Emitted from Diesel Vehicles and Urban Atmospheric Aerosols, *Environmental Science Technology* (2011) 46 (1) pp.189-195, [doi: 10.1021/es200463c](https://doi.org/10.1021/es200463c).

Vanadia–Anatase Nanoparticle SCR Catalysts

Kristensen et al., High performance vanadia–anatase nanoparticle catalysts for the Selective Catalytic Reduction of NO by ammonia; *Journal of Catalysis* (2011) 284 (1) pp.60-67, [doi: 10.1016/j.jcat.2011.08.017](https://doi.org/10.1016/j.jcat.2011.08.017).

Low Temperature SCR over Mn on TiO₂ Nanotubes

Yao Yao, Shu-Le Zhang, Qin Zhong, and Xiao-Xiao Liu, Low-temperature selective catalytic reduction of NO over manganese supported on TiO₂ nanotubes; *Journal of Fuel Chemistry and Technology* (2011) 39 (9) pp.694-701, [doi: 10.1016/S1872-5813\(11\)60042-X](https://doi.org/10.1016/S1872-5813(11)60042-X).

Effects of Retrofit and Accelerated Fleet Turnover on Emissions

Dallmann, Harley, and Kirchstetter, Effects of Diesel Particle Filter Retrofits and Accelerated Fleet Turnover on Drayage Truck Emissions at the Port of Oakland, *Environmental Science Technology* (2011) 45 (24) pp.10773-79, [doi: 10.1021/es202609g](https://doi.org/10.1021/es202609g).

Characteristics and Control of PM Emissions from RCCI Combustion

Prikhodko et al., Diesel Oxidation Catalyst control of hydrocarbon aerosols from reactivity controlled compressions ignition combustion, *Proceedings of the ASME 2011 International Mechanical Engineering Congress & Exposition*, [IMECE2011-64147](https://doi.org/10.1115/IMECE2011-64147).

NO to NO₂ Catalysis on N-Doped Activated Carbons

Sousa, Pereira and Figueiredo, Catalytic oxidation of NO to NO₂ on N-doped activated carbons; *Catalysis Today* (Nov. 2011) 176 (1) pp.383-387, [doi: 10.1016/j.cattod.2010.11.040](https://doi.org/10.1016/j.cattod.2010.11.040).

Climate Change, CO₂ and Emissions

Emissions Reduction Potential of Combustion Engine

Berggren and Magnusson, Reducing automotive emissions - The potentials of combustion engine technologies and the power of policy, *Energy Policy* (2011) 11 025, [doi: 10.1016/j.enpol.2011.11.025](https://doi.org/10.1016/j.enpol.2011.11.025).

Black Carbon and Aerosols intensify Cyclones

Evan, Kossin, Chung, Ramanathan, Arabian Sea tropical cyclones intensified by emissions of black carbon and other aerosols; *Nature* (2011) 479 pp.94–97, www.nature.com/nature/journal/v479/n7371.

Short-Term Break in the French Love for Diesel?

Hivert, Short-term break in the French love for diesel?, *Energy Policy* (2011) 11 014, [doi: 10.1016/j.enpol.2011.11.014](https://doi.org/10.1016/j.enpol.2011.11.014).

Future Transport Fuels will need Numerous Sources

Murphy and Thamsiriroj, What will fuel transport systems of the future?; *Materials today* (2011) 14 (11) pp.518-524 in www.materialstoday.com.

Life-Cycle Analysis of Energy Supply Infrastructure for conventional and Electric Vehicles

Lucas, Silva, and Neto, Life cycle analysis of energy supply infrastructure for conventional and electric vehicles, *Energy Policy* (2011) 11 015, [doi: 10.1016/j.enpol.2011.11.015](https://doi.org/10.1016/j.enpol.2011.11.015).

Electric Vehicles could be Cost Competitive by 2030

Pasaoglu, Honselaar and Thiel (DG-JRC), Potential vehicle fleet CO₂ reductions and cost implications for various vehicle technology deployment scenarios in Europe; *Energy Policy* (2012) 40 pp.401-421, [doi: 10.1016/j.enpol.2011.10.025](https://doi.org/10.1016/j.enpol.2011.10.025).

Well-to-Wheel Assessment of Algae-Derived Biodiesel and Bioelectricity

Clarens et al., Environmental impacts of algae-derived biodiesel and bioelectricity for transportation. *Environmental Science & Technology*, (2011) 45 (17), pp. 7554–7560, [doi: 10.1021/es200760n](https://doi.org/10.1021/es200760n).

FORTHCOMING CONFERENCES

European Automotive Forum 2012 'Individual Mobility in EU Cities by 2030'

12 January 2012, Brussels, Belgium

Details at www.eaf2012.eu

EAF2012 will tackle the themes of energy, urban infrastructures, new vehicles & mobility concepts and the connection between them through ITS. These sessions will be followed by a political debate on "What should be the future of individual mobility in European cities?"

10th International CTI Forum "Exhaust Systems"

23-25 January 2012, Stuttgart, Germany

Details at www.exhaustsystems-forum.com

Topics of the conference include international emissions legislation with focus on CO₂, emissions control from advanced Diesel combustion, SCR development, Diesel Particulate Filter, current requirements for EGR systems, exhaust gas sensors.

ACEM (Motorcycle Industry Association) Annual Conference

24 January 2012, Brussels, Belgium

Details at

<http://events.r20.constantcontact.com/register/event?llr=ny4uoriab&oeidk=a07e5ce5ma2e73cc99a&oseq=a01s4gvaqezhg>

This year's topic will be "Innovating our mobility. L-category vehicles: smaller, lighter, more specialised".

Diesel Emissions Conference Russia 2012

7-8 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 NO_x 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.

International CTI Seminar "Basics of SCR Systems"

19-20 March 2012, Stuttgart, Germany

17-18 April 2012, Düsseldorf, Germany

Details at www.car-training-institute.com/basics-scr

The seminar will provide basic knowledge about current SCR systems and the respective exhaust gas sensors by sharing practical examples. Applications for passenger cars will be discussed as well as for heavy-duty trucks and large engines.

4th International Congress Advanced Downsizing & Turbocharging Concepts

26-28 March 2012, Stuttgart, Germany

Details at www.charging-downsizing-concepts.com/Event.aspx?id=662514

The conference will address future concepts for boosting small gasoline and diesel engines, approaches to improve low end torque to ensure efficient performance of the engine, potential of two stage turbo-charging including limitations and interaction, concepts to application of turbo-charging systems in HEVs, and potentials of new EGR approaches and their success of energy recuperation.

Diesel Emissions Conference & AdBlue[®] Forum Asia 2012

27-29 March 2012, Beijing, China

Details 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 NO_x & PM reduction technologies such as SCR, EGR, DOC and DPF, and CO₂ 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

The conference includes expanded sessions on energy efficiency and emissions management and a new stream on alternative power sources.

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

33. International Vienna Motorsymposium

26-27 April 2012, Vienna, Austria

Details at www.oevk.at

Latest results in worldwide engine and powertrain development, future legislation, fuels and components, drive train electrification, hybrid technology, CO₂ reduction, exhaust emissions control.

i-SUP2012 Innovation for Sustainable Production 2012

6-9 May 2012, Bruges, Belgium

Details at www.i-sup2012.org

The themes of the parallel sessions during i-SUP2012 will be: Urban Development; Rural development; Transport & Mobility; Energy; Materials; Chemistry and Products.

International CTI Conference “DPF and Combined Systems”

8-9 May 2012, Stuttgart, Germany

Details will be at <http://car-training-institute.com>

International CTI Conference “EGR Systems and NOx Reduction Concepts”

9-10 May 2012, Stuttgart, Germany

Details will be at <http://car-training-institute.com>

5th AVL Large Engine Techdays

9-10 May 2012, Graz, Austria

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

The 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>

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.

Motorship Propulsion & Emissions Conference 2012

23-24 May 2012, Hamburg, Germany

Details at www.propulsionconference.com

The conference will provide ship operators with solutions and answers to ensure their fleets comply with the 0.1% sulfur limits coming into force in Emission Control Areas (ECAs) from 2015. Topics include LNG engine developments and dealing with future NO_x, PM and CO₂ emissions limitations for existing fleets. For new builds, topics include holistic approaches to designing the ultra efficient ships of the future.

Deadline for abstracts is 21 January 2012

Diesel Emissions Conference & AdBlue® Forum Europe 2012

30 May-1 June 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 will provide insight into the latest developments in CO₂ technologies, such as alternative fuels, bio-diesel and hybrid systems, and NO_x technologies including SCR, EGR, DOC & DPF.

SIA International Conference: Diesel Powertrain

5-6 June 2012, Rouen, France

Details at

www.sia.fr/evenement_detail_diesel_powertrain_welcome_1107.htm

Topics to be addressed include future Diesel powertrains, future emissions regulations including Euro 7 and WLTP, advanced combustion systems, thermal management, exhaust aftertreatments, 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 NO_x-emissions on the basis of exhaust gas aftertreatment. Attention will also focus on harnessing synergies to cut fuel consumption by introducing NO_x-reducing technologies.

16th ETH Conference on Combustion Generated Nanoparticles

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

Details will be at www.lav.ethz.ch/nanoparticle_conf

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 CO₂ 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>

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

5th International Environmentally Friendly Vehicle Conference

10-12 September 2012, Baltimore, Maryland, USA

Details at www.efv2012.com

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 emissions control strategies, engine and aftertreatment systems and integration and the future direction of the industry.

24th AVL Conference: Engine & Environment

13-14 September 2012, Graz, Austria

Details at www.avl.com/engine_environment

The topic for the 2012 conference is "95-70-50 g CO₂/km – Evolution or Revolution?"

Diesel Emissions Conference India 2012

18-20 September 2012, India

Details will be at

www.integer-research.com/conferences/dec-india/2012

21st Aachen Colloquium Automobile and Engine Technology

8-10 October 2012, Aachen, Germany

Details at www.aachen-colloquium.com

The latest automobile and engine technology trends and developments will be discussed, including innovative chassis, steering and brake systems, wheels and tires, new vehicle and mobility concepts,

electric and hybrid drives, range extender, battery management and safety systems, powertrain and transmission, commercial vehicles, energy and thermal management, automotive strategy concepts, new engines and engine concepts, passenger car gasoline and diesel engines, commercial vehicle, industrial and large bore engines, efficiency and emissions concepts, injection technology, combustion processes and exhaust aftertreatment, downsizing: turbocharging & supercharging, design and simulation (CAE), engine acoustics, NVH, and alternative fuels.

Deadline for abstracts is 15 February 2012

Diesel Emissions Conference USA 2012

16-18 October 2012, USA

Details will be at

www.integer-research.com/conferences/dec-usa/2012

2012 Eucar conference

6-7 November 2012, Brussels, Belgium

34th FISITA World Automotive Congress

27-30 November 2012, Beijing, China

Details at www.fisita2012.com

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.

4th CLEPA Aftermarket Conference

29 November 2012, Brussels, Belgium

Symposium on International Automotive Technology (SIAT 2013)

16-19 January 2013, India

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.